

### **III.N Air Quality**

#### **1. Introduction and Principal Conclusions**

The analyses conducted in this section was prepared by Mafofka Environmental Consulting LLC.

With the proposed mitigation measures for the project's construction phase, the project would not pose any significant adverse air impacts. Mitigation measures for the project's construction phase will ensure that there is no violation of the National Ambient Air Quality Standards (NAAQS)

Traffic generated by the proposed project would not result in an exceedance of NYSDOT's screening criteria for mobile source air quality impacts. The operation of the logistics center buildings themselves will not pose any significant air quality impacts. Therefore, the proposed project would not have any significant adverse air quality impacts.

#### **2. Existing Conditions**

As required by the Clean Air Act, primary and secondary NAAQS have been established for six major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone, respirable particulate matter (PM, both PM<sub>2.5</sub> and PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and lead. The primary standards represent levels that are requisite to protect the public health. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment.

New York State is divided into nine Air Quality Control Regions (AQCRs) based on geographic location. The NYSDEC has a network of ambient air monitoring stations

located in each of the AQCRs which evaluate the attainment status for each region with respect to the NAAQSs.

The Town of Southeast is located in Putnam County within NYSDEC AQCR 3. The Federal criteria pollutants (parameters) currently monitored within the region include: sulfur dioxide, ozone, inhalable particulates (PM<sub>2.5</sub>), and lead, in addition to several non-criteria pollutants. In addition, CO, PM<sub>10</sub>, and NO<sub>2</sub> are monitored in Region 2.

Although there is no available ambient air quality monitoring data for the Town of Southeast, regional State monitoring data is available to characterize the site. As shown in Table III.N-1, ambient air quality now meets State and Federal AAQSs for all parameters.

**Table III.N-1  
Representative Monitored Ambient Air Quality Data (2016)**

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	Botanical Garden (Pfizer Lab), Bronx	ppm	8-hour	1.1	9
			1-hour	1.86	35
SO <sub>2</sub>	Mt. Ninham, Putnam	ppb	Annual	0.23	30
			1-hour	4.7 <sup>(1)</sup>	75
PM <sub>10</sub>	IS 52, Bronx	µg/m <sup>3</sup>	24-hour	37	150
PM <sub>2.5</sub>	Newburgh, Orange	µg/m <sup>3</sup>	Annual	6.9 <sup>(2)</sup>	12
			24-hour	17.5 <sup>(2)</sup>	35
NO <sub>2</sub>	Botanical Garden (Pfizer Lab), Bronx	µg/m <sup>3</sup>	Annual	30	100
			1-hour	109 <sup>(3)</sup>	188
Lead	Wallkill, Orange	µg/m <sup>3</sup>	3-month	0.022 <sup>(4)</sup>	0.15
Ozone	Mt. Ninham, Putnam	ppm	8-hour	0.069 <sup>(5)</sup>	0.070

**Notes:**

+ Indicated values exceeding the NAAQS.

(1) The 1-hour value is based on a three-year average (2014-2016) of the 99th percentile of daily maximum 1-hour average concentrations. EPA replaced the 24-hr and the annual standards with the 1-hour standard.

(2) Annual value is based on a three-year average (2014-2016) of annual concentrations. The 24-hour value is based on the 3-year average of the 98th percentile of 24-hour average concentrations.

(3) The 1-hour value is based on a three-year average (2014-2016) of the 98th percentile of daily maximum 1-hour average concentrations.

(4) Based on the highest quarterly average concentration measured in 2016.

(5) Based on the 3-year average (2014-2016) of the 4th highest daily maximum 8-hour average concentrations.

**Sources:**  
New York State Air Quality Report Ambient Air Monitoring System, DEC, 2016

### 3. Future Without the Proposed Project

In the Future Without the proposed project, air quality conditions on and adjacent to the Project Site are anticipated to remain similar to the existing conditions. The indirect effect on air quality from the mobile sources associated with the pending and approved projects is not anticipated to significantly affect air quality conditions. As discussed in Chapter III.B, “Traffic”, traffic conditions in the No Build scenario, and their resultant effects on air quality—including both background traffic volume growth as well as traffic volumes generated by the pending and approved projects—have been assessed and were therefore included in NYSDOT’s mobile source screening procedures, and determined not to be significant.

#### 4. **Anticipated Impacts**

##### a. **Construction**

There are three potential sources of air pollutant vehicular emissions during construction: (1) vehicular emissions from cars and other light duty vehicles used by the construction during commutation; (2) trucks making deliveries to the site; and (3) heavy duty equipment operating on-site during construction. The volumes of cars and trucks (including heavy equipment) will be less than that during the operation of the facility. Thus, any pollutant emissions during construction, as explained in the Construction Section III.M.4, will be de minimis, and not cause any violation of the NAAQS.

In addition, construction is a source of dust emissions that may have temporary impact on local air quality. 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<sup>1</sup>).

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).

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<sup>1</sup>Air Pollutant Emission Factors (AP-42).

In addition to the on-site activities, additional emissions are possible if material is 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 will be present during all construction operations (EPA, 2009).

During the construction process a variety of mitigation measures will be employed to minimize the potential of fugitive dust. They include:

- Following all measures in the Soil Erosion and Sediment Control Plan will assist in minimizing soil erosion by wind, as well as water.
- Any disturbed earth will be wet down with water, as necessary, to control dust.
- After construction activities, all disturbed areas will be covered and/or vegetated to provide for dust control on the site.
- All trucks carrying fill or other unconsolidated materials shall be covered with tarps. This shall help ensure that debris and dust will be fully contained during transport.
- All soil or dirt stock piles shall be enclosed with silt fencing when not in use, and during weekends.
- A stabilized construction entrance shall be established at the entrance to the site at Pugsley Road and at the entry to Barrett Road from Pugsley Road. Tires and truck bodies, as necessary, will be washed to minimize tracked mud and dust.

Implementation of these measures ensures that there will be no violations of the NAAQS.

**b. Operation**

There are three general types of air pollutant emissions during operation of the facility: (1) emissions from vehicles traveling to and from the site; (2) emissions from vehicles operating on-site; and (3) on-site emissions from heating and cooling the buildings.

*Emissions from Off-Site Vehicle Operations*

The primary pollutants associated with vehicular exhaust emissions are nitrogen dioxide (NO<sub>2</sub>), hydrocarbons (HC), and carbon monoxide (CO). Since short-term exposure to elevated CO concentrations can have acute health impacts, State and Federal Ambient Air Quality Standards have been developed for ambient CO concentrations requisite to protect the health and welfare of the general public with an adequate margin of safety. The primary concern with HC and NO<sub>2</sub> is their role in the photochemical reactions that lead to the formation of secondary pollutants known as ozone (O<sub>3</sub>) and “smog”, which are known lung and eye irritants. Since ozone and smog formation is a slow process which occurs outside the primary impact area of the project, these pollutants are reviewed only on a regional (mesoscale) basis, not a local (microscale) basis.

The principal pollutant associated with vehicular emissions 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.

A traffic analysis (see Chapter III.B) 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.

Under the current NYSDOT guidelines (NYSDOT Environmental Procedures Manual, Chapter 1.A <https://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm/repository/epmair01.pdf>), the following hierarchical criteria are used to determine whether an air quality analysis (site specific CO modeling) is required for a proposed major development:

**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, nursing homes, parks and residences that are close enough to any of the studied intersections that they require special screening.

**Capture Screening Criteria**

- A 10% or more reduction in source-receptor distance.
  
- A 10% or more increase in traffic volume.
  
- A 10% or more increase in vehicle emissions.
  
- An increase in the number of queued lanes.
  
- A 20% reduction in speed.

There were seven intersections studied in the traffic analysis:

1. US 6 & NY 312/NY 312 Extension
2. NY 312 & Prospect Hill Road
3. NY 312 & Pugsley Road
4. NY 312 & Caremount Driveway

5. NY 312 & Interstate 84 Eastbound Ramps with Independent Way
6. NY 312 & Interstate 84 Westbound Ramps
7. NY 312 & International Boulevard

Intersections 2, 3, and 4 screened out because they are unsignalized intersections. Intersections 6 and 7 screen out because they are Level of Service C or better. Intersection 1 screens out because the increase in volume from No Build to Build is only 1%. At intersection 5, the volume increase during the PM and Saturday peak hours is only 1%. While the AM increase from No Build to Build is 11%, since the Build AM peak hour volume is only 82% of the No Build Saturday peak hour volume, intersection 5 also screens out.

The operation of the logistics center buildings themselves will not pose any significant air quality impacts.

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

#### *Emissions from On-site Vehicle Operations*

The vehicles operating on-site have been included in the traffic projections on the area roadways addressed above. Since the vehicles travel only a few hundred feet on-site rather than the long distances off-site, the emissions will be less by several orders of magnitude. In addition, Title 6 NYCRR, Subpart 217-3 prohibits heavy-duty vehicles, including diesel trucks and buses, from idling for more than five minutes at a time. Thus, the project will not cause any adverse air quality impacts and will not result in any violations of the National or State AAQAs.

#### *Emissions from On-Site Heating and Cooling of the Buildings*

The buildings will be air conditioned by electricity that is generated off-site. Thus,



there will be no on-site emissions.

The buildings will be heated by natural gas. Natural gas consists of a high percentage of methane (generally above 85 percent) and varying amounts of ethane, propane, butane, and inert compounds (typically nitrogen, carbon dioxide, and helium). The emissions from natural gas-fired boilers and furnaces include nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM). (EPA, 2009) However, natural gas has less pollutant emissions than other fuel oil options. The emissions from the on-site boilers/heaters will be a de minimis contributor to regional emissions and will not cause any adverse air quality impacts and will not result in any violations of the National or State AAQAs.

## **5. Mitigation Measures**

### **a. Construction**

Mitigation has been incorporated into the construction plan. No other measures are required.

### **b. Operation**

No measures to mitigate air quality impacts during operation of the facility are required.