

A. INTRODUCTION

As described in Chapter 1, “Project Description,” the Applicant proposes to construct a sports, hospitality, and entertainment destination (the Proposed Project) at Belmont Park. The area proposed for redevelopment is located on two Project Sites south of the existing Belmont Park Racetrack and Grandstand, and includes approximately 15 acres on Site A, north of Hempstead Turnpike, and approximately 28 acres on Site B, south of Hempstead Turnpike. The Proposed Project would redevelop the Project Sites with: an arena for the New York Islanders National Hockey League (NHL) franchise and for other sports, music, and entertainment events; dining, retail, and entertainment uses; a hotel; commercial office space; community space; publicly accessible open space; parking; and one or more pedestrian connections providing access between Sites A and B. In addition to the parking proposed for the Project Sites, it is expected that visitors to the Proposed Project would also utilize existing parking at Belmont Park in the North, South, and East Lots (shown in Figure 1-1). The North, South, and East Lots would be resurfaced and restriped to maximize the number of spaces that can be achieved, and new lighting would be installed. Construction of the Proposed Project, including improvements to the North, South, and East Lots, is anticipated to occur in a single phase over a period of approximately 28 months, starting in 2019, with full build-out of all project components in 2021.

The Proposed Project requires a number of actions (collectively, the “Proposed Actions”), one of which would facilitate the construction of an electrical substation and associated underground distribution feeders and underground transmission lines to serve the Proposed Project (to be constructed by the Long Island Lighting Company d/b/a Long Island Power Authority [LIPA] and operated by the Public Service Enterprise Group Long Island [PSEG Long Island]).

This chapter describes the anticipated construction schedule, construction logistics (e.g., site access points and potential staging area locations), activities likely to occur during construction, and the types of equipment that are expected to be used. Based on this information, potential impacts from construction activities are assessed with respect to transportation, air quality, noise and vibration, land use and neighborhood character, socioeconomic conditions, visual resources, open space, historic and cultural resources, natural resources, and hazardous materials.

PRINCIPAL CONCLUSIONS

Construction associated with the Proposed Actions—as is the case with most construction projects—would result in temporary disruptions within the surrounding area. As described below, the Proposed Actions’ construction activities would result in significant, albeit temporary, adverse transportation and noise impacts. For all other technical areas, construction activities associated with the Proposed Actions would not result in significant adverse impacts. Findings specific to each of the key technical areas are summarized below.

TRANSPORTATION

During construction activities, traffic to the Project Sites and other directly affected areas (North, South, and East Lots and the proposed electrical substation) would be generated by construction workers and trucks traveling to and from the construction sites. The results of a detailed traffic analysis show that construction activities associated with the Proposed Actions during the projected peak quarter of construction would result in significant adverse traffic impacts at three intersections out of the eight intersections analyzed during the 6:00 AM to 7:00 AM peak hour. Measures to address these impacts are described in Chapter 17, “Mitigation.”

Temporary lane and/or sidewalk closures may be required along Hempstead Turnpike adjacent to the Project Sites to facilitate construction of one or more grade-separated connections between Sites A and B, utility connections and sidewalk improvement. The placement of the spans for a pedestrian bridge across the Hempstead Turnpike would be anticipated to require limited full lane closures in both directions; these closures would likely occur during the night. In these instances of temporary lane closures, Work Zone Traffic Control (WZTC) plans would be implemented to ensure minimum disruption to traffic or pedestrian flow.

It is anticipated that the projected number of peak hour bus trips (including transfers that would be made to/from subways or the LIRR) made by construction workers during the peak period of construction could be accommodated by existing bus routes that serve the Project Sites and are not expected to have significant adverse impacts to transit.

The parking demand associated with construction workers commuting via private autos would be accommodated by parking spaces provided on the Project Sites and/or the North, South, and East Lots throughout the duration of construction activities. It is anticipated that parking demand for Racetrack attendees and staff/vendors on Belmont Stakes day in 2019 could be accommodated by the supply of on-site parking at Belmont Park Racetrack. During the running of Belmont Stakes in 2020 and 2021, when both Sites A and B would be under construction, it is expected that parking for Racetrack attendees could be accommodated on-site, but vendors and staff may need to park at an off-site location and be bused to Belmont Park. Throughout the duration of construction activities, it is anticipated that parking demand associated with Racetrack patrons on other days of the Spring and Fall Meets could be accommodated on-site. No significant adverse impacts to parking are expected.

AIR QUALITY

A mandatory emissions reduction program would be implemented for the Proposed Project to minimize the air quality effects of construction activities on the surrounding community. Measures would include, to the extent practicable, dust suppression measures, use of ultra-low sulfur diesel (ULSD) fuel, idling restrictions, use of electrical equipment instead of diesel equipment, best available technologies, and the utilization of newer equipment. With these measures in place, and given the temporary nature of the construction activities, construction activities associated with the Proposed Actions would not result in any significant adverse air quality impacts.

NOISE AND VIBRATION

A quantified construction noise analysis was performed to assess the potential for significant adverse noise impacts during construction of the Proposed Project. The analysis considered the “worst-case” scenario (i.e., the conditions that would have the potential for producing the maximum noise levels) for construction at each of the Proposed Project construction sites (including construction activities

on Project Sites A and B and other directly affected areas) and considered the effects of construction activities and construction equipment operated on the Proposed Project construction sites combined with the noise related to construction-generated trucks on roadways.

Construction of the Proposed Project would be expected to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable and potentially intrusive. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would be considered acceptable for sensitive uses by New York State Department of Environmental Conservation (NYSDEC) at most nearby receptors. At the Floral Park Bellerose School's athletic field north of the North Lot, while construction noise may be readily noticeable and intrusive at times, the duration of construction would be limited, and the use of this open space is primarily for active recreation (e.g., sports, physical education, recess), which is less sensitive to noise than a purely passive open space would be. Consequently, construction of the Proposed Project would not result in any significant noise impacts at this receptor. At residential locations immediately adjacent to Site B, worst-case construction noise levels were predicted to experience noise level increases greater than 10 dBA, which exceeds the acceptable criteria for residential uses provided by NYSDEC. As a result of the construction noise levels that would occur at these receptors over an extended duration, residences along Huntley Road, both sides of Wellington Road between Hempstead Turnpike and 109th Avenue, and the west side of Wellington Road between 109th Avenue and Hathaway Avenue would have the potential to experience significant adverse construction noise impacts for approximately 20 months during Proposed Project construction. Though maximum noise levels could impact horses and impulsive and short-duration noise has the potential to elicit startle reactions, the main Racetrack is anticipated to be closed from approximately mid-2019 to April 2020. This closure period largely overlaps with the heavy construction activities planned for arena construction, reducing the potential for adverse noise impacts on horses. When construction activities overlap with horse training, the Applicant and construction team would coordinate with the horse training operators to adjust construction means, methods, and scheduling whenever possible to reduce the potential for adverse noise impacts.

At the Belmont Park Dormitories located along the western edge of the stable area near the Gate 5 Road, worst-case construction noise levels would result in increases over existing noise levels of approximately 14 dBA, which exceeds the acceptable criteria for residential uses provided by NYSDEC. As a result of the construction noise levels that would occur at these receptors, dormitories along the western edge of the stable area near Gate 5 Road would have the potential to experience significant adverse construction noise impacts for approximately 5 months during Proposed Project construction. At the Belmont Park Dormitories located along the northwestern edge of the stable area near the Training Track, worst-case construction noise levels would result in increases over existing noise levels of approximately 15 dBA, which exceeds the acceptable criteria for residential uses provided by NYSDEC. As a result of the construction noise levels that would occur at these receptors, dormitories along the northwestern edge of the stable area near the Training Track would have the potential to experience significant adverse construction noise impacts for approximately 5 months during Proposed Project construction.

Vibrations from demolition, excavation, and foundation work for the Proposed Project would be expected to be imperceptible and would not have the potential to result in architectural or structural damage to even a structure extremely susceptible to damage from vibration. Therefore, vibrations from the Proposed Project would not have the potential to result in a significant adverse impact at any surrounding receptors.

NATURAL RESOURCES

Construction of the Proposed Project would not result in significant adverse impacts to vegetation and ecological communities, wildlife, or threatened or endangered species. The vegetation and ecological communities within Site A, Site B, the South Lot, the North Lot, the East Lot and the Belmont electrical substation, are limited to mowed lawns with trees, mowed lawn, paved road/path communities, and construction/road maintenance spoils, and successional southern hardwood forests. Approximately 124 trees would be removed from Site A and 66 trees would be removed from Site B. A minimal number of trees would be removed from the North Lot, South Lot, and proposed electrical substation area. No trees would be removed from the East Lot. Erosion and sediment control measures implemented in accordance with the Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with NYSDEC State Pollutant Discharge Elimination system (SPDES) General Permit for Stormwater Discharges from Construction Activity (Permit Number GP-0-15-002), and tree protection measures implemented prior to construction, would minimize potential impacts to trees and ecological communities outside the area of construction disturbance.

Construction of the Proposed Project would not have significant adverse impacts to wildlife at either the individual or population level. The habitats that would be lost due to clearing activities are common within the vicinity of the study area. Wildlife displaced due to clearing, or by noise and increased human activity associated with construction, would have the potential to relocate to similar habitat near the study area, and the potential loss of some disturbance-tolerant wildlife would not result in significant adverse impacts to populations of these species commonly found within developed areas of Long Island. The man-made water feature in Site A does not support fish, aquatic reptiles or amphibians, but may support some aquatic invertebrates (e.g., aquatic insects). The loss of this small area of aquatic habitat for aquatic invertebrates would not result in significant adverse impacts to populations of these insects or wildlife that may prey on them.

The removal of seven planted willow oaks—a commonly planted tree in Nassau County and New York City—would not be considered a significant adverse impact to protected willow oak populations and would not be considered a significant adverse impact to naturally occurring, willow oak populations. Although the study area possesses limited potential to provide suitable habitat for northern long-eared bats, coordination with the United States Fish and Wildlife Services (USFWS) has been initiated to determine whether suitable habitat for long-eared bat is present within the Project Sites and whether the 4(d) rules applies. If it is determined that the Project Sites offer suitable habitat for northern long-eared bats, tree removals would be conducted in accordance with the 4(d) rule issued by the USFWS to minimize potential impacts to this species. If possible, tree clearing would occur outside the April to October active season, but at a minimum would be conducted outside the June 1 to July 31 pup season in order to avoid significant adverse impacts to that species. Therefore, construction of the Proposed Project would not have significant adverse impacts to threatened, endangered, and special concern species and significant natural communities.

B. MEASURES TO MINIMIZE COMMUNITY IMPACTS

Pursuant to a requirement imposed by ESD, NYAP would require in its construction contracts that contractors implement the following measures during construction to minimize potential impacts to nearby communities from ongoing construction:

1. COMMUNICATION WITH COMMUNITY

- Give advance notification of any disruptive work or work closures to nearby community
- Provide regular updates to the public in the form of email blasts and online postings
- Staff the project office with on-site supervision for rapid response to neighborhood concerns
- Maintain a 24/7 toll-free hotline and email address assigned to and monitored by a community outreach representative, to include direct communication with an on-site contractor/supervisor for real-time response
- Create and implement protocol for addressing community complaints
- Coordinate with emergency service providers to ensure continuity of access to the neighboring communities
- Establish at least regular quarterly public meetings for community representatives and the contractor to discuss construction activities and community concerns

2. COMMUNITY SAFETY AND QUALITY OF LIFE

- Create an active program of construction security to ensure community safety
- Ensure the following are performed by the contractors at construction sites:

Keep construction sites clean and orderly

Safely store construction materials in piles/not haphazardly

Ensure that construction fences are uniform and neat in material and appearance (neatly clad chain-link fences in uniform green tennis mesh or printed mesh or plywood fences, with approved enhancements, such as photos or artwork)

Entirely fence off all staging areas

Prohibit littering and dispersion of personal debris (e.g., cups, cans, cigarettes) on construction site

Provide covered trash receptacles that are emptied daily

- Perform wheel washing and street cleaning as appropriate to ensure construction debris and dirt will not affect the local community
- Install onsite/portable bathroom facilities that are unobtrusive to local communities

3. ENVIRONMENTAL PERFORMANCE

- Provide environmental monitoring consistent with a Construction Health and Safety Plan (CHASP)
- Implement a SWPPP
- Establish a Quality Control program to confirm compliance with environmental requirements
- Use directional lighting at night to protect residences from light pollution
- Implement WZTC plans
- Implement an air quality control plan to include dust control measures, ultra-low sulfur diesel fuel, the use of best available tailpipe technologies such as diesel particulate filters, and the utilization of newer equipment.
- Conduct pre-construction home inspections

- Create and implement a community noise and vibration monitoring program
- In consultation with the community, employ rodent control measures
- Minimize noisy work during nighttime hours where practicable and feasible

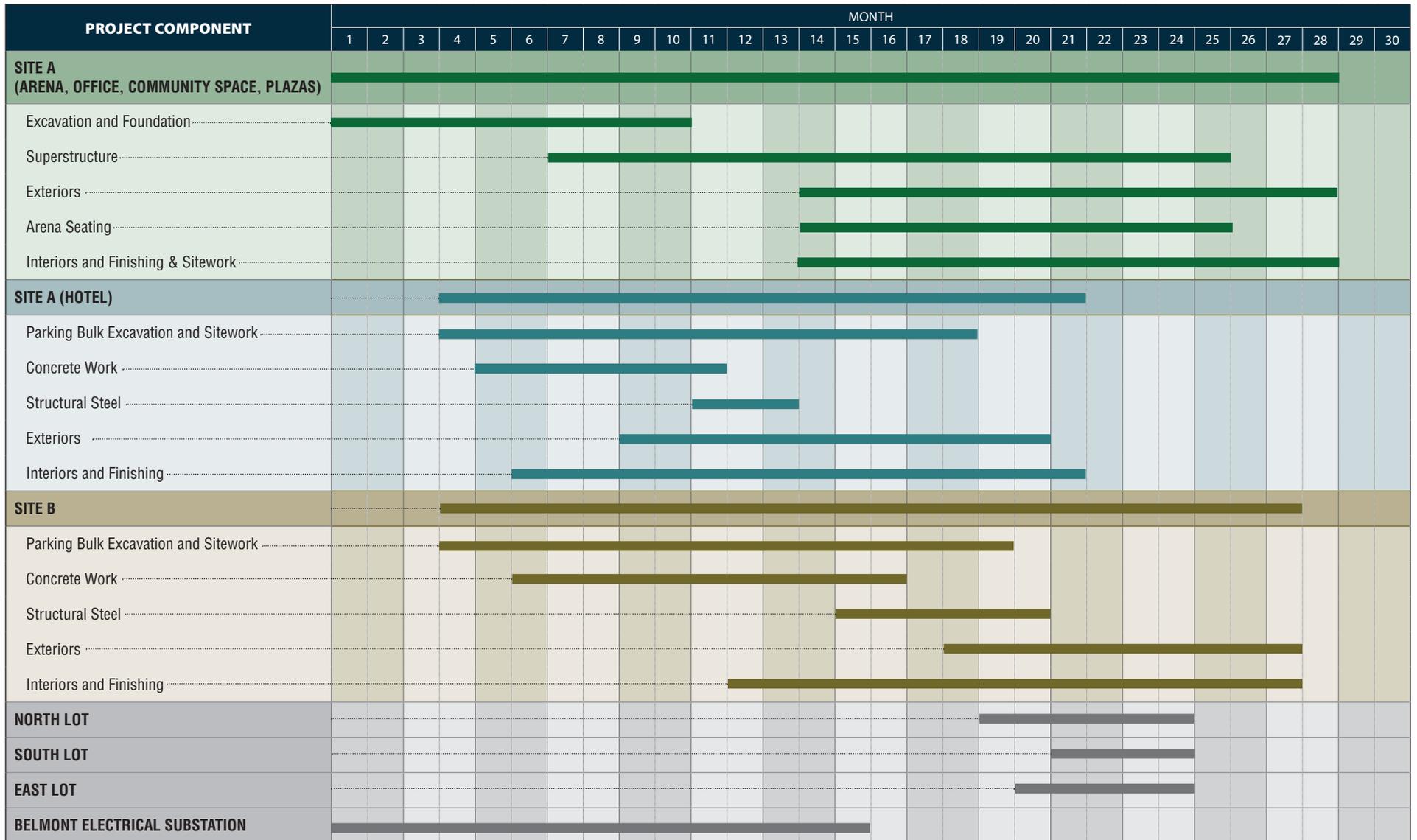
C. CONSTRUCTION DESCRIPTION

CONSTRUCTION SCHEDULE

Construction of the Proposed Project is anticipated to begin in 2019 and take place over an approximately 28-month period in a single phase, with a full build-out of all project components in 2021. The construction schedule for the Proposed Project is presented in **Table 15-1** and **Figure 15-1**, and reflects the sequencing of construction events as currently planned. As described in Chapter 1, “Project Description,” and shown in Figure 1-1, Site A would consist of an arena; dining, retail, and entertainment uses; a hotel; commercial office space; community space; publicly accessible open space; and parking. Site B would consist of a “retail village;” structured parking mostly below grade; internal circulation roads; and naturally landscaped areas. One or more pedestrian connections would also be constructed to provide access between Sites A and B. As part of the Proposed Project, the North, South, and East Lots would be resurfaced and restriped to maximize the number of spaces that can be achieved, and new lighting would be installed in these lots. In addition, the Proposed Actions would facilitate the construction of an electrical substation and associated underground distribution feeders and underground transmission lines to serve the Proposed Project.

**Table 15-1
Anticipated Construction Schedule**

Project Component	Approximate Start Month	Approximate Finish Month	Approximate Duration (months)
Site A (Arena, Office, Community Space, Plazas)	Month 1	Month 28	28
<i>Excavation and Foundation</i>	<i>Month 1</i>	<i>Month 10</i>	<i>10</i>
<i>Superstructure</i>	<i>Month 7</i>	<i>Month 25</i>	<i>19</i>
<i>Exteriors</i>	<i>Month 14</i>	<i>Month 28</i>	<i>15</i>
<i>Arena Seating</i>	<i>Month 14</i>	<i>Month 25</i>	<i>12</i>
<i>Interiors and Finishing & Sitework</i>	<i>Month 14</i>	<i>Month 28</i>	<i>15</i>
Site A (Hotel)	Month 4	Month 21	18
<i>Parking Bulk Excavation and Sitework</i>	<i>Month 4</i>	<i>Month 18</i>	<i>14</i>
<i>Concrete Work</i>	<i>Month 5</i>	<i>Month 11</i>	<i>7</i>
<i>Structural Steel</i>	<i>Month 11</i>	<i>Month 13</i>	<i>3</i>
<i>Exteriors</i>	<i>Month 9</i>	<i>Month 20</i>	<i>12</i>
<i>Interiors and Finishing</i>	<i>Month 6</i>	<i>Month 21</i>	<i>16</i>
Site B	Month 4	Month 27	24
<i>Parking Bulk Excavation and Sitework</i>	<i>Month 4</i>	<i>Month 19</i>	<i>16</i>
<i>Concrete Work</i>	<i>Month 6</i>	<i>Month 16</i>	<i>11</i>
<i>Structural Steel</i>	<i>Month 15</i>	<i>Month 20</i>	<i>6</i>
<i>Exteriors</i>	<i>Month 18</i>	<i>Month 27</i>	<i>10</i>
<i>Interiors and Finishing</i>	<i>Month 12</i>	<i>Month 27</i>	<i>16</i>
North Lot	Month 19	Month 24	6
South Lot	Month 21	Month 24	4
East Lot	Month 20	Month 24	5
Belmont Electrical Substation	Month 1	Month 15	15



Anticipated Construction Schedule
Figure 15-1

GENERAL CONSTRUCTION PRACTICES

HOURS OF WORK

Construction would generally be carried out within the work hours specified in Chapter 144 of the Town of Hempstead Code (Unreasonable Noise), which allow construction activities between 7:00 AM and 6:00 PM on weekdays. Construction work would typically begin at 7:00 AM, with most workers arriving between 6:00 AM and 7:00 AM. Normally work would end at 5:00 PM, but it can be expected that, in order to complete certain critical tasks (i.e., finishing a concrete pour, erecting a crane, etc.), the workday may occasionally be extended beyond typical work hours and/or occur on the weekends. Construction and demolition and use of power equipment for construction activities that would occur outside the work hours specified in Chapter 144 of the Town of Hempstead Code (Unreasonable Noise) would be permitted with the exception of pile driving and site demolition activities. This requirement would be included in the environmental commitments that will be imposed on the Applicant. Any extended workdays or weekend work would generally not include all construction workers on-site, but only those involved in the specific task requiring the additional work time.

ACCESS AND STAGING AREAS

Access to the Project Sites during construction would be fully controlled. For each of the Project Sites, the work areas would be fenced off, and limited access points for workers and construction-related trucks would be provided. Based on preliminary plans, temporary lane and/or sidewalk closures may be required along Hempstead Turnpike adjacent to the Project Sites to facilitate construction of one or more grade-separated connections between Sites A and B, utility connections and sidewalk improvement. The placement of the spans for a pedestrian bridge across the Hempstead Turnpike would be anticipated to require limited full lane closures in both directions; these closures would likely occur during the night. In these instances of temporary lane closures, WZTC plans would be implemented to ensure minimum disruption to traffic or pedestrian flow.

Additional details on the preliminary construction logistics for each of the project construction areas are described below.

Site A (Arena, Office, Community Space, Retail, and Plazas)

The proposed multi-purpose arena would be a new state-of-the-art facility located in the western central portion of Site A. Site A also would include office, dining, retail, and entertainment uses and publicly accessible open space as well as a hotel and parking. In addition, it is anticipated that the community space would be located within a number of proposed structures (e.g., the office building, hotel, arena, and retail buildings).

Based on preliminary logistics, construction trucks such as tractor trailers are anticipated to enter and exit Site A via Hempstead Turnpike, with truck loading and unloading operations occurring throughout the site. Additional detail on potential truck routes to and from Site A is provided below under “Transportation.” Flag persons would be employed where necessary to control trucks entering Site A during construction and/or to provide guidance for public safety. Construction trailers, worker parking areas, as well as staging and laydown areas for construction activities on Site A are anticipated to be accommodated primarily on Site A and other available Belmont Park parking areas.

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Site A (Hotel)

The proposed hotel would be located along Hempstead Turnpike on Site A, between the proposed arena and the South Lot. New structured parking would also be provided within and below the hotel's podium.

Based on preliminary logistics, construction trucks are anticipated to enter and exit Site A via Hempstead Turnpike. Flag persons would be employed where necessary to control trucks entering Site A during construction and/or to provide guidance for public safety. Construction trailers as well as staging and laydown are anticipated to be located in areas immediately adjacent to the footprint of the proposed hotel. Construction worker parking is anticipated to be accommodated in the portion of the existing surface parking at the "South Lot" directly southeast of the proposed hotel.

Site B

Destination retail uses are proposed within a retail village on Site B. In addition, Site B would be comprised of one level of new structured parking beneath the proposed retail village and naturally landscaped areas. Site B also would include a taxi/ride-share services staging area as well as taxi/ride-share services and bus drop-off areas.

Based on preliminary logistics, construction trucks are anticipated to enter and exit Site B via Hempstead Turnpike. Flag persons would be employed where necessary to control trucks entering Site B during construction and/or to provide guidance for public safety. Construction trailers as well as staging and laydown are anticipated to be located on the eastern and southern portions of Site B. Construction worker parking is anticipated to be primarily accommodated on the southern portion of Site B, with primary access via the Cross Island Parkway. A second access point for construction worker automobiles may also be established via Hempstead Turnpike.

North Lot, South Lot, and East Lot

The North Lot is an unpaved parcel located just north of the Racetrack that is currently utilized for Belmont Park parking only on Belmont Stakes day and vehicle storage when not used for parking. The South Lot is located to the east of the proposed arena, south of the Racetrack, and is currently utilized for Belmont Park event parking. The East Lot is located east of the Racetrack within the interior oval of the Belmont Park Training Track and is currently used for vehicle storage, Belmont Park employee parking and large-volume event parking. The North Lot, South Lot, and East Lot would be resurfaced and restriped to maximize the number of spaces that can be achieved, and new lighting would be installed in these lots. Construction staging and worker parking for activities at the North, South, and East Lots are anticipated to be accommodated within these lots. Construction trucks are anticipated to enter and exit via Hempstead Turnpike.

Belmont Electrical Substation

Directly adjacent to and to the west of the North Lot is the location of the proposed electrical substation. This additional substation is required to service the Proposed Project because Belmont Park currently does not have the infrastructure necessary to accommodate the Proposed Project's energy demand. The electrical substation would be located in the vicinity of the Cross Island Parkway ramps, just north of the Racetrack. Construction staging and working parking substation activities may be accommodated within the adjacent North Lot. Construction trucks are anticipated to enter and exit the substation area via Hempstead Turnpike.

RACE SEASON AND BELMONT STAKES

Belmont Park is one of the major thoroughbred horseracing facilities in the country. It hosts the annual Belmont Stakes, the final race of the Triple Crown, as part of its Spring Meet that runs from the end of April through mid-July. The Fall Meet runs from early September through October. In addition, Belmont Park is used year-round for training facilities, including stables and residential accommodations for racing-related workers. Construction of the Proposed Project would be coordinated with The New York Racing Association, Inc. (NYRA) and the Franchise Oversight Board (FOB) to protect the operational requirements of the Belmont Stakes and other horse racing events held during the Spring and Fall Meets. The anticipated construction work hours and preliminary logistics would be adjusted for the Belmont Stakes week and the July 4th race day. NYAP would work with NYRA to ensure that construction of the Proposed Project would not interfere with these racing events, which may include the suspension of construction activities. Details regarding parking for these racing events during construction of the Proposed Project are provided below under “Transportation.” Based on current plans, it is expected the construction work hours and preliminary logistics as described above would continue during other race days.

PUBLIC SAFETY

A variety of measures would be employed to ensure public safety during the construction of the Proposed Project including: all construction workers must complete an on-site safety orientation prior to working at the Project Sites; cranes must be checked prior to arriving on-site to ensure proper personnel and equipment certifications; construction workers that are exposed to vertical drops of 6 feet or more must utilize personal fall arrest systems (i.e., safety harnesses) as required by the United States Occupational Safety and Health Administration (OSHA); and all floor openings, holes, and shafts would be protected by guardrails or covered by a plywood with proper labeling. All construction safety requirements set forth by the New York State Uniform Fire Prevention and Building Code (Uniform Code) and OSHA’s 29 Code of Federal Regulations (CFR) 1926 would be followed to ensure the safety of the community and the construction workers themselves.

RODENT CONTROL

Construction contracts would include provisions for a rodent control program where appropriate. Before the start of construction, the contractor may survey and bait the appropriate areas and provide for proper site sanitation. During construction, the contractor would carry out a maintenance program, as necessary. Measures that may be implemented during construction include baiting the Project Sites within fenced construction areas, trimming all vegetation regularly, and providing covered trash receptacles that would be emptied daily to discourage rodents from nesting in them. To keep the community safe, signage on all baiting areas would be posted, and coordination would be conducted with the appropriate public agencies.

DESCRIPTION OF CONSTRUCTION ACTIVITIES

SITE A –ARENA, OFFICE, COMMUNITY SPACE, AND PLAZA CONSTRUCTION (APPROXIMATELY 28 MONTHS)

Arena

The building and erection of the arena would be the most complex construction component of the Proposed Project. The clear span over the seating and ice rink would require complex trusses to support the roof. In addition, many specialty contractors would be involved in the finishing of the building, including specialists in ice rink systems, audio and visual (AV) equipment, and telecommunications. The primary stages envisioned for the arena construction would include: excavation and foundations; the lower arena superstructure; the upper steel superstructure and roof; exteriors; arena seating; and interior finishes and specialties. As the completion of construction of the arena nears, there would be a commissioning stage when all systems are tested to confirm their functionalities and to ensure public safety for the public opening. Each of the primary stages during arena construction, which may overlap at certain times, is discussed further below.

Excavation and Foundations

This stage of construction would include open cut excavation across the majority of the construction area. The ground would be excavated to approximately 15 feet below grade to allow for the construction of the foundations of the arena. In addition, a support of excavation (SOE) wall would be installed near the southwestern corner of the Grandstand to hold back the soil around this area. It is anticipated that approximately 4 to 5 weeks of pile driving activities would be required to install the sheet pile wall at this location. As the excavation becomes deeper, a temporary ramp would be built to provide access for the dump trucks to the excavation area. As the final grade is approached, bulldozers or excavators would be used to shape the ground. Finally, forms would be placed and reinforcing bars installed and the concrete would be poured and/or pumped.

This stage of construction would involve excavators, bulldozers, loaders/bobcats, impact pile drivers, and backhoes. Blasting is not anticipated to be required for the removal of soils. The concrete forms would be installed using mechanical equipment, which would also be used for the installation of reinforcing bars. Concrete installation activities would involve concrete mixer trucks, concrete pumps, and concrete vibrators.

Superstructure (Lower Superstructure)

The lower arena superstructure would extend to the main concourse, above which would be the steel superstructure and roof trusses. The lower arena superstructure would either be precast at locations offsite and trucked to the site or be cast-in-place concrete that requires wooden or steel forms. The precast elements or forms would be placed by mechanical equipment. The lower superstructure would support the upper superstructure and roof and would also form the perimeter basement wall that holds the exterior cladding.

This stage of construction would involve a variety of construction equipment, including cranes, lifts, generators, concrete pumps, and concrete trowels. A large number of hand tools would also be used.

Superstructure (Upper Steel Structure and Roof)

Construction of the upper steel superstructure and roof would commence when the foundations and lower arena superstructure have been completed. Parts of the superstructure and roof trusses would be fabricated offsite and transported to Site A for installation. Cranes would be used to lift and assemble the superstructure elements. Because of the long clear span over the event floor, the roof trusses would be extremely large. Therefore, the trusses would be erected by one or more cranes in sections and connected together when lifted into place.

This stage of construction would involve cranes, hoists, and lift vehicles.

Exteriors

Exteriors work would involve the placement of curtain wall panels on the arena superstructure and the completion of the roof enclosure. Cranes would be used to place the exterior walls of the arena. On the roof, metal decking would span between the trusses, and reinforcing mats would be placed upon the metal decking. The exteriors would be coordinated to be installed concurrently with erection of the upper steel superstructure and interior finishes.

This stage of construction would involve cranes, hoists, and lift vehicles.

Arena Seating

Construction of the arena seating areas would commence after the lower arena superstructure has been constructed. Much of the seating area would be constructed of precast concrete that are fabricated offsite. Once the pieces are trucked to Site A, they would be placed by cranes. After placement, the seats, handrails, and other accessories would be installed on the precast concrete members using hand tools.

Interior Finishes and Specialties

The interior finishing work is the most labor-intensive activity since it requires a substantial number of tradesman to complete the task, but it does not require as much heavy equipment as the other tasks, such as excavation. The work on interior finishes involves various trades, including electrical, heating, ventilation, and air conditioning, painting, and furnishing, and it is accomplished within the enclosure of the building. This stage of construction would require a variety of small hand tools.

As the interior work progresses the specialty contractors would begin their work. Specialties include such items as security equipment, secure telecommunications for radio and television, the scoreboard and other video display systems, AV systems, vertical transportation including escalators and elevators, concessionaire stands, and commercial kitchens. This stage of construction would also include the installation of the ice rink. Like the interior finishes work, specialties do not use a great deal of large construction equipment, but are labor intensive.

Office and Community Space

Building construction for the office and community space at Site A would include excavation and foundation, superstructure construction exterior façade installation, and interior fit out activities.

Plaza Construction

The proposed open spaces would provide a hard- and soft-scape plazas of approximately 2.0 acres on Site A. During construction of the soft-scape plazas, clean top soil would be imported for installation of the grassy areas and landscaping. For the hard-scape work, concrete would be poured and appropriate ground surface materials would be installed. Plaza construction would also

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involve the installation of site features such as sitting areas. The placement of top soil would involve dump trucks bringing the soil and hand spreading. Concrete trucks would be needed to bring concrete, and the street furniture would be delivered by truck and hand installed.

Connection between Site A and Site B

The Proposed Project would establish one or more grade-separated connections providing access between Sites A and B, including the possibility of lowering of the Belmont Park Road underpass below Hempstead Turnpike to provide adequate vertical clearance for buses and trucks. Construction of foundations for the pedestrian bridge would require excavation, potential deep foundation elements, concrete pours and backfill. Structural steel or precast concrete structural members would then be placed with a crane and a concrete deck would be added by pouring it in place using a concrete pump. The placement of the spans across the Hempstead Turnpike is anticipated to require limited full lane closures in both directions. The closures would likely occur during the night.

SITE A - BUILDING CONSTRUCTION – HOTEL AND PARKING STRUCTURE (APPROXIMATELY 18 MONTHS)

Building construction at Site A, including construction of the proposed hotel and parking structure, would consist of the following primary construction stages: excavation and foundation; superstructure; exterior façade; and interior fit out. For each of these project components, construction would begin with the excavation of the soils, followed by construction of building foundations. Once below-grade construction is completed, construction of the core and shell of the new building would begin. The core is the central part of the building and is the main part of the structural system. It contains the building's beams and columns, as well as elevator shafts and the mechanical systems for heating, ventilation, and air conditioning (HVAC). The shell is the exterior of the building. As the core and floor decks of the building are erected, installation of the mechanical and electrical internal networks would start, followed by the placement of exterior façades. Next, interior fit out work would commence, including the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring and painting), mechanical and electrical work, and lobby finishes. Finally, site work activities, including landscaping, would take place.

SITE B (APPROXIMATELY 24 MONTHS)

Parking Structure and Retail Village

The construction stages for the parking structure and retail village would be similar to the steps discussed above for Site A for the hotel and parking structure building. Construction activities would generally involve the following primary construction stages: excavation and foundation; superstructure; exterior façade; and interior fit out.

Construction would begin with the removal of the existing paved parking lot with the use of a milling machine, loaders, and excavators. Next, Site B would be excavated to the desired elevation to accommodate the one level of parking. Excavators and front end loaders would be used for the task of soil excavation. Excavation would be followed by the installation of concrete footings and foundations for the parking structure and retail village. Foundation construction would involve equipment such as mobile cranes, concrete pumps, concrete finishers, rebar benders, and generators.

The superstructure of the proposed buildings for the retail village would include the building's framework (beams and columns) and floor decks. Construction of the interior structure, or core, of the building may include elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. Mobile cranes would be used to lift structural components, façade and roof elements, and other large materials. Finally, interior fit-out activities would commence and would include the construction of nonstructural building elements such as interior partitions, lighting fixtures, and interior finishes (e.g., flooring, painting, etc.).

Naturally Landscaped Areas

Approximately 3.75 acres of publicly accessible landscaped open spaces are proposed to be located on Site B. With the Proposed Actions, the eastern edge of Site B would be developed with a linear open space including a vegetated buffer with a minimum width of 50 feet featuring landscaped berms, hedges and plantings. During construction of the open space, clean top soil would be imported for installation of the grassy areas and landscaping. Trees would also be planted during this stage of construction. It is anticipated that the landscaping would provide habitats for wildlife.

NORTH LOT, SOUTH LOT, AND EAST LOT (APPROXIMATELY 6, 4, AND 5 MONTHS, RESPECTIVELY)

The North, South, and East Lots would be resurfaced, restriped, and illuminated with new lighting. Equipment used for these activities would include bulldozers, excavators, paving equipment rollers, and forklifts. Small ticketing booths may also be constructed on the lots. A chain-link fence and buffer composed of dense vegetation would also be constructed along the northeastern boundary of the North Lot.

BELMONT ELECTRICAL SUBSTATION (APPROXIMATELY 15 MONTHS)

The Proposed Actions would facilitate the construction of the electrical substation and the associated underground distribution feeders and transmission lines. The construction of the electrical substation would begin with the grading of the substation area and the installation of civil foundations. While the foundations are being completed, excavation activities for the underground conduits would commence. Then, equipment such as heavy transformers, circuit breakers as well as conduits and cables would be installed. Finally, testing would be performed to ensure that the equipment is operating properly. Excavators, small cranes, and lifts would be used for the construction of the electrical substation.

The underground distribution feeder cables would extend south, around the Belmont Park Racetrack, and to the proposed uses on Site A and Site B. Underground transmission lines would extend west from the proposed substation along Belmont Park Road approximately 1.5 miles, and tie into existing overhead power lines on Plainfield Avenue. Underground distribution feeder cables and transmission line activities would involve excavators for trenching, small cranes and lifts for the installation of manholes, and utility and reel trucks for the installation of cables; steel plates would also be used to cover any trenches overnight. There would also be overhead transmission line activities, including the installation of riser poles with small cranes and the installation of overhead cables with utility and reel trucks. In addition, there would be some re-conductor (cable replacement) activities offsite at approximately 4.5 miles northeast of the Project Sites.

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The proposed electrical substation would be surrounded by a fence that would extend approximately 280 feet along the Cross Island Parkway. A screen of evergreen trees would be planted around the fence.

LIRR SWITCHES UPGRADE/IMPROVEMENTS

On days with scheduled events at the proposed arena, it is anticipated that the Metropolitan Transportation Authority Long Island Rail Road (LIRR) would provide two round trip trains between Jamaica Station and Belmont Park Station, with eastbound trains arriving at Belmont Park prior to the start of the event and westbound trains departing from Belmont Park following the conclusion of the event, which could accommodate the projected number of passengers that would use the LIRR. In order to supply safe reliable train services, as part of the Proposed Actions, switch and signal upgrades would be implemented at and near the existing Belmont Park Station. The LIRR anticipates that the following equipment would be necessary to support this construction effort: welding truck, crew truck, grapppler trucks, payloaders, and crane.

ROADWAY IMPROVEMENTS

As part of the Proposed Project, improvements would be made at the intersection of Hempstead Turnpike at Locustwood Boulevard/Gate 5 Road (a Belmont Park entrance/exit). These would include: reconfiguring Hempstead Turnpike to include two eastbound left turn lanes, one eastbound through lane, and one eastbound shared through and right turn lane; extending the length of the eastbound left turn; modifying the traffic signal phasing to provide an eastbound left turn phase with a southbound right turn overlap; reconfiguring Gate 5 Road to include one southbound shared left turn and through lane, one southbound right turn lane, and two northbound receiving lanes; and relocating the crosswalk on Hempstead Turnpike from the west side of the intersection to the east side of the intersection. Roadway reconfiguration activities would generally require light-duty equipment and hand-held tools.

D. FUTURE WITHOUT THE PROPOSED ACTIONS

No changes are anticipated for the Project Sites in the future without the Proposed Actions. Sites A and B would continue to be used for occasional parking related to Belmont Park Racetrack and its associated activities and events. Vehicle storage would continue on Site B when not needed for race event parking. Any changes to Belmont Park by NYRA are separate from the Proposed Actions and would be expected to occur even without the Proposed Actions. NYRA improvement activities would include the rebuilding of the existing outer dirt track and the two inner turf tracks within their current footprints in order to provide for greater safety, better drainage, and an improved irrigation system. A synthetic track may also be installed within the inner turf course. Based on the anticipated construction schedule, NYRA improvement activities would begin in July 2019, with completion in time for the Spring Meet (April) in 2020. The construction managers for the Proposed Project would coordinate with the construction manager for the NYRA improvements to avoid delays and inefficiencies that may arise due to construction activities occurring on adjacent sites.

As with the Project Sites, it is expected that in the future without the Proposed Actions, the other directly affected areas (North, South, and East Lots and the area of the proposed electrical substation) would continue in their current and underutilized use to accommodate the occasional parking demand from the Belmont Stakes and for the storage of vehicles.

E. POTENTIAL IMPACTS FROM CONSTRUCTION OF THE PROPOSED ACTIONS

Similar to many large construction projects, construction activities can be disruptive to the surrounding area for periods of time, but such effects are temporary. The following analyses describe the potential impacts that could result from construction of the Proposed Project with respect to land use and community character, socioeconomic conditions, visual resources, historic and cultural resources, natural resources, hazardous and contaminated materials, transportation, air quality, noise and vibration, and safety and security.

LAND USE AND COMMUNITY CHARACTER

As is typical with construction projects, during periods of peak activity, there would be some disruption to the nearby area. There would be construction trucks and construction workers coming to the area as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would have more limited effects on land uses in the larger study area, as most construction activities would take place within the Project Sites and other directly affected areas. In addition, throughout the construction period, measures would be implemented to control air quality, noise, and vibration within the construction areas. For example, as discussed below under “Air Quality,” a mandatory emissions reduction program would be implemented for the Proposed Project to minimize the air quality effects of construction activities on the surrounding community. Measures would include, to the extent practicable, dust suppression measures (e.g., wheel washing, sweeping, soil pile covering, watering), use of ULSD fuel for construction vehicles, idling restrictions, diesel equipment reduction, best available technologies, and the utilization of newer equipment. As discussed under “Noise and Vibration,” a number of measures would be implemented during construction to reduce potential noise effects, including the erection of construction barriers, location of noisy equipment away from sensitive receptor locations where practicable, early electrification, idling restrictions, proper maintenance of equipment, and use of path control measures such as acoustic fabrics for certain dominant noise equipment to the extent practicable.

However, temporary adverse effects relating to increased traffic, noise, and views of construction activity would occur in the immediate vicinity of the Project Sites. During construction, the Project Sites and the immediately surrounding area would be subject to added traffic from construction trucks and worker vehicles. In addition, staging activities, construction fencing, and construction equipment and building superstructures would be visible to pedestrians in the immediate vicinity of the Project Sites. The effects would be localized, confined largely to areas surrounding the Project Sites, and no immediate area would experience the effects of the Proposed Actions’ construction activities for the full construction duration. WZTC plans would be developed for any temporary lane and/or street closures. In addition, as discussed above, required measures to control noise, vibration, and dust on construction sites would be implemented during construction. Therefore, although there is the potential for adverse effects during construction, these effects would be temporary and localized and would not result in significant impacts to community character.

Therefore, construction activity associated with the Proposed Actions would not result in significant or long-term adverse impacts on local land use patterns or the character of the broader neighborhood.

SOCIOECONOMIC CONDITIONS

Construction activities associated with the Proposed Actions would not significantly affect the operations of Belmont Park. As discussed above, construction would be coordinated with NYRA and the FOB to protect the operational requirements of the Belmont Stakes and other horse racing events held during the Spring and Fall Meets. In addition, NYAP would work with NYRA to ensure that NYAP construction of the Proposed Project would not interfere with the racing events during the Belmont Stakes week and the July 4th race day, and such measures may include the suspension of construction activities. Details regarding parking during these race events during construction are provided below under “Transportation.”

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits near the Project Sites created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. Construction also would contribute to increased revenues for local, County and State taxes, including those from personal income taxes. Construction associated with the Proposed Actions would not result in any significant adverse impacts on socioeconomic conditions.

VISUAL RESOURCES

During construction, there would be an increase in activity within the larger study area. As construction proceeds, large construction equipment such as drill rigs, cranes, and excavators, would be utilized and be visible to the public. The Project Sites would become construction areas that would be visible to residents located in the surrounding communities as well as visitors of Belmont Park.

Most of the activities and staging would be located within the Project Sites. Construction areas would typically be surrounded by construction fences and shielded from public view. Construction fences would be uniform and neat in material and appearance (i.e., neatly clad in green mesh or printed mesh with approved enhancements). The staging areas could have trailers and portable toilets, and these areas could be used to stockpile construction materials and for equipment and truck staging. As discussed above, contractors would be required to keep construction sites clean and orderly and would store construction materials in piles and not haphazardly. Although the character and quality of views in the surrounding communities during construction of the Proposed Project would be modified, such effects would be temporary in any given location. Therefore, construction of the Proposed Project would not result in significant adverse impacts to visual resources.

HISTORIC AND ARCHAEOLOGICAL RESOURCES

A detailed assessment of potential impacts on historic and cultural resources is described in Chapter 7, “Historic and Cultural Resources.”

In a letter dated August 10, 2018, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) determined that the Proposed Project would not result in any adverse impacts to historic and archaeological resources (see **Appendix B**). There are no known or potential archaeological or architectural resources on the Project Sites or within the other directly affected areas, and thus the Proposed Project would not have any direct or indirect impacts to on-site archaeological or architectural resources. There is one known architectural resource in the study area—the Floral Park Bellerose School—that is located approximately 400 feet from the North Lot, separated by a playing field, and thus has visibility to that portion of the directly

affected area. No new structures would be constructed on the North Lot, with the exception of lighting poles and potential low scale ticket booths; however, the North Lot would be used more frequently for active parking during arena events as compared to its current use for the storage of vehicles and overflow parking for the annual Belmont Stakes. The Proposed Project would include new fencing, and dense border vegetation along the northeastern boundary of the North Lot to screen and soften the separation between the North Lot and the playing field in the rear of Floral Park Bellerose School, and to reduce visibility. In addition, although Belmont Park is visible in the distance from the Floral Park Bellerose School, the Proposed Project would be located far enough away from the school that visibility of construction activity and equipment would be insignificant. Therefore, the Proposed Project's construction would not have any direct (physical) or indirect (visual/contextual) impacts to architectural resources within the study area.

NATURAL RESOURCES

VEGETATION AND ECOLOGICAL COMMUNITIES

Construction of the Proposed Project would not result in significant adverse impacts to vegetation or ecological communities. Ecological communities within the study area (i.e., the Project Sites and other directly affected areas—Site A, Site B, the South Lot, the North Lot, the East Lot, and the location of the proposed Belmont electrical substation) are limited to mowed lawns with trees, mowed lawn, paved road/path communities, and construction/road maintenance spoils, and successional southern hardwood forests. Mature trees found throughout the study area, including in the Backyard area, provide the most valuable habitat for wildlife. Approximately 124 trees would be removed from Site A and 66 trees would be removed from Site B. A minimal number of trees would be removed from the North Lot, South Lot, and proposed electrical substation area. No trees would be removed from the East Lot. These ecological communities, including those containing trees, in addition to being common throughout the region, are defined by human disturbance and provide limited habitat value to wildlife in the area.

Erosion and sediment control measures implemented in accordance with the SWPPP and developed in accordance with NYSDEC's SPDES General Permit for Stormwater Discharges from Construction Activity (Permit Number GP-0-15-002), and tree protection measures implemented prior to construction, would minimize potential impacts to trees and ecological communities outside the area of construction disturbance.

WILDLIFE

Construction of the Proposed Project would not have significant adverse impacts to wildlife at either the individual or population level. Construction activities would result in the loss of mowed lawns with trees, mowed lawn, paved road/path communities, and construction/road maintenance spoils, and successional southern hardwood forest communities in a highly urbanized setting during land clearing activities within the study area. Mature trees found throughout the study area, including in the Backyard area, provide the most valuable habitat for wildlife. Approximately 124 trees would be removed from Site A and 66 trees would be removed from Site B. A minimal number of trees would be removed from the North Lot, South Lot, and proposed electrical substation area. No trees would be removed from the East Lot. The habitats that would be removed due to clearing activities are common within the vicinity of the study area, and wildlife displaced due to clearing would have the potential to relocate to similar habitat near the study area. The loss of some disturbance-tolerant wildlife using the study area would not result in significant adverse impacts to populations of these wildlife species commonly found within developed areas of Long

Island. The man-made water feature in Site A does not support fish, aquatic reptiles or amphibians, but may support some aquatic invertebrates (e.g., aquatic insects). The loss of this small area of aquatic habitat for aquatic invertebrates would not result in significant adverse impacts to populations of these insects or to birds and other predators that may forage on the adult or aquatic stages of these insects. Therefore, construction of the Proposed Project would not result in significant adverse impacts to wildlife in the study area.

Indirect impacts to wildlife due to noise and increased human activity resulting from construction activities within the study area would not result in significant adverse impacts to the urban tolerant wildlife using the habitats within the study area. Wildlife currently using the study area are tolerant to noise and other human activities associated with the developed nature of the study area and adjacent areas. Any wildlife disturbed by increased noise and human activity due to construction would be expected to move to nearby similar available habitats. The temporary loss of some portion of these habitats common to developed areas would not result in significant adverse impacts to regional populations of urban tolerant wildlife.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES AND SIGNIFICANT NATURAL COMMUNITIES

The study area does not provide habitat for the federally-listed *piping plover*, *red knot*, *roseate tern*, *sandplain gerardia*, and *seabeach amaranth*. The listed bird species would only have the potential to occur as an occasional flyover. Construction of the Proposed Project would have no effect on these species.

Willow oaks were observed within the study area during the May 21, 2018 reconnaissance investigation. A total of seven willow oaks were observed within Site B and five would be removed during construction. Two willow oaks would be preserved. The willow oaks observed were planted within Site B and do not represent a natural population. Because willow oak is a commonly planted tree in Nassau County and New York City, these trees do not constitute one of the “five or fewer sites or very few remaining individuals” of this species in New York State as is intended by the NYNHP “S1” rank. Therefore, the removal of these trees would not be considered a significant adverse impact to protected willow oak populations and would not be considered a significant adverse impact to naturally occurring, willow oak populations. Willow oaks would be considered in the landscaping plans to the extent that the construction schedule allows based on the required planting seasons.

The USFWS’s 4(d) rule identifies Endangered Species Act protections that focus on protecting the northern long-eared bat’s sensitive life stages, minimizing incidental take¹ in areas affected by white-nose syndrome.² Although the study area possesses limited potential to provide suitable habitat for northern long-eared bats, coordination with USFWS has been initiated to determine whether suitable habitat for long-eared bat is present within the Project Sites and whether the 4(d) rules applies. If it is determined that the Project Sites offer suitable habitat for northern long-eared bats, tree removals would be conducted in accordance with the 4(d) rule issued by the USFWS to minimize potential impacts to this species. If possible, tree clearing would occur outside the April

¹ “Incidental take” is defined by the Endangered Species Act as take (“to harass, harm, pursue, hunt, shoot, wound kill trap, capture, or collect” any endangered species) that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill the bats.

² <https://www.fws.gov/midwest/endangered/mammals/nleb/pdf/FAQsFinal4dRuleNLEB.pdf>

to October active season, but at a minimum would be conducted outside the June 1 to July 31 pup season in order to avoid significant adverse impacts to that species.

Therefore, construction of the Proposed Project would not have significant adverse impacts to threatened, endangered, and special concern species and significant natural communities.

HAZARDOUS AND CONTAMINATED MATERIALS

A detailed assessment of the potential risks related to construction with respect to any hazardous materials is described in Chapter 8, “Hazardous Materials.”

The Proposed Actions would require excavation for construction of new buildings on the Project Sites (some of which include below-grade space), and more limited excavation for the construction of parking fields, the new substation, and installation of utilities at both the Project Sites and other directly affected areas. Although the subsurface investigation found no evidence of significant contamination of soil, groundwater, or soil vapor, the following measures would be incorporated into the Proposed Actions to reduce the potential for exposure to any hazardous materials that may be encountered (it should be noted that PSEG Long Island would be responsible for properly handling any hazardous materials associated with subsurface disturbance associated with the new substation and installation of associated distribution feeders and transmission lines/poles):

- Soil to be disposed of off-site would be sampled prior to excavation at a frequency sufficient to meet disposal facility requirements. This would include the areas of excavation (trenching), which are yet to be finalized, at the parking areas and the area where the new substation is proposed.
- Excavated material would be handled and disposed of in accordance with applicable federal, state, and local regulatory requirements;
- A Soil Management Plan (SMP), incorporating a CHASP, would be implemented to ensure proper procedures are followed should petroleum tanks or contaminated soil be identified during the pre-construction sampling or during construction. The CHASP would address worker and community protection, including the need for personal protective equipment, dust control, work zone and community air monitoring, and emergency response procedures;
- In the event that petroleum tanks are encountered, they would be removed (along with any associated contaminated soil) in accordance with applicable regulatory requirements, including those relating to spill reporting and tank registration;
- Any imported soil used for landscaping would comply with applicable regulatory requirements; and
- To comply with NYSDEC stormwater management regulations, a SWPPP providing erosion and sedimentation control measures to minimize the potential impacts to stormwater would be developed and implemented.

With the incorporation of these measures, the potential for significant adverse effects related to hazardous materials would be avoided.

TRANSPORTATION

TRAFFIC

Trip Generation Projections

Construction activities associated with the Proposed Actions from 2019 to 2021 would generate construction worker and truck traffic. These construction vehicle trips would be temporary, as they would cease upon completion of construction. An evaluation of construction sequencing and projections of workers and trucks was undertaken to assess potential traffic-related impacts associated with construction. **Table 15-2** shows the estimated number of workers and truck deliveries to the Project Sites, the North, South, and East Lots, and the area of the proposed electrical substation per quarter (i.e., three-month period) of each calendar year for the duration of construction activities. These represent the average number of daily workers and trucks within each quarter.

**Table 15-2
Total Daily Construction Workers and Trucks by Quarter**

Category	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Workers	0	57	165	456	555	673	794	994	937	738	303	0
Trucks	0	41	223	296	121	152	182	118	113	78	30	0
Sources: NYAP and PSEG Long Island												

The average daily workforce and truck trip estimates in **Table 15-2** were then used to determine the peak quarter and worst-case scenario for potential traffic-related impacts during construction. These projections were further refined to account for the travel characteristics of construction workers including modal splits and vehicle occupancy rates. Based on the latest available U.S. Census data (2000 Census data) for the construction and excavation industry for tracts in the area surrounding Belmont Park Racetrack, most of the construction workers (approximately 85 percent) would be expected to travel by personal autos at an average occupancy rate of 1.22 persons per vehicle. The remaining approximately 15 percent would use public transportation or travel via other modes.

Estimates of daily construction vehicle trips were developed per quarter of each calendar year and are summarized in **Table 15-3**. These represent the sum of trips by personal autos used by construction workers and trucks making deliveries to construction sites. Each auto used by workers was assumed to result in two vehicle trips over the course of a day (one inbound and one outbound) and each truck delivery was also assumed to result in two truck trips (one inbound and one outbound). Truck trips were also converted into Passenger Car Equivalents (PCEs).³ **Table 15-3** shows that the total vehicle trips and total PCE trips would both peak in the fourth quarter of 2020.

**Table 15-3
Total Daily Construction Vehicle Trips by Quarter**

Category	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Autos	0	80	230	636	774	940	1,108	1,388	1,308	1,030	422	0
Trucks	0	82	446	592	242	304	364	236	226	156	60	0
Total Vehicles	0	162	676	1,228	1,016	1,244	1,472	1,624	1,534	1,186	482	0
Total PCEs	0	244	1,122	1,820	1,258	1,548	1,836	1,860	1,760	1,342	542	0
Note: PCE = Passenger Car Equivalent												

³ The traffic analysis assumed that each truck is equal to 2.0 PCEs.

Peak Hour Construction Worker Vehicle and Truck Trips

Construction site activities would normally take place on weekdays during the typical construction shift of 7:00 AM to 5:00 PM. Construction truck trips would typically be distributed throughout the day—depending upon the specific types of construction activities taking place—and most trucks would remain in the area for short durations. Auto trips associated with construction worker travel would typically take place during the hours before and after the daily work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon or evening and each truck delivery was assumed to result in one “in” trip and one “out” trip during the same hour.

The estimated daily vehicle trips for the peak quarter of construction traffic were distributed throughout the workday based on projected arrival/departure patterns of construction workers, and the projected pattern of truck deliveries based on the types of construction activities that would occur during the fourth quarter of 2020. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift (6:00 AM to 7:00 AM for arrivals and 5:00 PM to 6:00 PM for departures on a normal day). For construction trucks, deliveries would typically occur throughout the day when the construction site is active with more trips made during the early morning and fewer trips made towards the late afternoon. It is anticipated that there would be a slight peaking of construction truck deliveries during the hour before the regular day shift (25 percent of the daily total), overlapping with construction worker arrival traffic. Based on these assumptions, hourly construction vehicle trip projections (in PCEs) for the fourth quarter of 2020 were estimated and are summarized in **Table 15-4**. The table shows that an overall total of 673 and 554 construction vehicle trips (total vehicle trips in PCEs) would be anticipated on a weekday during the 6:00 AM to 7:00 AM and 5:00 PM to 6:00 PM construction peak hours, respectively.

Table 15-4
2020 Fourth Quarter Daily Construction Vehicle Trip Projections

Time Period	Worker Trips			Truck Trips			Auto Vehicle Trips			Truck Vehicle Trips ¹			Total Vehicle Trips		
	Temporal Distribution	In	Out	Temporal Distribution	In	Out	In	Out	Total	In	Out	Total	In	Out	Total
6:00 AM – 7:00 AM	40%	100%	0%	25%	50%	50%	555	0	555	59	59	118	614	59	673
7:00 AM – 8:00 AM	10%	100%	0%	10%	50%	50%	139	0	139	24	24	48	163	24	187
8:00 AM – 9:00 AM	0%	-	-	10%	50%	50%	0	0	0	24	24	48	24	24	48
9:00 AM – 10:00 AM	0%	-	-	10%	50%	50%	0	0	0	24	24	48	24	24	48
10:00 AM – 11:00 AM	0%	-	-	10%	50%	50%	0	0	0	24	24	48	24	24	48
11:00 AM – 12:00 PM	0%	-	-	9%	50%	50%	0	0	0	21	21	42	21	21	42
12:00 PM – 1:00 PM	0%	-	-	9%	50%	50%	0	0	0	21	21	42	21	21	42
1:00 PM – 2:00 PM	0%	-	-	7%	50%	50%	0	0	0	16	16	32	16	16	32
2:00 PM – 3:00 PM	0%	-	-	7%	50%	50%	0	0	0	16	16	32	16	16	32
3:00 PM – 4:00 PM	0%	-	-	3%	50%	50%	0	0	0	7	7	14	7	7	14
4:00 PM – 5:00 PM	5%	0%	100%	0%	-	-	0	70	70	0	0	0	0	70	70
5:00 PM – 6:00 PM	40%	0%	100%	0%	-	-	0	554	554	0	0	0	0	554	554
6:00 PM – 7:00 PM	5%	0%	100%	0%	-	-	0	70	70	0	0	0	0	70	70
Totals	100%	50%	50%	100%	50%	50%	694	694	1,388	236	236	472	930	930	1,860

Note:
(1) Truck vehicle trips are shown in Passenger Car Equivalents (PCEs)

During the 6:00 AM to 7:00 AM peak hour, there would be a total of 673 total construction vehicle trips (in PCEs), which would be 159 fewer vehicle trips compared to the total amount of primary project-generated trips associated with operation of the Proposed Project during the weekday AM

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peak hour of 7:30 AM to 8:30 AM (see Chapter 11, “Transportation”). Most of the construction vehicle trips would be auto trips associated with construction worker travel, which would primarily be expected to use the Cross Island Parkway. The remainder of construction vehicle trips would be truck trips, and during peak construction in the fourth quarter of 2020, most of these trips would be associated with the delivery of materials for the upper steel structure, roof and interior finishes of the arena on Site A. These types of truck deliveries would be expected to primarily travel to and from limited access highways that permit the use of commercial vehicles (such as the Clearview Expressway and Long Island Expressway). Since the amount of construction vehicle trips could exceed the volume of project-generated trips during operation of the Proposed Project for certain intersections, a detailed traffic analysis was conducted for the 6:00 AM to 7:00 AM construction peak hour for key intersections within the local street network study area.

During the 5:00 PM to 6:00 PM peak hour, there would be a total of 554 total construction vehicle trips (in PCEs), which would be 3,707 fewer vehicle trips compared to the total amount of primary project-generated trips associated with operation of the Proposed Project during the weekday PM peak hour (6:00 PM to 7:00 PM). Given that the amount of construction vehicle trips would be substantially lower than the volume of project-generated trips during operation of the Proposed Project, there would be substantially fewer intersections with potential significant adverse traffic impacts during the PM construction peak hour compared to the weekday PM peak hour analyzed for operation of the Proposed Project, and no new intersections would be expected to experience significant adverse traffic impacts during the peak quarter of construction. As such, detailed traffic analyses were not performed for the 5:00 PM to 6:00 PM construction peak hour.

Levels of Service

Traffic volumes for the 6:00 AM to 7:00 AM construction peak hour were developed from 24-hour Automatic Traffic Recorder (ATR) machine counts and Miovision turning movement and vehicle classification counts conducted in October 2017. These data indicate that background traffic volumes from 6:00 AM to 7:00 AM are approximately 35 percent lower than at 7:30 AM – 8:30 AM, which is the weekday AM peak hour analyzed in Chapter 11, “Transportation.” Baseline traffic volumes during peak construction activities in the fourth quarter of 2020 were then established by applying a background growth rate and traffic volumes associated with No Action development projects.

Vehicles generated by construction activities were assigned to the street network to determine the critical intersections most likely to be used by construction-generated trips. Autos used by workers to commute to construction sites were assigned to on-site parking spaces and would primarily be expected to use the Cross Island Parkway, which provides access to the Project Sites at Exits 26A, 26B/C, and 26D. It was assumed that the southbound off ramp at Exit 26A on the Cross Island Parkway would remain closed during construction and would not be used by vehicles to access Site B and, instead, these vehicles were assigned to access the Project Sites at Gate 5 or Gate 14 by using the southbound off ramp at Exit 26B and traveling east along Hempstead Avenue/Turnpike. Trucks making deliveries to construction sites were assigned to enter and exit the Project Sites via Hempstead Turnpike at Gate 5 or Gate 14 and would primarily utilize truck routes such as Hempstead and Jamaica Avenues to travel to and from the Clearview Expressway and Long Island Expressway. Other truck trips, including deliveries from local businesses, would be expected to travel to and from points east via Hempstead Turnpike. Traffic volume maps for the 6:00 AM to 7:00 AM construction peak hour are presented in **Appendix F**.

Based on the net change between 2020 No Action and 2020 Construction traffic volumes, key intersections in the local street network that would experience increased levels of volumes from construction-related traffic (personal autos used by construction workers and trucks making deliveries to construction sites) during the 6:00 AM to 7:00 AM construction peak hour were selected for analysis. These included a total of eight intersections:

1. Jamaica Avenue and 212th Place/Hempstead Avenue;
2. Jamaica Avenue and 213th Street/Hempstead Avenue;
3. Jamaica Avenue and Springfield Boulevard;
4. Hempstead Avenue and Springfield Boulevard;
5. Hempstead Avenue and 224th Street;
6. Hempstead Avenue and 225th Street;
7. Hempstead Avenue and Cross Island Parkway southbound off-ramp (unsignalized); and
8. Hempstead Avenue and Cross Island Parkway northbound off-ramp (unsignalized).

These intersections were analyzed using the traffic analysis methodology and impact criteria described in Chapter 11, “Transportation.” Traffic level of service tables summarizing the results of the analysis are provided in **Appendix F**. Significant adverse impacts from project-generated trips were identified at a total of five lane group movements at three intersections during the 6:00 AM – 7:00 AM construction peak hour:⁴

Jamaica Avenue at 213th Street/Hempstead Avenue

- Northbound Hempstead Avenue left turn and through movement
- Northbound Hempstead Avenue shared left-through movement

Hempstead Avenue at Springfield Boulevard

- Eastbound Hempstead Avenue left turn movement
- Westbound Hempstead Avenue shared through and right turn movement

Hempstead Avenue at Cross Island Parkway northbound off-ramp

- Southbound off-ramp right turn movement

Chapter 17, “Mitigation” addresses practicable measures to address these impacts.

Temporary Lane Closures

Based on preliminary plans, during certain stages of construction, temporary lane closures may be required along Hempstead Turnpike adjacent to the Project Sites to facilitate construction of one or more grade-separated pedestrian connections providing access between Sites A and B, including the possibility of lowering of the Belmont Park Road underpass below Hempstead Turnpike to provide adequate vertical clearance for buses and trucks, utility connections and sidewalk improvement. It is anticipated that these construction activities would be of limited duration and sequenced in such a manner that no more than one lane would be closed at a given time. The placement of the spans for a potential pedestrian bridge across the Hempstead Turnpike would be anticipated to require limited full lane closures in both directions; these closures would likely occur during the night. In these instances of temporary lane closures, WZTC plans would be implemented to ensure minimum disruption to traffic flow. As part of a highway work permit,

⁴ A “lane group” is a grouping of traffic movements (i.e., left turn, through, right turn) in one or more travel lanes.

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the approval of which is necessary from NYSDOT, any lane closure plan would be reviewed and approved by NYSDOT. As it has not been determined that a lane closure would be necessary, WZTC plans have not yet been prepared.

Construction activities related to the installation of underground distribution feeders and underground transmission lines associated with the electrical substation would occur within the confines of Belmont Park Racetrack and would not be expected to affect the roadbeds of the local street network or result in any street or lane closures.

PEDESTRIAN CIRCULATION

Based on preliminary plans, during certain stages of construction, temporary sidewalk closures may be required along Hempstead Turnpike adjacent to the Project Sites to facilitate construction of one or more grade-separated pedestrian connections to provide access between Sites A and B, including the possibility of lowering of the Belmont Park Road underpass below Hempstead Turnpike to provide adequate vertical clearance for buses and trucks, utility connections and sidewalk improvement. It is anticipated that these construction activities would be of limited duration. In these instances, WZTC plans would be implemented to ensure minimum disruption to pedestrian flow and would also incorporate pedestrian elements to ensure safety. At locations where temporary sidewalk closures may be required during construction activities, provisions for temporary sidewalks and/or appropriate signage would be provided as part of the WZTC plans.

TRANSIT

Approximately 15 percent of the construction workers would be expected to use public transportation or other modes to travel to the construction sites. During peak construction activities in the fourth quarter of 2020, up to 58 new bus trips (including transfers that would be made to/from subways or the LIRR) would be generated by construction workers during the peak hours of 6:00 AM to 7:00 AM and 5:00 PM to 6:00 PM before and after the typical construction shift. It is anticipated that this level of transit demand could be accommodated by the four existing bus routes that serve the Project Sites (i.e., N1, N6, Q2, and Q110) and no significant adverse impacts to transit services are expected.

PARKING

Construction workers traveling to the construction areas by private autos would park in designated areas located within the Project Sites or the North, South, and East Lots. Parking of construction vehicles including construction workers' private autos would not be permitted outside of the boundaries of the Project Sites or North, South, and East Lots. During the fourth quarter of 2020, when peak construction activities are expected and when both Sites A and B would be under construction, construction workers would generate a demand for approximately 694 parking spaces during the weekday Midday period, the time of day when parking demand is highest. It is anticipated that most of this parking demand could be accommodated on the Project Sites and/or the North, South, and East Lots. As discussed in Chapter 11, "Transportation," the North, South, and East Lots contain a total of 6,154 parking spaces, which would increase to a total of 6,312 spaces upon the completion of the Proposed Project. Given this amount of parking that would be available on the Project Sites or the North, South, and East Lots, it is expected that there would be sufficient on-site parking capacity to accommodate all projected demand during the weekday Midday period, and construction activities would not result in a significant adverse parking impact.

Racing Season and Belmont Stakes

Construction activities associated with the Proposed Actions would include resurfacing and restriping of the North, South, and East Lots to maximize the number of spaces that can be achieved and the installation of new lighting within these lots. The South Lot is currently utilized for Belmont Park event parking, and the North and East Lots are currently used for vehicle storage or event parking on days with a large attendance of Racetrack attendees (such as the Belmont Stakes). As discussed in Chapter 11, “Transportation,” these surface parking lots presently contain a total of 6,154 parking spaces, which would increase to a total of 6,312 spaces upon the completion of the Proposed Project.

The racing season at Belmont Park consists of a Spring Meet that runs from late April through mid-July and a Fall Meet that runs from mid-September through late October. Construction activities within the North, South, and East Lots are all anticipated to occur within the timeframe of November 2020 through April 2021 and would not overlap with the racing season at Belmont Park. As discussed in Chapter 11, “Transportation,” existing parking utilization surveys conducted at Belmont Park in October 2017 showed that midday parking utilization associated with Racetrack patrons during the racing season ranged from approximately 795 vehicles on a weekday to approximately 2,030 vehicles on a Saturday. As this level of parking demand could be accommodated within the North, South, and East Lots prior to and after their reconstruction, no significant adverse impacts to parking conditions are expected.

Belmont Park hosts the Belmont Stakes, the final race of the Triple Crown, which is held annually on the first or second Saturday in June. Construction activities associated with the Proposed Project would overlap with the three instances of the running of the Belmont Stakes: 2019, 2020, and 2021. **Table 15-5** provides a summary of prior parking utilization for attendees (paid parking), parking utilization for staff/vendors, and total attendance on Belmont Stakes day in 2016, 2017, and 2018.⁵ As shown in the table, during this three-year period, the parking demand for attendees ranged from 5,197 to 7,342 spaces, and the parking demand for staff and vendors ranged from 1,340 to 1,850 spaces, with variations in parking utilization from year to year due to factors such as weather conditions and the possibility for a Triple Crown winner.

**Table 15-5
Belmont Stakes Day Parking Utilization**

Year	2016	2017	2018*
Attendance	60,114	57,729	90,327
Paid Parking Spaces	7,342	5,197	5,466
Staff and Vendor Spaces	1,590	1,340	1,850
Total Spaces	8,932	6,537	7,316
Note: * Denotes a year with the possibility for a Triple Crown winner			
Source: NYRA			

Table 15-6 provides a summary of the anticipated number of on-site parking spaces that would be available to attendees and/or staff/vendors on Belmont Stakes day in 2019, 2020, and 2021 on the Project Sites, the North, South, and East Lots, as well as the White Lot and Pony Track, the latter two of which are additional locations used by NYRA for event parking on Belmont Stakes day.⁶

⁵ Since 2015, NYRA has capped the attendance of the Belmont Stakes at 90,000.

⁶ The Pony Track parking is located inside the oval of the pony track (located to the east of the Training Track) and the White Lot is located to the north of the Training Track.

Table 15-6

Anticipated Parking Supply on Belmont Stakes Day

Parking Location	2019	2020	2021
Site A	0	0	0
Site B	2,580 ¹	0	0
North Lot	3,000	3,000	2,860
South Lot	1,150	1,150	1,150
East Lot ²	2,520	2,520	2,818
White Lot	400	400	400
Pony Track	500	500	500
Total Spaces	10,150	7,570	7,728
Notes:			
(1) Construction activities on Site B would commence in August 2019			
(2) Parking supply includes 516 spaces on north end of the Blue parking area (the portion not part of the proposed East Lot)			

Parking conditions on Belmont Stakes day during construction activities are projected to be as follows:

- In 2019, it is assumed that the existing surface parking spaces on Site B would be made available to Racetrack patrons as construction activities for the retail village would not begin until the second half of 2019. With a total of 10,150 parking spaces available at Belmont Park, it is anticipated that all of the parking demand from attendees and staff/vendors could be accommodated on-site.
- In 2020, there would be reductions in the parking supply on Sites A and B due to construction activities for the arena, hotel, and retail village. With a total of 7,570 parking spaces available at Belmont Park, it is expected that all of parking demand may not be able to be accommodated on-site. In this instance, staff and vendors could park at an off-site location and be bused to the site, allowing for all the parking demand from attendees to be accommodated at Belmont Park. Aqueduct Racetrack is a potential location that could be used for off-site parking—this facility is operated by NYRA, contains approximately 3,000 parking spaces (excluding the parking for Resorts World Casino New York City), and is located approximately nine miles away from Belmont Park in the South Ozone Park neighborhood of Queens.
- In 2021, it is assumed that parking would be made available to Racetrack patrons on the South, North, and East Lots, which would be resurfaced and restriped (this work is expected to be finished in April 2021). With a total of 7,728 parking spaces available at Belmont Park, it is anticipated that all of the parking demand from attendees could be accommodated on-site. In this instance, staff and vendors could park at an off-site location and be bused to the site.

Construction would also be coordinated with NYRA and the FOB to ensure that an appropriate supply of parking spaces would be made available for Racetrack attendees for Belmont Stakes day and other major horse racing events held during the Spring and Fall Meets (e.g., the Friday before Belmont Stakes day, Kentucky Derby day, Father’s Day, and the Stars & Stripes Racing Festival).

AIR QUALITY

Construction activities associated with the Proposed Actions would include the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site such as excavators, cranes, and generators. On-road vehicles include construction trucks and construction worker vehicles arriving to and departing from the Project Sites as well as operating on-site. Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. In addition, emissions from dust-generating construction activities (i.e.,

truck loading and unloading operations) also have the potential to affect air quality. This section examines the potential for air quality impacts from construction.

ON-SITE CONSTRUCTION ACTIVITIES

The area near the Project Sites contains predominantly residential and commercial uses, and a mix of community facility, manufacturing, and open space uses. The overall construction duration of the Proposed Project is anticipated to be completed over a period of approximately 28 months. However, the most intense construction activities in terms of air pollutant emissions excavation and foundation activities (where the largest number of large non-road diesel engines such as drill rigs and excavators would be employed) are anticipated to occur over a period of approximately 10 months each at Site A and Site B. Construction sources would move around the Project Sites over the construction period such that the air pollutant concentration increments due to construction of the Proposed Project would not persist in any single location, and no portion of the adjacent sensitive receptor locations would be subject to the full effects of construction for the entire construction period. The other stages of construction, such as superstructure, exteriors, and interiors and finishing would result in lower air emissions since they would require fewer pieces of heavy-duty diesel equipment and would not involve soil disturbance activities that generate dust emissions. In addition, interior construction work would generally occur within an enclosed structure, thereby shielding nearby sensitive receptors. Overall, emissions associated with the construction of the Proposed Project would likely be lower than a typical construction project due to the required emission control measures to be implemented during construction (see “Emission Control Measures” below).

ON-ROAD SOURCES

Limited temporary lane closures may be required along Hempstead Turnpike adjacent to the Project Sites to facilitate construction of one or more grade-separated pedestrian connections providing access between Sites A and B. However, it is expected that the Proposed Project would maintain existing traffic flow routes without resulting in continuous construction detour/diversions over more than two consecutive winter seasons along local routes. Therefore, in accordance with the New York State Department of Transportation (NYSDOT)’s The Environmental Manual (*TEM*), no microscale detour traffic carbon monoxide (CO) or respirable particulate matter (PM₁₀) impact analysis is warranted. In addition, since the construction period for the Proposed Project would not last longer than five years, in accordance with the TEM, mesoscale emissions analysis for the construction period traffic is not required.

EMISSIONS CONTROL MEASURES

In order to minimize construction air quality effects to the nearby community, NYAP would require in its construction contracts that the contractors implement the following mandatory measures from ongoing construction:

- *Clean Fuel.* ULSD fuel would be used exclusively for all diesel engines throughout the construction areas.
- *Diesel Equipment Reduction.* As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders and chipping saws (i.e., early electrification) to the extent feasible and practicable.
- *Dust Control Measures.* A dust control plan would be implemented to minimize dust emissions from construction activities. For example, all trucks hauling loose material would

be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the Project Sites; and water sprays would be used for all excavation activities and transfer of soils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air in addition to wheel washing before trucks exit, sweeping as necessary and covering soil piles.

- *Idling Restriction.* As required by New York State Environmental Conservation Law (ECL), all vehicles would be prohibited from idling for more than five minutes. The idling restriction excludes vehicles that are using their engines to operate a loading, unloading, or processing device (e.g., concrete-mixing trucks) or otherwise required for the proper operation of the engine.
- *Best Available Technologies.* Non-road diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract for the Proposed Project), including but not limited to, concrete mixing and pumping trucks, would utilize the best available technology (BAT) (currently diesel particulate filters) for reducing diesel particulate matter emissions.
- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for non-road engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons (HC). Efforts would be made throughout construction to utilize non-road construction equipment and engines meeting at least the Tier 3 emissions standards.

With these measures in place, and given the temporary nature of the construction activities, construction of the Proposed Project would not result in any significant adverse air quality impacts.

NOISE AND VIBRATION

NOISE

Introduction

Construction of the Proposed Project has the potential to result in noise impacts generated by the operation of construction equipment on the various construction sites and construction-related vehicles traveling to and from the Project Sites on adjacent roadways. The potential for noise impacts due to the construction of the Proposed Project is discussed below.

Construction Noise Analysis Fundamentals

Construction activities increase noise levels as a result of (1) the operation of construction equipment on site; and (2) the movement of construction-related vehicles (i.e., worker trips, and material and equipment trips) on the roadways to and from the construction site. The combined effect of each of these noise sources was evaluated.

Noise from the on-site operation of construction equipment at a specific receptor location near a construction site is generally calculated by computing the sum of the noise produced by all pieces of equipment operating at the construction site. For each piece of equipment, the noise level at a receptor location is a function of the following:

- The noise emission level of the equipment;
- The distance between the piece of equipment and the receptor;
- Topography and ground effects; and
- Shielding.

Similarly, noise levels due to construction-related traffic are a function of the following:

- The noise emission levels of the type of vehicle (e.g., auto, light-duty truck, heavy-duty truck, bus, etc.);
- Volume of vehicular traffic on each roadway segment;
- Vehicular speed;
- The distance between the roadway and the receptor;
- Topography and ground effects; and
- Shielding.

Construction Noise Analysis Methodology

A quantified construction noise analysis was performed for the Proposed Project. The analysis considered the “worst-case” scenario (i.e., the conditions that would have the potential for producing the maximum noise levels) for construction at each of the Proposed Project construction sites, including Site A (consisting of the proposed arena, office, community space, plazas, hotel, parking and for purposes of this analysis the South Lot improvements); Site B (consisting of the retail village and its associated parking structure); the electrical substation; the North Lot, and the East Lot.

This analysis considered the effects of construction activities and construction equipment operated on the Proposed Project construction sites combined with the noise related to construction-generated trucks on roadways. Noise due to construction activities on the Project Sites was determined using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM), Version 1.1. Noise generated by construction vehicular traffic was determined using proportional modeling techniques and the Traffic Noise Model (TNM).

Noise analyses were performed to determine maximum one-hour equivalent ($L_{eq(1)}$) noise levels that would be expected to occur during construction. Chapter 13, “Noise,” defines the sound levels descriptors. The purpose of this analysis was to determine the magnitude of the “worst-case” noise produced by construction activities and if these noise levels would result in significant adverse noise impacts. The analysis was conservative in assuming the simultaneous occurrence of worst-case on-site equipment activity with worst-case construction vehicle traffic on adjacent roadways.

Proposed Project Construction Site Noise Sources

The RCNM is FHWA’s national model for the prediction of construction noise, and is a state-of-the-art analysis for noise analysis. The construction noise analysis accounts for the effects of noise control measures, including construction equipment whose noise emissions are no greater than the values shown in the RCNM guidance document, the presence of a 12-foot noise barrier along the west edge of the Site B construction site, and construction hours that would comply with the restrictions outlined in Chapter 144 of the Town of Hempstead Code (Unreasonable Noise) (i.e., between 7:00 AM and 6:00 PM on weekdays).

In general, the following methodology was used to calculate noise levels from the various construction sites:

- Identify “worst-case” construction time frames based on equipment lists and construction schedules provided by the construction managers;
- Estimate equipment locations relative to sensitive receptors based on expected construction logistics;

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- Develop a project-specific RCNM analysis for each construction site for the Proposed Project and input the distance to each receptor and shielding at each receptor, as applicable, for each piece of construction equipment; and
- Combine the maximum construction noise level output by the RCNM analysis at each receptor with existing measured noise levels to calculate the worst-case overall construction site noise levels.

Mobile Construction Noise Sources – Proportional Modeling

Construction mobile sources constitute construction trucks arriving at and departing from the Project Sites and traveling on roadways adjacent to the Project Sites. At locations where construction trucks would pass by sensitive receptors and traffic is the dominant source of existing noise, proportional modeling was used to determine noise levels generated by construction trucks traveling on roadways. This technique is based on a calculation using measured existing noise levels and predicted increases in traffic volumes to determine the construction-generated noise levels. Vehicular traffic volumes are converted into PCE values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and measured existing noise levels are scaled based on the projected change in PCEs. The component of the total projected noise level that comes from the construction-related traffic (rather than the measured existing level) is the level attributed to construction traffic.

In general, the following methodology was utilized for the proportional modeling:

- Peak hourly construction truck counts were estimated for roadways adjacent to the Project Site and converted to PCEs;
- Existing traffic counts were utilized to determine existing PCEs on these roadways;
- Using the analysis method and formulas described above, the combined noise level including construction truck noise was calculated; and
- The portion of the total combined noise level attributed to the construction-generated vehicles was determined.

Mobile Construction Noise Sources – TNM

At locations where construction trucks would pass by sensitive receptors on roadways that do not exist or are very lightly used in the existing condition, such as along roadways located within Belmont Park, noise generated by construction trucks was calculated using TNM.

The TNM is a computerized model developed for FHWA that takes into account various factors, including traffic volumes, vehicle speed, vehicle mix (e.g., percentage of autos, light duty trucks, heavy duty trucks, buses, etc.), sources/receptor geometry and distance, and shielding (including barriers and terrain, ground attenuation, etc.).

In general, the following procedure was used in performing the TNM analysis of construction trucks:

- Peak hourly construction truck counts were estimated for locations where construction trucks traveling on Project Site roadways would pass sensitive receptors;
- A project-specific TNM was developed and used to calculate construction-generated noise levels from trucks at selected receptors; and
- The construction-generated noise levels were combined with existing noise levels at each receptor to determine the total construction noise levels.

Construction Noise Impact Criteria

While NYSDEC does not provide standardized criteria specifically for assessing temporary construction-related noise impacts, the determination of the significance of project-generated noise is based on the land use affected by the activities, the magnitude of the change in noise level resulting from construction, the existing and resulting noise level, and the duration of the change in noise level. Construction noise levels that would exceed the criteria used for operational noise impacts (discussed in detail in Chapter 13, “Noise”) over a prolonged period of time would be expected to result in a significant adverse noise impact. Therefore, the impact criteria used in this analysis is as follows: construction resulting in an increase of more than 6 dBA in $L_{eq(1)}$ noise levels and total noise levels of more than 65 dBA at residences and other sensitive uses or 79 dBA at industrial or commercial areas would be considered a significant increase in noise levels; and if this increase would occur for 2 years or more, it would be considered a significant impact.

Selection of Noise Receptors

Noise from construction of the Proposed Project was analyzed at 21 receptors located near Belmont Park. These receptors were selected to represent noise-sensitive locations that would have the greatest potential to experience noise level increases resulting from the construction of the Proposed Project. The locations of the 21 receptor sites are listed in **Table 15-7** and shown in **Figure 15-2**.

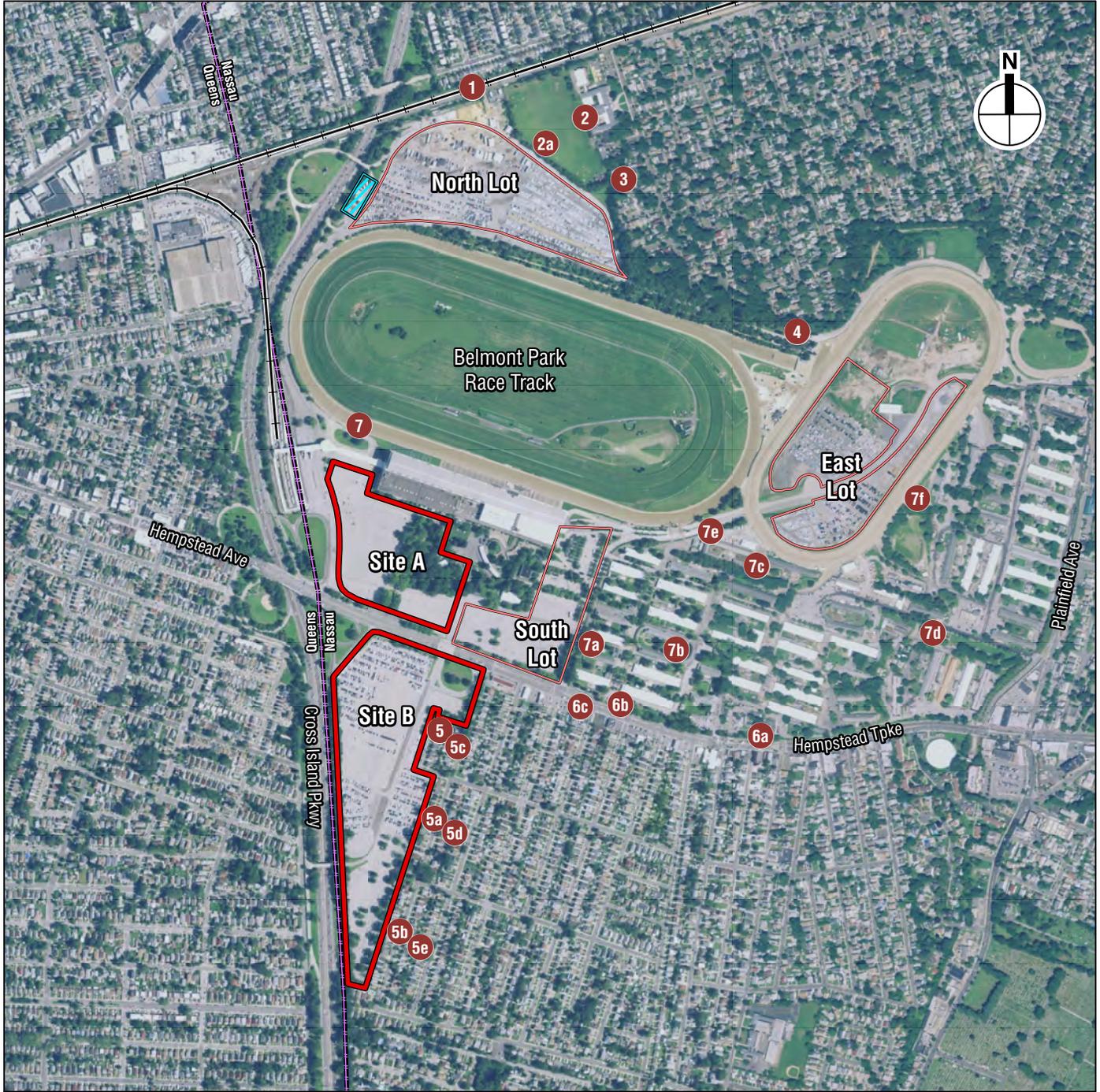
**Table 15-7
Construction Noise Receptor Locations**

Receptor Number	Receptor Site ¹	Land Use Represented
1	Superior Road, Floral Park, New York 11001	Residential
2	Poppy Place (Floral Park Bellerose School), Floral Park, New York 11001	School
2a	Poppy Place (open space), Floral Park, New York 11001	Recreation
3	Crocus Avenue, Floral Park, New York 11001	Residential
4	Spruce Avenue, Floral Park, New York 11001	Residential
5	Huntley Road (north of 106th Ave), Elmont, New York 11003	Residential
5a	Wellington Road (west side, between 106th Ave and 109th Ave), Elmont, New York 11003	Residential
5b	Wellington Road (west side, between 109th Ave and Hathaway Ave), Elmont, New York 11003	Residential
5c	Wellington Road (north of 106th Ave), Elmont, New York 11003	Residential
5d	Wellington Road (east side, between 106th Ave and 109th Ave), Elmont, New York 11003	Residential
5e	Wellington Road (east side, between 109th Ave and Hathaway Ave), Elmont, New York 11003	Residential
6a	Anna House, Hempstead Turnpike, Elmont, New York 11003	Child Care
6b	Belmont Park Dormitories, along Hempstead Turnpike	Residential
6c	Elmont Medical, 161 Hempstead Turnpike, Elmont, New York 11003	Medical
7	Belmont Park Horse Area/Racetrack	Horse
7a	Belmont Park Dormitories, western edge of stable area	Residential
7b	Belmont Park Dormitories, center of stable area	Residential
7c	Belmont Park Dormitories, northern edge of stable area	Residential
7d	Belmont Park Dormitories, along Man O War Avenue	Residential
7e	Belmont Park Dormitories, immediately adjacent to Gate 5 Road	Residential
7f	Belmont Park Dormitories at northwestern edge of stable area and Training Track	Residential/Horse

Note: ¹ See **Figure 15-2** for locations.

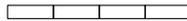
Construction Noise Analysis Results

Noise levels due to construction of the Proposed Project were predicted using the methodology described above, and are shown in **Table 15-8**. As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels of up to approximately 65 dBA at



-  Project Sites
-  North, South, and East Parking Lots
-  Proposed Belmont Electrical Substation
-  Long Island Rail Road (LIRR)
-  Construction Noise Receptor Location

0 1,000 FEET



Construction Noise Receptor Locations

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residences located on Superior Road represented by Receptor 1, which would result in an increase of up to 9 dBA over existing levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the North Lot and would include bulldozers, excavators, dump trucks, and paving equipment, along with construction truck trips traversing Belmont Park Road. This worst-case condition would have a duration of approximately 6 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor or the other residences that it represents.

**Table 15-8
Noise Analysis Results**

Receptor Number	Receptor Site ¹	Existing Noise Level L _{eq(1hr)} (dBA) ²	Worst Case On-Site Construction Noise L _{eq(1hr)} (dBA)	Worst Case Construction Truck Traffic Noise L _{eq(1hr)} (dBA)	Worst Case Construction Total Noise L _{eq(1hr)} (dBA)	Incremental Change in Noise L _{eq(1hr)} (dBA)
1	Superior Road	56.1	64.5	29.3	64.5	9.0
2	Poppy Place (school)	56.1	62.6	30.8	62.6	7.4
2a	Poppy Place (open space)	56.1	67.1	33.0	67.1	11.3
3	Crocus Avenue	51.6	64.0	33.1	64.0	12.6
4	Spruce Avenue	55.9	63.0	44.1	63.1	7.9
5	Huntley Road (north of 106th Ave)	55.7	70.0	0.0	70.0	14.5
5a	Wellington Road (west side, between 106th Ave and 109th Ave)	55.7	70.4	0.0	70.4	14.8
5b	Wellington Road (west side, between 109th Ave and Hathaway Ave)	55.7	67.4	0.0	67.4	12.0
5c	Wellington Road (north of 106th Ave)	55.7	69.7	0.0	69.7	14.2
5d	Wellington Road (east side, between 106th Ave and 109th Ave)	55.7	67.6	0.0	67.6	12.2
5e	Wellington Road (east side, between 109th Ave and Hathaway Ave)	55.7	64.9	0.0	64.9	9.7
6a	Anna House	62.8	60.2	65.6	66.7	5.4
6b	Belmont Park Dormitories, along Hempstead Turnpike	62.8	63.3	65.6	67.6	6.1
6c	Elmont Medical	62.8	65.9	65.6	68.8	7.0
7	Belmont Park Racetrack	54.0	78.2	54.3	78.2	24.2
7a	Belmont Park Dormitories, western edge of stable area	54.0	68.1	54.3	68.3	14.4
7b	Belmont Park Dormitories, center of stable area	54.0	63.0	0.0	63.0	9.5
7c	Belmont Park Dormitories, northern edge of stable area	54.0	62.3	54.3	62.9	9.5
7d	Belmont Park Dormitories, along Man O War Avenue	54.0	59.2	0.0	59.2	6.3
7e	Belmont Park Dormitories, immediately adjacent to Gate 5 Road	54.0	62.3	54.3	62.9	9.5
7f	Belmont Park Dormitories at northwestern edge of stable area and Training Track	54.0	68.3	0.0	68.3	14.5

Notes:

¹ See Figure 15-2 for locations.

² Existing Noise Levels measured by AKRF and discussed in Chapter 13, "Noise".

At the Floral Park Bellerose School on Poppy Place represented by Receptor 2, construction of the Proposed Project would produce maximum noise levels of approximately 63 dBA, which would result in an increase of up to approximately 7 dBA over existing levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the North Lot and would include bulldozers, excavators, dump trucks, and paving equipment, along with construction truck trips traversing Belmont Park Road. This worst-case condition would have a duration of approximately 6 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for sensitive uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor.

At the Floral Park Bellerose School athletic field north of the North Lot represented by Receptor 2a, construction of the Proposed Project would produce maximum noise levels of approximately 67 dBA, which would result in an increase of up to approximately 11 dBA over existing levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the North Lot and would include bulldozers, excavators, dump trucks, and paving equipment, along with construction truck trips traversing Belmont Park Road. This worst-case condition would have a duration of approximately 6 months. While construction noise may be readily noticeable and intrusive at times, the duration of construction would be limited, and the use of this open space is primarily for active recreation (e.g., sports, physical education, recess), which is less sensitive to noise than a purely passive open space would be. Consequently, construction of the Proposed Project would not result in any significant noise impacts at this receptor.

As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels of up to approximately 64 dBA at residences located on Crocus Avenue represented by Receptor 3, which would result in an increase of up to approximately 13 dBA over existing noise levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the North Lot and would include bulldozers, excavators, dump trucks, and paving equipment, along with construction truck trips traversing Belmont Park Road. This worst-case condition would have a duration of approximately 6 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and the duration of the construction noise would be limited. Consequently, construction of the Proposed Project would not result in any significant noise impacts at this receptor or the other residences that it represents.

As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels of up to approximately 63 dBA at residences located on Spruce Avenue represented by Receptor 4, which would result in an increase of up to approximately 8 dBA over existing noise levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the East Lot and would include bulldozers, excavators, dump trucks, and paving equipment, along with construction truck trips traversing Belmont Park Road. This worst-case condition would have a duration of approximately 5 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and the duration of the construction noise would be limited. Consequently, construction of the Proposed Project would not result in any significant noise impacts at this receptor or the other residences that it represents.

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As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels between approximately 65 and 70 dBA at residences to the east of Site B represented by Receptors 5 through 5e, which would result in increases over existing noise levels between approximately 10 and 15 dBA. These maximum noise level increases would occur during the worst-case construction activities for these receptors, which would be excavation/foundation construction of the retail village at Site B, including the use of excavators, demolition saws, cranes, generators, dump trucks, and concrete trucks, and pile driving occurring in the southeast corner of the Arena site. These construction activities would have a combined duration of approximately 20 months. During the remaining phases of construction of the retail village at Site B, which would last approximately 7 months, construction would produce maximum noise levels between approximately 54 and 62 dBA at the residences to the east of Site B, which would result in increases over existing noise levels between approximately 2 and 7 dBA.

At receptors immediately adjacent to Site B, represented by Receptors 5, 5a, and 5b, and receptors with one row of intervening buildings to Site B north of 109th Avenue, represented by Receptors 5c and 5d, noise levels during the worst-case construction activity would be readily noticeable and intrusive at times. At these receptors, worst-case construction noise levels exceed the acceptable criteria for residential uses provided by NYSDEC and experience noise level increases greater than 10 dBA. As a result of the construction noise levels that would occur at these receptors at times over the course of approximately 20 months, residences along Huntley Road, both sides of Wellington Road between Hempstead Turnpike and 109th Avenue, the west side of Wellington Road between 109th Avenue and Hathaway Avenue, and the north side of Hathaway Avenue west of Wellington Road would have the potential to experience significant adverse construction noise impacts.

At receptors south of 109th Avenue with one or more rows of intervening buildings to the construction site, represented by Receptor 5e, construction noise would be readily noticeable and intrusive at times. However, worst-case construction noise levels would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC. Consequently, construction of the Proposed Project would not result in any significant noise impacts at these residences.

At the Anna House Child Care Facility represented by Receptor 6a, construction of the Proposed Project would produce maximum noise levels of up to approximately 67 dBA, which would result in an increase of up to approximately 5 dBA over existing noise levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the arena including pile driving, hoe rams, bulldozers, excavators, dump trucks, and concrete trucks, along with construction truck trips on Hempstead Turnpike. This worst-case condition would have a duration of approximately 3 months while the volume of construction trucks on Hempstead Turnpike would be at its maximum. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not result in an increase of more than 6 dBA over existing noise levels and therefore construction of the Proposed Project would not result in any significant noise impacts at this receptor.

At the Belmont Park Dormitories located to the south of the stable area along Hempstead Turnpike, represented by Receptor 6b, construction of the Proposed Project would produce maximum noise levels of up to approximately 68 dBA, which would result in an increase of up to 6 dBA over existing noise levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the arena including pile driving, hoe rams, bulldozers, excavators, dump trucks, and concrete trucks, along with construction truck trips on Hempstead Turnpike. This worst-case condition would have a

duration of approximately 3 months while the volume of construction trucks on Hempstead Turnpike would be at its maximum. During all other construction periods, truck volumes along Hempstead Turnpike would be reduced and the increase in noise levels would be less than 6 dBA for these dormitories. While construction noise may be readily noticeable at times, noise levels during the worst-case construction activity with a duration of approximately 3 months would result in an increase of approximately 6 dBA over existing noise levels and therefore construction of the Proposed Project would not rise to the level of a significant noise impact at these dormitories.

At the Elmont Medical Facility represented by Receptor 6c, construction of the Proposed Project would produce maximum noise levels of up to approximately 69 dBA, which would result in an increase of up to 7 dBA over existing noise levels. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be construction of the arena including pile driving, hoe rams, bulldozers, excavators, dump trucks, and concrete trucks, along with construction truck trips on Hempstead Turnpike. Elevated noise levels would also occur during construction of the South Lot, which has a duration of approximately 4 months, and would include hoe rams, bulldozers, paving equipment, and dump trucks. This worst-case condition would have a duration of approximately 11 non-consecutive months. While construction noise may be readily noticeable at times, the total noise level would be less than the 79 dBA threshold considered acceptable for commercial use by NYSDEC criteria, and the duration of the construction noise would be limited. Consequently, worst-case increases in noise levels due to construction noise levels are experienced for a duration of less than two years and consequently construction of the Proposed Project would not result in any significant noise impacts at this receptor.

At areas within Belmont Park along the Racetrack where horses are trained/exercised represented by Receptor 7, and along the Training Track represented by Receptor 7f, construction of the Proposed Project would produce maximum noise levels between approximately 68 and 78 dBA, which would result in increases between 14 and 24 dBA over existing noise levels. These maximum noise level increases at the Racetrack would occur during construction of the arena including pile driving, hoe rams, bulldozers, excavators, dump trucks, and concrete trucks, along with construction trucks traversing Belmont Park Road and at the Training Track during East Lot construction including bulldozers, excavators, paving equipment, rollers, and forklifts. Elevated noise levels would also occur at various portions of the main Racetrack or Training Track during construction of the North Lot and substation. Noise impact criteria have not been developed for horses. However, horses have a hearing frequency range similar to humans, with considerable overlap between the range of best hearing between humans and horses, though hearing sensitivity is poorer in horses than humans (i.e., the sound level of a noise at a given frequency must be higher to be detectable by horses).⁷ Therefore, given that the predicted maximum noise levels of approximately 68 to 78 dBA are above the 65 dBA considered acceptable for sensitive uses by NYSDEC, the projected peak construction noise levels could be disturbing to horses, and the 14 to 24 dBA increases could be perceived by the horses as a dramatic change in noise levels.

The noise levels in **Table 15-8**, expressed as $L_{eq(1hr)}$ (i.e., the average noise level over the course of one hour), may not account for impulsive or short-duration sounds, which may not produce

⁷ Bregman, M.R., J.R. Iversen, D. Lichman, M. Reinhar, and A.D. Patel. 2012. A method for testing synchronization to a musical beat in domestic horses (*Equus ferus caballus*). *Empirical Musicology Review* 7:144-156.

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large increases in the $L_{eq(1hr)}$ due to their limited duration. Horses, like other animals,^{8,9} may be sensitive to impulsive noise from impact equipment, such as pile driving, jackhammering, etc., as well as other short duration sounds, such as back-up alarms and loud truck braking. Impact equipment would be utilized during construction of the South Lot and construction of the arena (the areas closest to horse stables and training). These impulsive and short-duration noise-producing activities have the potential to startle horses, posing a safety issue to horses and riders.

Though maximum noise levels could impact horses and impulsive and short-duration noise has the potential to elicit startle reactions, the main Racetrack is anticipated to be closed from approximately mid-2019 to April 2020. This closure period largely overlaps with the heavy construction activities planned for arena construction, reducing the potential for adverse noise impacts on horses. When construction activities overlap with horse training, the Applicant and construction team would coordinate with the horse training operators to adjust construction means, methods, and scheduling whenever possible to reduce the potential for adverse noise impacts.

As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels of approximately 68 dBA at the Belmont Park Dormitories located along the western edge of the stable area near the Gate 5 Road, represented by Receptor 7a, which would result in an increase over existing noise levels of approximately 14 dBA. This maximum noise level increase would occur during the worst-case construction activities for this receptor, which would be construction of the South Lot. This worst-case construction has a duration of approximately 4 months and would include hoe rams, bulldozers, paving equipment, and dump trucks. Elevated noise levels would also occur during pile driving for the arena, which has a duration of approximately 5 weeks. Therefore, at the Belmont Park Dormitories located along the western edge of the stable area, noise levels during the worst-case construction activity would be readily noticeable and intrusive at times. At these receptors, worst-case construction noise levels exceed the acceptable criteria for residential uses provided by NYSDEC and experience noise level increases greater than 10 dBA. As a result of the construction noise levels that would occur at these receptors at times over the course of approximately 5 non-consecutive months, Belmont Park Dormitories along the western edge of the stable area would have the potential to experience significant adverse construction noise impacts.

As shown in **Table 15-8**, at the Belmont Park Dormitories located within the central portion of the stable area, represented by receptor 7b, construction of the Proposed Project would produce maximum noise levels of approximately 63 dBA, which would result in increases over existing noise levels of approximately 10 dBA. This maximum noise level increase would occur during the worst-case construction activity for this receptor, which would be pile driving during construction of the arena. This worst-case condition would have a duration of approximately 7 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor or the other dormitories that it represents.

⁸ Richardson, W.J., C.R. Greene, Jr., C.I. Malme, and D.H. Thomson. *Marine Mammals and Noise*. San Diego, CA: Academic Press.

⁹ Hawkins, A.D. and A.N. Popper. 2014. Assessing the impact of underwater sounds on fishes and other forms of marine life. *Acoustics Today* 10:30-41.

As shown in **Table 15-8**, at the Belmont Park Dormitories located at the northern edge of the stable area near the Training Track, represented by receptor 7c, construction of the Proposed Project would produce maximum noise levels of approximately 63 dBA, which would result in increases over existing noise levels of approximately 10 dBA. This maximum noise level increase would occur during the worst-case construction activity for these receptors, which would be construction of the East Lot and would include bulldozers, excavators, paving equipment, rollers, and forklifts. This worst-case condition would have a duration of approximately 5 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor or the other dormitories that it represents.

As shown in **Table 15-8**, at the Belmont Park Dormitories located in the northeastern portion of the stable area near Man O War Avenue, represented by receptor 7d, construction of the Proposed Project would produce maximum noise levels of approximately 59 dBA, which would result in increases over existing noise levels of approximately 6 dBA. This maximum noise level increase would occur during the worst-case construction activity for these receptors, which would be construction of the East Lot and would include bulldozers, excavators, paving equipment, rollers, and forklifts. This worst-case condition would have a duration of approximately 5 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor or the other dormitories that it represents.

As shown in **Table 15-8**, at the Belmont Park Dormitories located immediately adjacent to Gate 5 Road, represented by receptor 7e, construction of the Proposed Project would produce maximum noise levels of approximately 63 dBA, which would result in increases over existing noise levels of approximately 10 dBA. This maximum noise level increase would occur during the worst-case construction activity for these receptors, which would be construction of the East Lot and would include bulldozers, excavators, paving equipment, rollers, and forklifts. This worst-case condition would have a duration of approximately 5 months. While construction noise may be readily noticeable at times, noise levels during even the worst-case construction activity would not exceed 65 dBA, which is considered acceptable for residential uses by NYSDEC, and construction of the Proposed Project would consequently not result in any significant noise impacts at this receptor or the other dormitories that it represents.

As shown in **Table 15-8**, construction of the Proposed Project would produce maximum noise levels of approximately 68 dBA at the Belmont Park Dormitories located along the northwestern edge of the stable area near the Training Track, represented by Receptor 7f, which would result in an increase over existing noise levels of approximately 15 dBA. This maximum noise level increase would occur during the worst-case construction activities for this receptor, which would be construction of the East Lot. This worst-case construction has a duration of approximately 5 months and would include bulldozers, excavators, paving equipment, rollers, and forklifts. Therefore, at the Belmont Park Dormitories located along the northwestern edge of the stable area near the Training Track, noise levels during the worst-case construction activity would be readily noticeable and intrusive at times. At these receptors, worst-case construction noise levels exceed the acceptable criteria for residential uses provided by NYSDEC and experience noise level increases greater than 10 dBA. As a result of the construction noise levels that would occur at these receptors at times over the course of approximately 5 months, Belmont Park Dormitories

along the northwestern edge of the stable area near the Training Track would have the potential to experience significant adverse construction noise impacts.

Prior to completion of the Final Environmental Impact Statement, the construction noise analysis will be refined to more specifically determine the existing condition noise levels and the construction noise increments at these receptors. The refinement may include additional measurements of existing noise levels in this area as well as additional information regarding the predicted construction program for the East Lot.

VIBRATION

Introduction

The potential for vibrations from construction activities to impact structures and residences near the Project Site is discussed below. Vibratory levels at a receiver are a function of the source strength (which is dependent upon the construction equipment and methods utilized), distance between the equipment and the receiver, characteristics of the transmitting medium, and receiver building construction. Construction equipment operations cause ground vibrations, which spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of fragile and possibly historically significant structures or buildings, construction activities generally do not reach levels that can cause architectural or structural damage, but construction activities can achieve levels that may be perceptible and annoying in buildings very close to a construction site.

Generally, the construction activities with the highest source strength and potential to result in perceptible or potentially damaging vibrations include excavation and rock disturbance operations such as demolition, pile driving, and rock drilling. Vibrations from paving, building erection, and finishing activities would be less than demolition activities and would not have the potential to produce damaging or perceptible levels of vibration at surrounding receptors.

Construction Vibration Criteria

Construction vibration is typically measured and evaluated using peak particle velocity (PPV) for the consideration of assessing potential structural or architectural damage and vibration decibels (VdB) for the consideration of annoyance to building occupants or interference with vibration-sensitive activities. The impact criteria used by the Federal Transit Administration includes a PPV of 0.50 inches/second for reinforced-concrete, steel, or timber buildings or 0.12 inches/second for buildings extremely susceptible to vibration damage. For purposes of evaluating potential annoyance, vibration levels greater than 65 VdB would be considered perceptible.

Vibration Analysis

Potential structural or architectural damage is determined using the following formula:

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

where:

PPV_{equip} is the peak particle velocity in inches/second of the equipment at the receiver location;

PPV_{ref} is the reference vibration level in in/sec at 25 feet; and

D is the distance from the equipment to the received location in feet.

Potential annoyance or interference with vibration-sensitive activities is assessed using the following formula:

$$L_v(D) = L_v(\text{ref}) - 30\log(D/25)$$

where:

$L_v(D)$ is the vibration level in VdB of the equipment at the receiver location;

$L_v(\text{ref})$ is the reference vibration level in VdB at 25 feet; and

D is the distance from the equipment to the receiver location in feet.

Table 15-9 shows vibration source levels for typical construction equipment.

Table 15-9
Vibration Source Levels for Construction Equipment

Equipment	PPV _{ref} (in/sec)	Approximate L _v (ref) (VdB)
Pile driver (impact)	Upper range	1.518
	Typical	0.644
Hydromill (slurry wall)	In soil	0.008
	In rock	0.017
Clam shovel drop (slurry wall)	0.202	94
Vibratory roller	0.210	94
Hydraulic break ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Transit Noise and Vibration Impact Assessment, FTA Report No. 0123, September, 2018.		

Construction Vibration at Site A

Demolition of the existing parking lot and excavation/foundation construction for the proposed arena, hotel, office space, and community space as well as associated parking would occur at least approximately 500 feet from the nearest residences across Hempstead Turnpike. At this distance, vibrations from demolition, excavation, and foundation work including the use of jackhammers, impact pile drivers, excavators, trucks, and other associated equipment would be expected to be barely perceptible and would not have the potential to result in architectural or structural damage to even a structure extremely susceptible to damage from vibration. Therefore, vibrations from proposed construction on Site A would not have the potential to result in a significant adverse impact at any surrounding receptors.

Construction Vibration at Site B

Demolition of the existing parking lot and excavation/foundation construction for the proposed retail village and its associated parking structure would occur at least approximately 150 feet from the nearest residences along Huntley Road. At this distance, vibrations from demolition, excavation, and foundation work including the use of jackhammers, excavators, trucks, and other associated equipment would be expected to be imperceptible and would not have the potential to result in architectural or structural damage to even a structure extremely susceptible to damage from vibration. Therefore, vibrations from proposed construction on Site B would not have the potential to result in a significant adverse impact at any surrounding receptors.

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Construction Vibration at North and East Lots and Electrical Substation Site

Demolition and repaving of the North and East Lots and foundation construction for the proposed electrical substation would occur at least approximately 450 feet from the nearest residential or school receptors. At this distance, vibrations from demolition, excavation, and foundation work including the use of jackhammers, excavators, trucks, and other associated equipment would be expected to be imperceptible and would not have the potential to result in architectural or structural damage to even a structure extremely susceptible to damage from vibration. Therefore, vibrations from proposed construction of the proposed North Lot, East Lot, or electrical substation would not have the potential to result in a significant adverse impact at any surrounding receptors.

SAFETY AND SECURITY

Measures taken to ensure the avoidance of adverse construction impacts in terms of safety and security would include the adherence to current NYRA safety and security policies, guidelines, procedures, and requirements. NYRA already coordinates with the Nassau County Police Department and other agencies for large events such as the Belmont Stakes. Incorporation of specific features to protect adjacent communities, the traveling public, and workers during construction would continue to be a major focus of project planning and design. The development and incorporation of these features will be coordinated with federal, state, and local agencies having jurisdiction over safety and security issues. *