AIR QUALITY ANALYSIS AND IMPACT REVIEW

PREPARED FOR:
JANE E. SAMUELSON, PE
ENGINEERING & SURVEYING PROPERTIES, PC
71 CLINTON STREET, MONTGOMERY, NEW YORK 12549

PROPOSED GOSHEN HOSPITALITY
TOWN OF GOSHEN
GOSHEN, NEW YORK

JUNE 2019

B. LAING ASSOCIATES
ENVIRONMENTAL CONSULTING
www.blaingassociates.com
103 Fort Salonga Road - Suite 5 Fort Salonga, NY 11768
(631) 261-7170, Fax: (631) 261-7454

AIR QUALITY ANALYSIS AND IMPACT REVIEW

PROPOSED GOSHEN HOSPITALITY
TOWN OF GOSHEN
GOSHEN, NEW YORK

JUNE 2019

Table of Contents

TABLES AND FIGURES

Background

B. Laing Associates, Inc. is an environmental consulting firm providing air quality analysis services for the proposed Goshen Hospitality (herein referred to as the Project) located in the Town of Goshen, Orange County, New York. The Project Site is identified as Section 10, Block 1, Lots 56.2 and 56.4 and encompasses approximately 63.31 acres or 2,757,783.60 square feet. The site is located within zoning district CO – Commercial/Office mixed use. Lot 56.2 is approximately 49.8681 acres and is located along Cheechunk Road northwest of 6 ½ Station Road and west of NYS Route 17. The Project is bounded by the Orange County Medical Examiner/Emergency Management Office and the Orange County Correctional Facility to the southwest and 6 ½ Station Road to the southeast. Residential homes exist to the northwest of the Project site. Lot 56.4 is approximately 13.448 acres and is located southeast of Cheechunk Road. This lot consists of NYSDEC Regulated Freshwater Wetland GO-33.

Proposed Action

The property at Lot 56.2 is proposed for development. The Project will consist of three (3) hotels with approximately 345 rooms, approximately 20,000 square feet of restaurant space, and one (1) two story office building totaling approximately 20,000 square feet. Access to the development is proposed via two driveway connections to Cheechunk Road. The first site access is located approximately 1,650 feet northwest of the Cheechunk Road and 6 ½ Station Road intersection. The second site access is located approximately 750 feet northwest of the Cheechunk Road and 6 ½ Station Road intersection.

The purpose of this analysis is to evaluate temporary or permanent impacts to air quality that may occur as a result of the Project. Mitigation and assessment of significant air quality impacts will be addressed accordingly.

General Air Quality Characteristics

Existing Conditions

Climate

The climate in Goshen, New York is warm during the summer when average temperatures tend to be in the 80's and very cold during winter when average temperatures tend to be in the 30's. The National Oceanic and Atmospheric Administration (NOAA) record this current, local climate in Montgomery, Orange County Airport, New York. The warmest month of the year is July with high average temperature of 84 degrees Fahrenheit, while the coldest month of the year is January with a high average of temperature 35 degrees Fahrenheit. Temperature variations between night and day tend to be fairly consistent during summer season with a difference that can reach 21-22 degrees Fahrenheit, and comparable in winter months with an average difference of approximately 15-17 degrees Fahrenheit. The annual average precipitation in Goshen is around 43.94 inches. This locale receives about 39 inches of snowfall per year on average.

Ambient Air Quality

Existing air quality is good for the Project site. The median air quality index (AQI) in 2018 for Orange County, New York was 36.[1] An AQI between 0 and 50 is satisfactory and air pollution poses little or no risk. The median AQI for the start of 2019 is 38.[2] Existing air quality standards for New York State are found in the State Ambient Air Quality Standards (SAAQS) which largely mimic the National Ambient Air Quality Standards (NAAQS). Possible relevant pollutants for mobile sources are particulate matter (PM), ozone (O_3) and carbon monoxide (CO). Carbon monoxide is the dominant pollutant and so, it is modeled as provided in NYSDOT's The Environmental Manual (TEM).

Table 1 depicts the NAAQS.

NYSDEC monitors air quality throughout the state. There are currently 58 active air monitoring sites in New York State. Parameters observed vary from air monitoring sites. Historically, eight (8) monitoring sites are located within NYSDEC Region 3 with four (4) of those monitoring sites in Orange County. The closest monitoring site to the Project is Wallkill Ballard (station 3566-02) which is located at Ballard Road, Middletown New York. Parameters are described below:

Carbon Monoxide (CO) is not measured at station 3566-02 or in NYSDEC Region 3. The closest monitoring station, to the north, is in Loudonville, New York.[3] The highest one hour value in 2017 was 0.30 ppm versus a standard of 35 ppm. The highest running eight hour value was 0.20 ppm versus a standard of 9.0 ppm. The closest monitoring station, to the south, is in Bronx, New York at the Botanical Gardens (Pfizer Lab)[4]. The highest one hour value in 2017 was 0.40 ppm versus a standard of 35 ppm. The highest running eight hour value was 0.30 ppm versus a standard of 9.0 ppm.

Lead (Pb) is monitored at station 3566-02 at Wallkill Wakefern Food located at 260 Ballard Road, Middletown, New York. In 2017, the maximum 24-hour concentration of lead was recorded at 0.03 ug/m^3 at station 3566-02. The three month rolling average of lead in 2017 equaled 0.01 ug/m^3. This three month rolling average was well below the 0.15 ug/m^3 maximum allowed.

Nitrogen dioxide (NO_2) is not measured at station 3566-02. Monitoring sites are located in NYSDEC Regions 2, 8 and 9. The closest monitoring station is at the Botanical Gardens (Pfizer Lab) in the Bronx, New York. The annual value in 2017 was 14.91 ppb versus a standard of 53 ppb.

[1] According to the United States Environmental Protection Agency (EPA) Outdoor Air Quality Data, Air Quality Index Report.
[2] 2019 statistics are not final until May 20, 2020.
[3] Loudonville, New York is approximately 111 miles north of Project site.
[4] Bronx, New York monitoring station is approximately 65 miles south of Project site.

TABLE 1
National Ambient Air Quality Standards*

POLLUTANT		PRIMARY/ SECONDARY	AVERAGING TIME	LEVEL	FORM
CARBON MONOXIDE		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
LEAD		primary and secondary	Rolling 3-month average	0.15 $\mu g/m^3$ (1)	Not to be exceeded
NITROGEN DIOXIDE		primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
OZONE		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
PARTICLE POLLUTION	$PM_{2.5}$	primary	Annual	12 $\mu g/m^3$	annual mean, averaged over 3 years
		secondary	Annual	15 $\mu g/m^3$	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
SULFUR DIOXIDE		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

*http://www.dec.ny.gov/chemical/8542.html

Ozone is measured at station 3527-01 located at Valley Central High School in Orange County. Ozone is formed from the long-term transport of hydrocarbon emissions from the mid-western United States. Prevailing winds move these emissions easterly which affects the air quality in the northeast. As a result, it is the only pollutant that occasionally exceeds the standard in most NYSDEC Regions state-wide. The average 3 year annual mean for this pollutant was 0.065 parts per million (ppm) for the years 2015 to 2017. The first highest maximum daily eight hour average was 0.064 ppm in 2017. Thus, the recorded value was below the 0.070 ppm standard.

The closest air monitoring station that screens Particulate matter (PM 2.5) is measured in Newburgh, New York[5] at station 3502-04. The 3502-04 station had an annual mean standard for last three (3) years (2015-2017) of 6.2ug/m^3. This annual mean was well below the 12 ug/m^3 standard. The 3502-04 station had an average of 98th percentile for last 3 years 16.2 ug/m^3. This average was well below the 35 ug/m^3 standard.

Sulfur dioxide (SO_2) is monitored at the Mt Ninham, New York station.[6] In 2017, the annual average was recorded at 0.23 parts per billion (ppb) versus an annual standard not to exceed 30 ppb and the one hour average for the last three years (2015-2017) have peaked at 4.7 ppb versus a standard of 75 ppb.

[5] Newburgh, New York is approximately 25 miles east of the Project site.
[6] Mt Nimham, New York approximately 50 miles northeast of Project site.

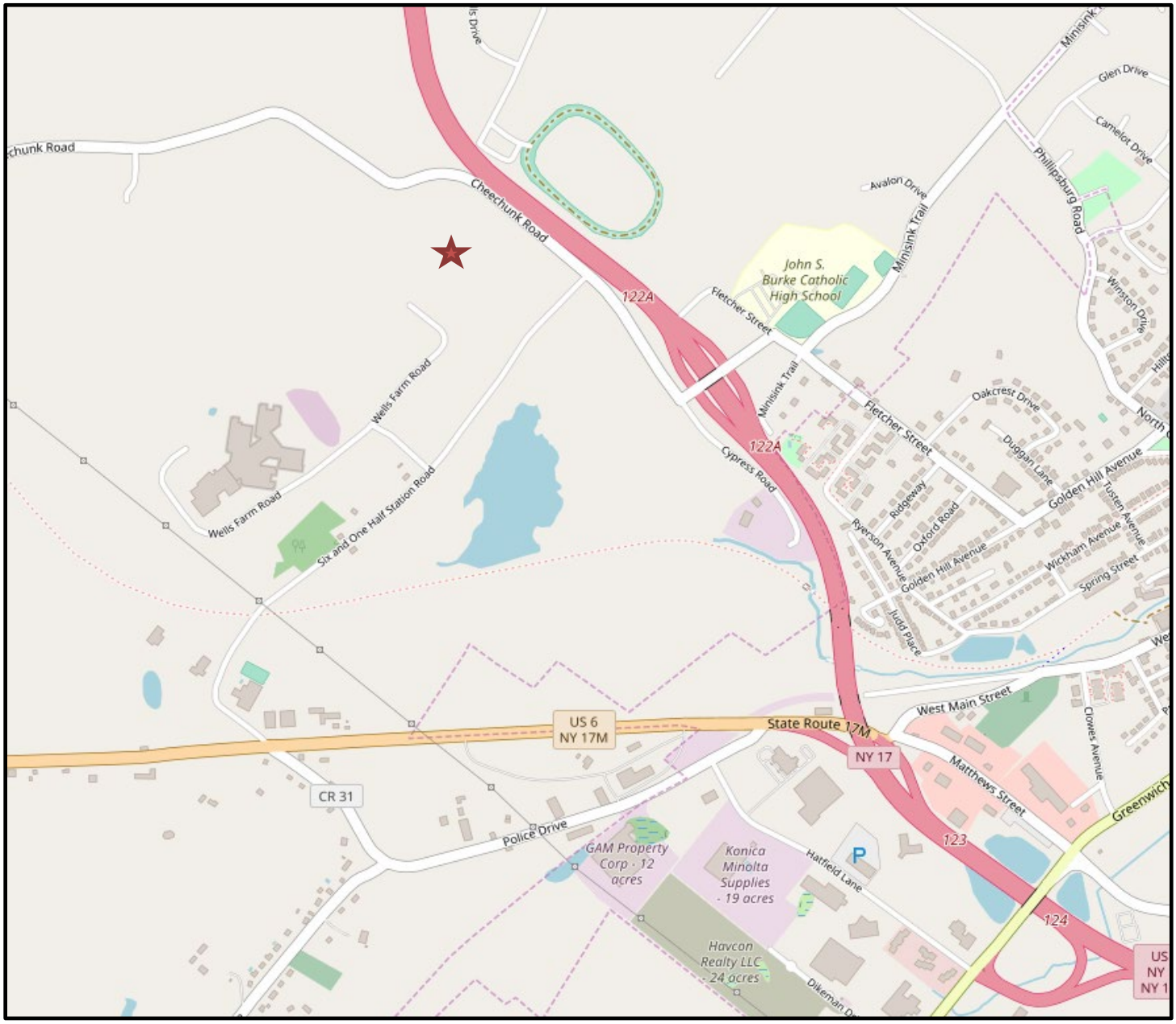


FIGURE 1

SITE LOCATION MAP

GOSHEN, ORANGE COUNTY, NEW YORK

(SOURCE: OPEN STREET MAP)

Proposed Action Analysis

Mobile Screening:

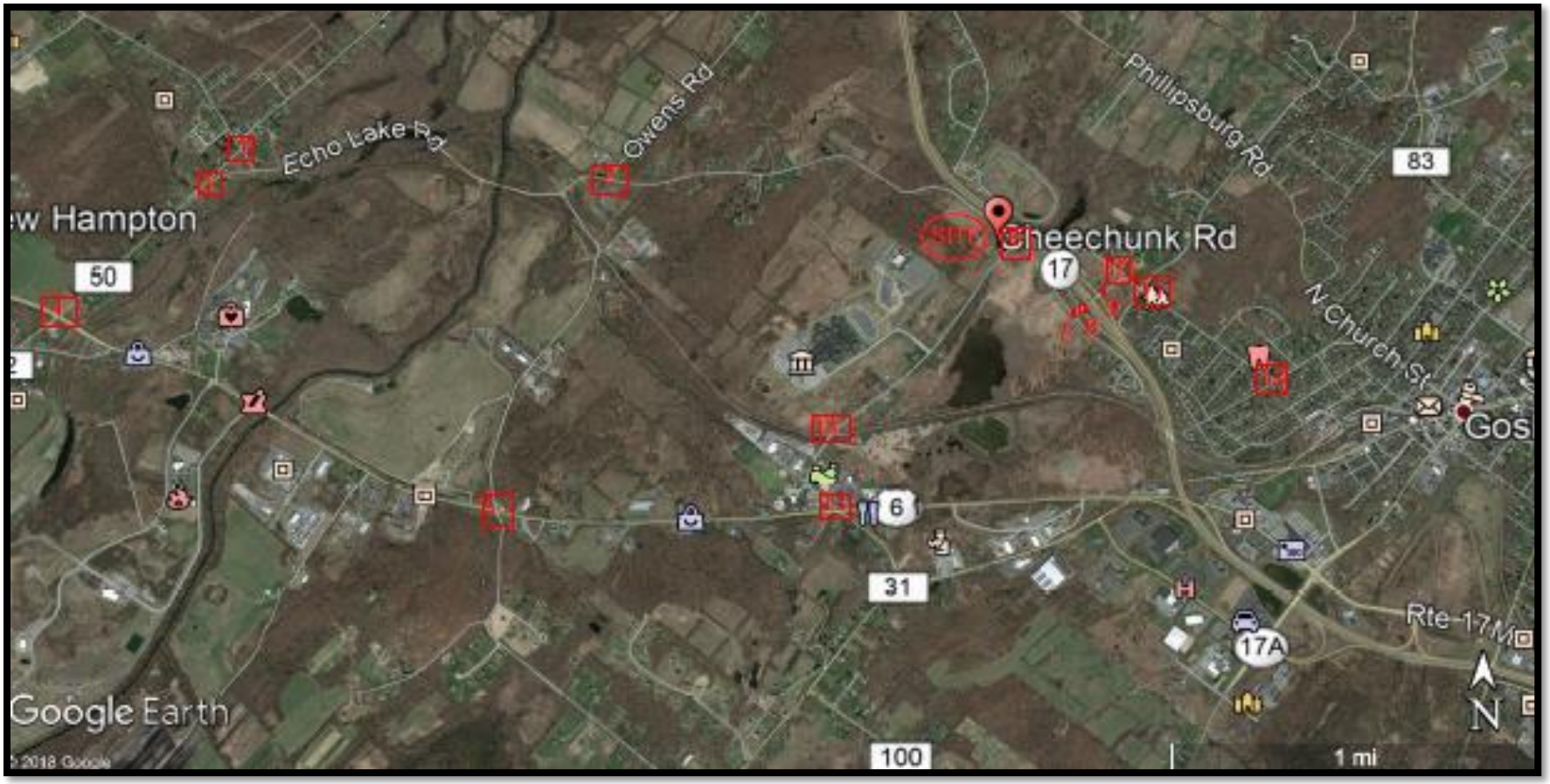
The first level of "air quality screening" as provided in NYSDOT's The Environmental Manual (TEM) is essentially a traffic analysis consistent with the Highway Capacity Manual (HCM). This Traffic Impact Study was provided by Maser Consulting P.A. dated April 17, 2019 and is attached to the rear of this report. The TEM provides guidance on determination for a required microscale analysis which is based on the consideration of several standards.

Per TEM I-1 Level of Service (LOS) Screening, intersections potentially impacted by the Project must be screened for overall Level of Service (LOS). If the LOS is A, B, or C, no further analyses are required. If any signalized intersections have LOS predicted D, E, or F, significant vehicle queuing may occur and further analysis may be required for up to the three worst intersections. In this case, traffic data was collected from NYSDOT, and through field data collection conducted by Maser Consulting P.A. Fourteen study area intersections, as listed in Table 2, were analyzed by the engineer. The traffic data included three (3) signalized intersections and eleven (11) unsignalized intersections. LOS was analyzed in the existing (2018), no build (2025) and build phases (2025) in the peak weekday AM, PM and peak hour Saturday and Sunday phase. The build analyses included two additional, unsignalized intersection at the site's primary entrances along Cheechunk Road. Figure 2 depicts the analyzed intersections in aerial view.

Sensitive receptors (i.e., schools, hospitals, etc.) were located during this air quality analysis for potential impact. In microscale dispersion modeling, link length and queues for intersections are set between 1,000 and 1,200 foot receptor analysis for free flow links. This is required by The Environmental Manual (TEM). One sensitive receptor was identified within this link length for the intersections involving NYS Route 17 Overpass and Fletcher Street. John S. Burke Catholic High School is located at 80 Fletcher Street in Goshen. See Figure 3 for receptor location. All additional sensitive receptors observed were outside this required distance. The one-mile radius is also mapped in Figure 3. One sensitive receptor exists within a one mile radius of the center point of the subject site. The Inspire School is located at 2 Fletcher Street which is approximately 0.95 miles southeast of the proposed Project. The ambient air quality standards cited above were set to protect the public health and welfare, including sensitive individuals. Thus, in the end, all such receptors are subject to the same standards. The New York State Department of Environmental Conservation (NYSDEC) regional office will review the air quality analysis during the State Environmental Quality Review (SEQR) process

TABLE 2 ANALYZED INTERSECTIONS		
INTERSECTION NUMBER AND DESCRIPTION		TYPE OF CONTROL
`	C.R. 50/McVeigh Road	Unsignalized
2	Cheechunk Road and Owens Road	Unsignalized
3	C.R. 50 and Echo Lake Road	Unsignalized
4	NYS Route 17M and C.R. 50/C.R. 12	Signalized
5	NYS Route 17M and Hartley Road	Signalized
6	6 ½ Station Road and Cheechunk Road	Unsignalized
7	Fletcher Street (NYS 17 Overpass) and Cheechunk Road/Cypress Road	Unsignalized
8	Fletcher Street (NYS 17 Overpass) and NYS Route 17 EB Ramp	Unsignalized
9	Fletcher Street (NYS 17 Overpass) and NYS RT 17 WB ramp	Unsignalized
10	Fletcher Street and Fletcher Street (NYS 17 Overpass)	Unsignalized
11	Fletcher Street and Old Minisink Trail	Unsignalized
12	Fletcher Street and Golden Hill Avenue	Unsignalized
13	NYS Route 17M and 6 ½ Station Road/Maple Avenue	Signalized
14	6 ½ Station Road and Orange County Heritage Trail	Unsignalized
15	Cheechunk Road and Western Site Acces (Build Only)	Unsignalized
16	Cheechunk Road and Eastern Site Access (Build Only)	Unsignalized

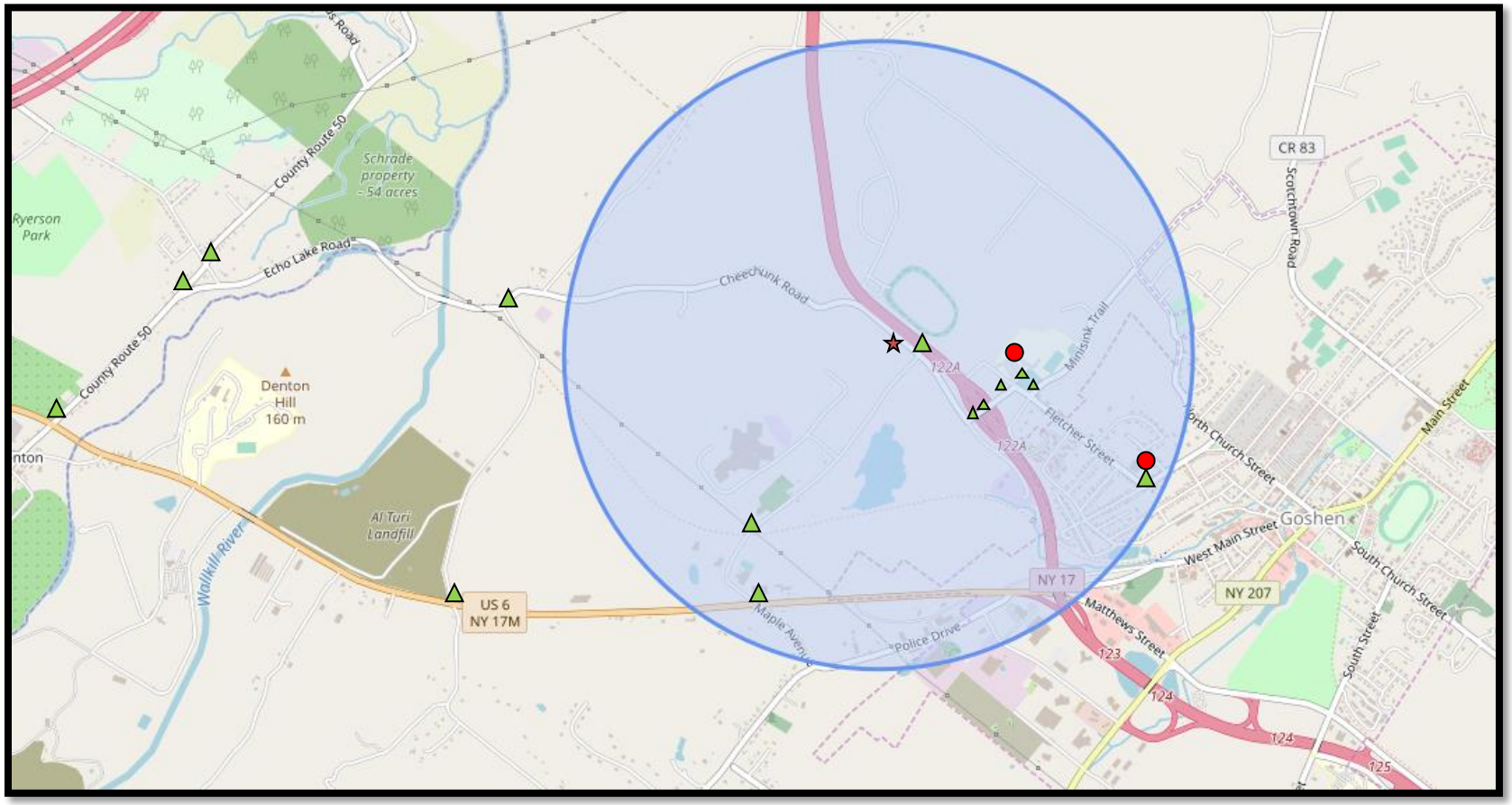
FIGURE 2



GOSHEN, ORANGE COUNTY, NEW YORK
MAPPED ANALYZED INTERSECTIONS
(PER MASER CONSULTING P.A. TRAFFIC IMPACT STUDY, APRIL 17, 2019)

(SOURCE: GOOGLE EARTH)

FIGURE 3



▲ INTERSECTION
★ SITE
● SENSITIVE RECEPTOR

GOSHEN, ORANGE COUNTY, NEW YORK

ONE MILE RADIUS AERIAL MAP

(SOURCE: OPEN STREET MAPS)

AM Peak Scenario

Three (3) signalized intersections (NYS Route 17M and C.R.50/C.R.12, NYS Route 17M and Hartley Road, and NYS Route 17M and 6 ½ Station Road/Maple Avenue) were analyzed for the first level of screening in both the peak AM, PM and weekend scenarios in the Traffic Impact Report. In the AM condition, the findings of the capacity analysis determined that the overall LOS for all three (3) intersections in the existing condition achieves LOS of A, B or C. This is also true for the majority of the unsignalized intersections in the existing condition where analyzed for the overall condition. All three (3) intersections, also achieve LOS A, B, C in the 2025 Build condition as a result of the project. Thus, no further air quality analysis would be required for those intersections (at LOS A, B or C as cited above).

Mitigative measures were evaluated during the traffic capacity analysis in 2025 build scenario. The intersection of NYS Route 17M and Hartley Road will incorporate signal timing modifications. This will reduce the delay times which will result in improved air quality environment, in regards to mobile emissions. Thus, with this mitigation, no further air quality analysis would be required for this intersection as it would result in LOS C.

The capacity analysis demonstrated the majority of unsignalized intersections at LOS A, B or C in the studied scenarios for peak AM. However, the intersection of Fletcher Street (NYS Route 17 overpass) and NYS Route 17 EB on/off ramp depicted existing and proposed LOS of varying degrees. An overall LOS was analyzed for the intersection with the incorporation of signalization. In the 2025 Build scenario, this intersection will result in a LOS C with the proposed signalization. Similar to the above, the intersection of Fletcher Street (NYS Route 17 overpass) and NYS Route 17 WB on/off ramp was also analyzed for signalization which resulted in an overall LOS B for the intersection. Thus, with this mitigation, no further air quality analysis would be required for these intersections as they will perform at LOS B or C.

PM Peak Scenario

Three (3) signalized intersections (NYS Route 17M and C.R.50/C.R.12, NYS Route 17M and Hartley Road, and NYS Route 17M and 6 ½ Station Road/Maple Avenue) were analyzed for the first level of screening in the peak PM scenario in the Traffic Impact Study prepared by Maser Consulting P.A. In the PM phase, the findings of the capacity analysis determined that the overall LOS for all three (3) intersections in the existing condition achieves LOS of A, B or C. This is also true for the majority of the unsignalized intersections in the existing condition where analyzed for the overall condition. The intersection of NYS Route 17M and Hartley Road achieves LOS A, B, C in both the 2025 No Build and Build condition as a result of the project. Thus, no further air quality analysis would be required for this intersection (at LOS A, B or C as cited above).

The intersections of NYS Route 17M and C.R.50/C.R.12 and NYS Route 17M and 6 ½ Station Road/Maple Avenue, resulted in overall LOS of D, E or F in the PM traffic analysis in the 2025 No Build and Build phases. As provided above, mitigative measures were evaluated during the traffic capacity analysis in 2025 future. At the intersection of NYS Route 17M and C.R.50/C.R.12 in the 2025 No Build scenario, a LOS of D is achieved. The same result is achieved in the Build scenario. At the intersection of NYS Route 17M and 6 ½ Station Road/Maple Avenue in the 2025 No Build scenario, a LOS of D is achieved. In the 2025 Build scenario, a LOS of E is achieved.

Mitigative measures were evaluated during the traffic capacity analysis in 2025 Build scenario. The intersection of NYS Route 17M and 6 ½ Station Road/Maple Avenue will incorporate signal timing modifications. This will reduce the delay times (i.e., car idling) which will result in improved air quality environment, in regards to mobile emissions. This applied mitigation will result in LOS of D in the PM 2025 Build Condition. This intersection, although LOS D, should not require microscale analyses as capacity analysis would be similar in the Build and No Build scenario. As a result of maintaining (with signal timing modification) LOS D, no significant Project impacts are anticipated in regards to air quality.

The intersection of NYS Route 17M and C.R.50/C.R.12, although LOS D, E or F, should not require further microscale analyses as capacity analysis would be similar in the Build and No Build scenarios. In summary, the overall LOS for the intersection in 2018 is C and will be LOS D if the project is built or not built in 2025. Thus, the LOS level will not decrease as a result of the Project and will not degrade specifically as a result of the Project build-out.

The capacity analysis demonstrated the majority of unsignalized intersections at LOS A, B or C in the studied scenarios for peak PM. However, the intersection of C.R. 50 and McVeigh Road depicted existing and proposed LOS of varying degrees. An overall LOS was analyzed for the intersection with the incorporation with an all-way stop. In the 2025 Build scenario, this intersection will result in a LOS B with the proposed addition of traffic system. In addition, the intersection of Fletcher Street (NYS Route 17 overpass) and NYS Route 17 EB on/off ramp depicted existing and proposed LOS of varying degrees. An overall LOS was analyzed for the intersection with the incorporation of signalization. In the 2025 Build scenario, this intersection will result in a LOS B with the proposed signalization. Similar to the above, the intersection of Fletcher Street (NYS Route 17 overpass) and NYS Route 17 WB on/off ramp was also analyzed for signalization which resulted in an overall LOS B for the intersection. Thus, with this mitigation, no further air quality analysis would be required for these intersections as they would operate at LOS B.

Weekend Peak Scenario

Three (3) signalized intersections (NYS Route 17M and C.R.50/C.R.12, NYS Route 17M and Hartley Road, and NYS Route 17M and 6 ½ Station Road/Maple Avenue) were analyzed for the first level of screening in the peak Saturday and Sunday scenario in the Traffic Impact Study prepared by Maser Consulting P.A. In both phases, the findings of the capacity analysis determined that the overall LOS for all three (3) intersections in the existing condition achieves LOS of A, B or C. This is also true for the unsignalized intersections in the existing and future conditions. Thus, no further air quality analysis would be required for this intersection (at LOS A, B or C as cited above).

As a result of the above traffic findings and proposed mitigation, no significant change in the Level of Service will result from the proposed Project (with mitigation implemented as described above) and queuing times will be reduced in those intersections which had projected increases in congestion prior to mitigation. Thus, further mobile analysis should not be required for the Project as it would not result in a significant air quality impact.

Air Quality Impacts

No significant air quality impacts are anticipated as a result of the Project. The location of Project is located west of NYS Route 17 which is classified as an urban principal arterial expressway by the New York State Department of Transportation (NYSDOT). NYS Route 17 is travelled by numerous cars, trucks and other vehicles. The functional classification per NYSDOT is:

> Serve the major centers of activity of a metropolitan area, the highest traffic volume corridors; carry a high proportion of the total urban area travel on a minimum mileage. The principal arterial system should carry the major portion of trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. Almost all fully and partially controlled access facilities will be part of this functional system.

For parked trucks at the Project Site, Title 6 NYCRR Part/Subpart 217-3 of the New York State Environmental Conservation Law (ECL) prohibits heavy duty vehicles, including diesel trucks and buses, from idling for more than five minutes at a time. Thus, there will be no extended periods of truck idling at the Project Site. This law was enacted to prevent significant air pollution in localized environments. This regulation also prevents excessive noise and reduces fuel use.

No impacts to sensitive receptors are anticipated as a result of the Project. Both John S. Burke Catholic High School and Inspire School are located to the south and east of the site and east of NYS Route 17. Again, as a result of the traffic findings and proposed mitigation, no significant change in the Level of Service will result from the proposed Project.

No significant cumulative impacts to air quality will occur as a result of this Project and other new projects in and around the Town of Goshen. The Traffic Impact Study prepared by Maser Consuting P.A. has taken into account background traffic growth for the projected Build scenario of 2025 in addition to traffic for other specific potential or approved developments in the area. This collective data was estimated and then added to the Projected Traffic Volumes to obtain the Year 2025 No-Build Traffic Volumes.

Climatic inversions are the result of a warm layer of air that rises and traps a layer of cooler air at ground level, usually for a period of a day or days. If this inversion layer persists at the surface for a day or more, it prevents dispersion of pollutants, including vehicle emissions, dust and smoke. Such inversions are typical of areas with mountain valleys or areas clustered up against a mountain range. The local topographical and meteorological characteristics at this site are not conducive to the formations of climatic inversions.

Stationary Emissions

The proposed project buildings will be heated and cooled using natural gas. As such, it will have to registered with New York State Department of Environmental Conservation as a Minor facility pursuant to Title 6 NYCRR Part 201.4. It will be a Minor Facility as its emissions (natural gas combustion results only in CO2, CO and water) will be less than half those mass pollutants per year listed in Title 6 NYCRR Part 201-9.1.

Construction

The short-term use of heavy equipment operations will result in a temporary, minor increase in pollutant emissions from various equipment used in the construction process. However, the major concern during the construction operation will be the control of fugitive dust during site clearing, excavation, demolition grading and blasting operations. Fugitive dust is essentially airborne soil particles caused by heavy equipment operations entraining the freshly exposed soil into the air. To a lesser extent, some fugitive dust emissions will arise from wind erosion of the exposed soils. All construction related air quality impacts will be of relatively short duration. Best construction management practices will be employed to reduce soil erosion and possible sources of fugitive dust. This generally includes the daily use of water/spray trucks in dry periods, anti-tracking pads at construction entrances, street sweeping at the entrances as needed and adherence to a Storm Water Pollution Prevention Plan (SWPPP) which provides Erosion and Sediment Control.

In addition, trucks, compressors, cranes, excavators and other equipment will be maintained and in good working condition and turned off when not in use. This will reduce the idling of unused equipment in adherence of state regulations as cited above. Reduced idling will reduce potential air pollution.

As a result of the findings, no further analysis in regards to potential air quality impacts due to construction is necessary for the Project as it would not result in a significant or extended impact on air quality as a result of the project.

Conclusions:

In review of screening guidelines of The Environmental Manual (TEM), no further air quality analysis should be required at this time for the Project as it would not result in a significant increase in impacts to air quality.

APPENDIX A

TRAFFIC IMPACT STUDY

PREPARED BY:
MASER CONSULTING P.A.