15 AIR QUALITY

15.1 Introduction

Per 2021 *CEQR Technical Manual* guidelines, an air quality analysis is conducted to assess the effect of a proposed action on ambient air quality (i.e., the quality of the surrounding air), or effects on a proposed project because of ambient air quality. Air quality can be affected by mobile sources (such as pollutants produced by motor vehicles) or by stationary sources (such as pollutants produced by fixed facilities). An air quality assessment is carried out when actions have the potential to result in either significant adverse mobile source or stationary source air quality impacts.

This section evaluates the potential for significant adverse air quality impacts that may result from the Proposed Actions. The Proposed Actions would allow the development of the Proposed Facility – an approximately 3,093,880-gross-square-foot (gsf) facility containing gaming, hotel, event center, retail uses, and garage parking for approximately 4,660 vehicles. The Proposed Facility would rise to a maximum height of 245 feet above the ground floor, or an elevation of 280 feet North American Vertical Datum 88 (NAVD88). Bally's would also construct an approximately 40,160-gsf, 40-foot-tall (at an elevation of 75 feet NAVD88) replacement standalone clubhouse for the Golf Course.

In connection with the Proposed Facility, the uninterrupted circular roadway within the Park that connects the southbound and northbound Hutchinson River Expressway service roads (the "Ring Road") would be widened and improved in coordination with the New York City (NYC) Department of Transportation (NYCDOT). Collectively, the Development Site and Ring Road comprise the "Affected Area." The Proposed Facility, replacement golf clubhouse, and improvements to Ring Road comprise the "Proposed Development."

15.2 Principal Conclusions

The Proposed Actions would not result in significant adverse air quality impacts from stationary, large and major sources, or mobile sources.

Stationary Sources – HVAC

The Proposed Facility would use electric- or steam-powered heat and hot water systems. As discussed further below, an E-Designation (E-824) will be placed on the Development Site (Block 5622, Lot 1) requiring that heating, ventilating and air conditioning systems and the hot water system (HVAC) will be powered by electricity or steam.

Thus, the Proposed Development would not result in a significant adverse air quality impact and detailed air quality analysis of project-generated stationary sources was not warranted.

Stationary Sources – Large/Major Sources and Industrial Sources

There are no registered industrial sources within 400 feet, or large/major sources within 1,000 feet, of the Development Site. Additionally, no unregistered industrial sources were identified during any site visits. A generator is registered at the Development Site, and this generator would be removed as part of the Proposed Development. Therefore, there is no potential for significant adverse air quality impacts from large/major or industrial sources.

Mobile Sources – Roadway and Parking Garage

A refined analysis was conducted for 1- and 8-hour carbon monoxide (CO), 1-hour and annual nitrogen dioxide NO_2, 24-hour $PM_{2.5}$, annual $PM_{2.5}$, and 24-hour PM_{10}. This refined analysis applied emission factors specific to each peak hour traffic period – i.e., AM, midday (MD), evening (PM), overnight (ON), and Saturday (SAT) – to their respective peak hour traffic volume. The peak-hour traffic emission factors were broken down into the following periods:

- 07:00-11:59~~00~~ – AM
- 12:00-16:59~~00~~ (4:59~~00~~PM) – MD
- 17:00-23:59~~00~~ (11:59~~00~~PM) – PM
- 24:00-06:59~~00~~ – ON

The roadway analysis incorporated projected emissions from the two proposed parking garages. All parking facilities would be ventilated as required by, and in accordance with, the NYC Mechanical Code. The stack for ~~the~~ each mechanical ventilation was ~~placed 400~~ modeled 10 feet from the northern and southern façade of the hotel tower, respectively, to represent worst-case conditions.

The refined analysis – which incorporated roadway and garage emissions – found that concentrations for all pollutants would not exceed the National Ambient Air Quality Standards (NAAQS) or CEQR *de minimis* thresholds; therefore, the Proposed Actions would not result in significant adverse air quality impacts from mobile sources.

During the detailed design stage, the proposed parking garages would be designed to comply with New York City Mechanical Code. An E-Designation (E-824) will be placed on the Development Site (Block 5622, Lot 1) with the following requirements:

> **New development on the above-referenced properties must ensure that the heating, ventilating and air conditioning systems and the hot water system (HVAC) will be powered by electricity or steam.**

The emissions stack associated with the north garage must be placed at least 10 feet from the northern façade of the hotel tower, at least 10 feet inside the southeastern edge of the garage building, and at a release height of at least 145 feet to ensure that the emissions from this stack would not result in significant adverse air quality impacts.

The emissions stack associated with the south garage must be placed at least ~~400~~ 10 feet from the southern façade of the hotel tower, and at least 10 feet inside the eastern edge of the garage building, and at a release height of at least 95 feet to ensure that the emissions from this stack would not result in significant adverse air quality impacts.

With this E-Designation in place, no significant adverse air quality impacts would occur.

15.3 Methodology

This air quality analysis follows the guidelines set forth in the *CEQR Technical Manual*. The analysis generally considers the likely project-generated emissions, and whether these emissions would exceed CEQR impact criteria. The analysis also considers whether emissions from existing industrial or large/major source facilities would result in concentrations of air pollutants that would exceed the thresholds of the NAAQS for criteria pollutants and Guidelines for the Evaluation and Control of Ambient Air Contaminants under Article 6, Part 212 of the *New York Codes, Rules, and Regulations* (DAR-1) guideline thresholds for non-criteria (air toxics) pollutants.

Stationary Sources

Projects may result in stationary air quality impacts if they: create new stationary sources of pollutants such as the emissions stacks from industrial plants, hospitals, or large institutions; create new uses near existing or planned emissions stacks; or introduce structures near emissions stacks that change the dispersion of emissions and may affect surrounding uses. Projects that could result in potentially significant adverse stationary source impacts include:

- Projects that would use fossil fuels;
- Projects that would create major or large emission sources such as solid/medical waste incinerators, asphalt and concrete plants, or power generating plants;
- Projects that would result in new uses such as a school, hospital, park, or residences near a large or major emissions source;
- Projects that would include medical, chemical, or research labs;
- Projects that would result in new uses being located near medical, chemical or research labs;
- Projects that would include the operation of manufacturing or processing facilities;
- Projects that would result in new uses sensitive to air quality conditions ("receptors"), especially schools, hospitals, parks, or residences, within 400 feet of manufacturing or processing facilities;
- Projects that would result in potentially significant odors;
- Projects that would result in new uses near odor-producing facilities;

- Projects that would create "non-point" sources, such as unpaved surfaces and storage piles that could result in fugitive dust; or
- Projects that would result in new uses near non-point sources.

The Proposed Facility and the replacement golf clubhouse would both use electric- or steam-powered heat and hot water systems. These systems would not emit air emissions of concern at the Development Site. As noted above, an E-Designation (E-824) will be placed on the Development Site (Block 5622, Lot 1) setting forth this requirement.

Thus, the Proposed Development would not result in a significant adverse air quality impact and detailed air quality analysis of project-generated stationary sources was not warranted. At both the Proposed Facility and the replacement golf clubhouse, approximately two emergency generators would provide backup power in the event of a power failure at the Development Site. The emergency generators would likely use a fossil fuel to supply power to life-safety systems, emergency lighting – such as exit signs and elevator cars – elevator machine room cooling, security, telecom systems, and other essential functions. The generators would each be tested about once a month for approximately 30 minutes and in accordance with underlying regulations. The specific make and model(s) of emergency generators would be selected during the detailed design phase. The emissions from the generators would be limited to testing and emergencies, and do not warrant a quantitative analysis per CEQR.

Industrial Source Analysis

Projects may result in industrial source air quality impacts if the project would result in the development of significant industrial emissions sources or new uses within 400 feet of existing industrial emissions sources. These emissions sources require an assessment of both criteria and non-criteria pollutant emissions. Projects that discharge malodorous pollutants may also result in significant impacts. The Proposed Actions would not introduce a new industrial air emissions source.

A review of the New York City Department of Environmental Protection (NYCDEP) Clean Air Tracking System (CATS) database is necessary to identify potential industrial source emissions within 400 feet of a project-generated receptor. The CATS database review is supplemented with a site visit to identify industrial sites that may operate without an emissions permit.

A review of existing CATS permits within 400 feet of the Development Site did not identify any industrial facilities that warrant detailed analysis except for one permit registered to the Development Site for an emergency generator (see Table 15-1), and this generator will be removed as part of the Proposed Development. Per the *CEQR Technical Manual*, an air quality impact analysis is not warranted for emissions from permitted boilers and engines/generators that are not major or large sources. As such, no further analysis is required for the permit presented below.

Table 15-1: Clean Air Tracking System (CATS) Search

BI	Lot	Address	Application	Type	Exp. Date
5622	1	300 Hutchinson River Parkway (Development Site)	PR005019	Generator	07/10/2025

The DEC InfoLocator tool maintained by the New York State Department of Environmental Conservation (NYSDEC) shows that the nearest off-site "air facility registration" is the MTA

Whitestone Bridge CDRP/Emergency Generator (Registration ID: 2-9902-00009/00004), which is located more than 1,000 feet from the Development Site; thus, a detailed analysis of emissions from existing sources is not warranted.

Large/Major Sources

Major sources are defined as facilities that have Title V air permits and large sources are defined as facilities that require air quality State Facility Permits. For projects that would not introduce these facilities, the *CEQR Technical Manual* recommends a study area radius of 1,000 feet around project-generated receptors. No large or major sources are within 1,000 feet of the Development Site, and therefore no further analysis is warranted of large or major sources.

Mobile Source Analysis

Projects may result in significant mobile source air quality impacts when they increase or cause a redistribution of traffic. Projects can also increase mobile source air quality impacts when they add additional mobile source pollutants such as diesel trains, helicopters, or boats, or add new sensitive uses near significant mobile sources such as roadways, garages, or parking lots. Projects that could have significant mobile source air quality impacts could include:

- Projects that place operable windows near atypical source of vehicular pollutants;
- Projects that create a fully or partially covered roadway;
- Projects that would generate 170 or more peak hour incremental auto traffic trips at a single intersection for this area of the City;
- Projects that would generate 12 or more peak hour heavy duty diesel vehicles (HDDV), depending on the roadway;
- Projects that would result in new sensitive uses such as a school, hospital, park, or residence adjacent to large parking garages or parking facility exhaust vents;
- Projects that result in parking facilities and require a special permit from the City Planning Commission (CPC); or
- Projects that would result in a sizable number of other mobile sources of pollution such as a heliport, new railroad terminal, or trucking.

The Proposed Actions would generate 170 or more incremental trips at an intersection during peak hours, and a roadway assessment for CO was warranted. An intersection assessment was also warranted for particulate matter (PM) concentrations, specifically $PM_{2.5}$ and PM_{10}, because the Proposed Actions would generate more than 12 HDDV-equivalent traffic trips on local roadways (those with an average daily traffic count fewer than 5,000 vehicles), more than 23 HDDV-equivalent traffic trips on principal and minor arterial roadways, and 23 HDDV-equivalent traffic trips on expressways and limited access roads. An analysis of NO_2 was compared with the NAAQS. The Proposed Actions would also introduce two partially enclosed parking facilities, each with two cellar levels; therefore, a parking facility analysis was warranted. All parking facilities will be ventilated as required by, and in accordance with, the NYC Mechanical Code.

For the mobile source assessment, vehicular PM engine emission factors were computed using the EPA Motor Vehicle Emission Simulator or MOVES (version "MOVES4"). This

emissions simulator calculates engine emission factors for various vehicle types, based on the fuel type, meteorological conditions, vehicle speeds, vehicle age, roadway types, and various other factors that influence emissions. The inputs and use of MOVES incorporate the most current guidance available from NYSDEC and the Environmental Protection Agency (EPA). This approach follows EPA's guidance to define vehicle "operating mode distributions" on project-level analysis.

The speed limit along Ring Road may be decreased to 20 miles per hour (mph) as part of the Ring Road improvements. A maximum speed of 20 mph was used for MOVES vehicle speed inputs for the With-Action Condition where projected speeds along Ring Road, based on existing speed limit data, exceeded 20 mph. For example, if projected speed data showed a vehicle speed of 23 mph along Ring Road, a MOVES vehicle speed input value of 20 mph was used.

Emissions from vehicular traffic are a function of vehicle composition (trucks, passenger cars, buses, etc.), delay times, and volumes. Traffic data for the air quality analysis was derived from projected No-Action and With-Action traffic volumes and composition as specified in Chapter 14 of this EIS, "Transportation." Onsite vehicle composition was distributed based on projected traffic data. The intersection analyses for the identified pollutants used the No-Action and With-Action traffic volumes. Absent any mitigation measures, an increase in traffic volumes would result in increased traffic delays at nearby intersections.

The resulting pollutant levels at nearby receptors were added to existing background concentrations to obtain the projected cumulative pollutant levels. The resulting pollutant levels were compared to CEQR *de minimis* and NAAQS impact thresholds. Background pollutant concentrations were obtained from the nearest monitoring station provided in the *New York State Ambient Air Quality Report for 2023* published by NYSDEC.[1]

Refined Analysis ($PM_{2.5}$ 24-hour and Annual, PM_{10} 24-hour, CO 1-hour and 8-hour, and NO_2 1-hour and Annual)

A refined analysis was completed for the identified pollutants, which applied peak hour traffic volume emission factors from the peak periods listed below (AM, MD, PM, ON, SAT MD, SAT PM, and SAT ON) to 24-hour traffic volumes for weekdays and Saturdays (representing both Saturday and Sunday). For example, the emission factor calculated for the AM peak hour was applied to each hourly traffic count in the corresponding period (i.e., the AM peak hour emission factor was applied to hours 07:00 to 11:00, the PM peak hour emission factor was applied to hours 12:00 to 17:00, etc.). These emissions factors were combined in an hourly emissions file to represent varying emissions rates and traffic volumes throughout each applicable time period, day of the week, and season throughout the year. The Saturday peak-hours emissions factors were conservatively applied to 24-hour traffic volumes for Sunday. Saturday MD peak-hour emission rates were conservatively used for the Saturday AM peak period. For the Hutchinson River Expressway, traffic volumes were collected for Saturday for AM, MD, PM and ON hours. Since the data were available for all time periods, the respective traffic volumes were utilized in the analysis, and no periods were used as a surrogate. Table 15-2 below provides a visual representation of the 24-hour emission factor used for each analysis.

[1] New York State Ambient Air Quality Report for 2023, last accessed 05 November 2024. https://dec.ny.gov/sites/default/files/2024-10/2023airqualreport.pdf

Table 15-2: Analyses Peak Hour Emission Factors by 24-Hour Time Period

Day	Traffic Volumes Analyzed Across 24 Hrs	Peak Hour Emission Factor by 24-Hour Time Period																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
All Pollutants (CO [1-hr, 8-hr]; NO2 [1-hr, Annual]; PM2.5 [24-hr, Annual]; PM10 [24-hr])																									
Weekdays	AM/MD/PM/ON Peak Hrs	ON							AM			MD					PM								ON
Weekend	SAT Peak Hour	ON							AM			MD					PM								ON

MD: Midday; ON: Overnight; SAT: Saturday

Based on the latest EPA *Guideline on Air Quality Models* (i.e., Appendix W Final Rule), AERMOD was used for the roadway air dispersion modeling analysis to predict ambient concentrations of the identified pollutants at nearby sensitive receptors. The modeling assumptions shown in Table 15-3 were used.

Table 15-3: AERMOD Air Quality Dispersion Modeling Assumptions

Data Type	Input Value	Notes
Pollutant	CO (1-hr, 8-hr); NO2 (1-hr, Annual); PM2.5 (24-hr, Annual); PM10 (24-hr)	--
Source	LINE	The three intersections were modeled as line sources. Naturally ventilated parking lots were modeled as area sources. Ventilation from the subgrade garage levels were modeled as a point source.
Width of Source	3.3 m	Width per lane
Initial Vertical Dimension	2.6 m (LDV); 6.8 m (HDV)	The combined initial vertical dimension was estimated using an emissions-weighted average (i.e., average of LDV and HDV contribution).
Initial Vertical Dispersion Coefficient	1.2 m (LDV); 3.2 m (HDV)	Initial vertical dimension divided by 2.15.
Release Height	1.3 m (LDV); 3.4 m (HDV)	Initial vertical dimension multiplied by 0.5. For multi-level garages, the release height was added to the height of the garage level.
Emission Rate	MOVES-based emission rates (g/s)	Emission factors from AP-42 are used for road dust.
Urban/Rural	Urban	--
Receptors	5-105 m away from roads (25-m intervals)	Five rows of receptors around the project following the boundaries of the project area (i.e., roads/intersections). Receptors were placed further than 105 meters from roadways if mobile source impact is predicted at that distance. Receptors are not included within areas inaccessible to the public.
	1.8 m flagpole height	Multiple flagpole heights were used for nearby and proposed multi-story buildings.
Met Data	Most recent 5 years available (excluding years influenced by COVID-19)	LaGuardia Airport / Brookhaven (obtained from NYSDEC)
$PM_{2.5}$ and CO Methodology	MOVES-based emission rates (g/s)	PM2.5 assessed using emission rates and volumes based on time periods (AM, midday, PM, and overnight) and four seasons (January, April, July, and October) for 24-hour and annual PM2.5 assessments. 1-hr and 8-hr CO were assessed based on peak hour emission rates and volumes.

Emission rates calculated using MOVES were converted from grams per hour (g/hr) to grams per second per square meter (g/s-m^2), and then input into each link in AERMOD. To differentiate the varying emission rates throughout the 24-hour periods during weekdays and weekends for the refined analyses, hourly emissions rate files were used in AERMOD.

Study Areas

The first step to perform an air quality analysis is to determine the appropriate study area. For this project, a 400-foot study area around the Development Site was established for the industrial source preliminary screenings. For large or major sources, a study area of 1,000 feet around the Development Site was established.

For the mobile source analysis, the following intersections were selected as a representative worst-case for project-generated mobile emissions:

1. Hutchinson River Parkway service roads and Lafayette Avenue;
2. Ring Road, Schley Avenue, and southbound Hutchinson River Parkway service road;
3. Ring Road, Hutchinson River Expressway, and the Development Site; and
4. Proposed parking garage and garage driveway on the Development Site.

The identified intersections were chosen because project-generated incremental traffic volumes are anticipated to be most heavily-concentrated along the Hutchinson River Expressway (and service roads) between Lafayette Avenue and the Proposed Facility. The selected locations are proximate to sensitive receptors (e.g., nearby schools, Ferry Point Park, etc.) and represent a range of worst-case locations for project-generated mobile source emissions. Figure 15-1 identifies the intersections selected for the analysis.

Figure 15-1: Analyzed Intersections



Mobile Source – Garage Assessment

The Proposed Actions would introduce new parking facilities within the Proposed Facility. Thus, an analysis of the emissions from the parking facilities was performed, calculating pollutant levels in the surrounding area, using the methodology set forth in the *CEQR Technical Manual*. Emissions from vehicles entering, parking, and exiting the garage were estimated using the EPA MOVES4 mobile source emission model. 2030 was selected for the year of analysis because it is anticipated to be the first year of operation for the Proposed Development. MOVES modeling was conducted for $PM_{2.5}$ 24-hour and annual, PM_{10} 24-hour CO 1-hour and 8-hour, and NO_2 1-hour and annual, and included emissions from starts, idling, and running exhaust. The number of starts were assumed to equal the number of cars exiting the garage in the specified time period. Traffic egressing the garage was calculated by subtracting the projected volume of taxis utilizing the drop-off zone (ranging from 14 to 39 percent, depending on day of week and time period) from projected total traffic volume leaving the Development Site. Starting vehicles were conservatively assumed to be operating in a "cold-start" mode with a "soak time" of greater than 720 minutes. Idling was assumed to occur for a period of three minutes for all cars exiting. Running exhaust was calculated using a link distance equal to two-thirds of the distance to the farthest spot from the entrance/exit and an average speed of five mph in the garage. Because the garage will feature natural ventilation at all above-grade levels of the proposed north garage, and levels 1-6 of the south garage, dispersion of emissions from mobile sources on the naturally-ventilated levels was modeled as an "area source." Mechanical assist may be provided for fresh air intake, as required by NYC Mechanical Code. The naturally ventilated levels would be constructed in accordance with NYC Mechanical Code Section 406.5.

~~The two sub-grade levels in the proposed north garage have been designed with mechanical assist for fresh intake air. Exhaust is expected to ventilate through louvers for level B2, and through a collocated golf cart tunnel in level B1. The louvers and entrances to the golf cart tunnel were modeled as "area sources."~~

The two sub-grade levels in the proposed north and south garages would be mechanically ventilated to the roof in accordance with NYC Mechanical Code Section 404.2. The exhaust fans ~~was~~ were modeled as ~~a~~ "point sources." Two scenarios were modeled for the garage ventilation stacks to allow for flexibility and design during construction of the Proposed Facility. One scenario accounted for the south garage and the north garage ventilation stacks being constructed 10 feet away from the hotel façade, while the other scenario accounted for the south garage and the north garage ventilation stacks being constructed 10 feet from the edge of the garage closest to the nearest golf course receptor. The stack velocity, diameter, and temperature modeled were based on a single representative exhaust system fan for each stack. Conservatively, the modeled flow is less than the minimum ventilation requirements of NYC Mechanical Code. Multiple fans will be installed to meet the minimum ventilation requirements identified in NYC Mechanical Code Section 404.2; however, since the exact number and design of the fans has not yet been determined, a single fan for each stack was conservatively modeled for the analysis. The final design will meet or exceed the equivalent of the modeled parameters of 16,000 cfm flow rate and 42-inch fan diameter. The north garage exhaust fan would be located on level 12 of the north garage (roof level) and at least 10 feet from the northern façade of the hotel tower, and at least 10 feet inside the southeastern edge of the garage building. The south garage exhaust fan would be located on level 7 of the south garage (roof level) and ~~will be located~~ at least ~~400~~ 10 feet from the southern façade of the hotel

tower. Schematics of the parking facilities are provided in Appendix I, Transportation Analysis. As discussed further below, an E-Designation (E-824) will be placed on the Development Site (Block 5622, Lot 1).

E-Designation

An E-Designation (E-824) will be placed on the Development Site (Block 5622, Lot 1) with the following requirements:

New development on the above-referenced properties must ensure that the heating, ventilating and air conditioning systems and the hot water system (HVAC) will be powered by electricity or steam.

The emissions stack associated with the north garage must be placed at least 10 feet from the northern façade of the hotel tower, at least 10 feet inside the southeastern edge of the garage building, and at a release height of at least 145 feet to ensure that the emissions from this stack would not result in significant adverse air quality impacts.

The emissions stack associated with the south garage must be placed at least ~~400~~ 10 feet from the southern façade of the hotel tower, at least 10 feet inside the eastern edge of the garage building, and at a release height of at least 95 feet to ensure that the emissions from this stack would not result in significant adverse air quality impacts.

With this E-Designation in place, no significant adverse air quality impacts would occur.

15.4 Assessment

Mobile Source – Intersection Assessment

Refined Analysis

A refined analysis was conducted for $PM_{2.5}$ 24-hour and annual, PM_{10} 24-hour, CO 1-hour and 8-hour, and NO_2 1-hour and annual. Results from the refined analysis for all pollutants are shown in Table 15-4.

Table 15-4: Refined Mobile Source Intersection Analysis

Pollutant (µg/m³)	Background Concentration[1]	Modeled No-Action	Modeled With-Action	Increment	CEQR *de minimis*	Total With-Action Concentration	NAAQS Concentration
CO – 1hr	2,999.9	663.3	1,481.9	N/A	N/A	4,481.8	40,075
CO – 8hr	1,946.5	188.30	590.6	402.3	5,058.0	2,537.1	10,305
NO_2 – 1hr	101.8	11.6	30.6	N/A	N/A	132.4	188
NO_2 – Annual	29.2	2.29	4.42	N/A	N/A	33.6	100
$PM_{2.5}$ – 24hr	19.5	1.97	2.70	0.73	7.75	22.2	35
$PM_{2.5}$ – Annual	8.2	0.25	0.31	0.06	0.10	8.5	9
PM_{10} – 24hr	37.0	8.69	16.9	N/A	N/A	53.9	150

[1] New York State Ambient Air Quality Report for 2023, published by NYSDEC. Specifically, Queens NR (CO), IS 52 (NO_2 and PM_{10}), and IS 74 ($PM_{2.5}$).
This table was updated for the FEIS.

The results of the refined analysis show that all pollutant emissions would be below the NAAQS and CEQR *de minimis* thresholds. Accordingly, the Proposed Actions would not result in significant adverse air quality impacts from mobile sources, and further analysis is not warranted.