

A. INTRODUCTION

Under the 2012 *City Environmental Quality Review (CEQR) Technical Manual* guidelines, a construction assessment analyzes the potential impacts from project-related construction activity, and describes the methods that may be employed to avoid significant adverse construction-related impacts.

The USTA Billie Jean King National Tennis Center (NTC) Strategic Vision (the proposed project) would result in a series of improvements on the project site, as described in Chapter 1, “Project Description.” This chapter summarizes the construction program for the proposed project and considers the potential for adverse impacts to occur during construction of the proposed project. The construction phasing and schedule for the proposed project are described, followed by a description of the types of construction activities likely to occur.

PRINCIPAL CONCLUSIONS

Although there would be localized, temporary disruptions due to construction activity, as is the case with any construction activity, this analysis finds that the proposed project would not result in any significant adverse impacts due to construction activities. This finding is based on an analysis of the types of construction activities and their intensity, the location of sensitive receptors that could be affected by the proposed project’s construction, and the overall construction duration.

TRANSPORTATION

No significant adverse transportation impacts would be expected due to construction of the proposed project.

The proposed project would result in an estimated ~~492~~ 179 more construction vehicle trips (passenger car equivalents [PCEs]) during the peak construction period. Because the NTC is in close proximity to several major highways, including the Grand Central Parkway (GCP), Van Wyck Expressway (VWE), and the Long Island Expressway (LIE), most of the construction worker auto trips are expected to enter and exit the site directly from these roadways. Deliveries can also use the Van Wyck Expressway, Long Island Expressway, and other area truck routes that may include College Point Boulevard via Avery Avenue, Northern Boulevard, and/or College Point Boulevard via the Rodman Entrance, to access the site. When distributed over the transportation network, the construction trip increments at any single location, particularly on local streets, would be minimal. In addition, these trip increments would primarily occur outside of the typical commuter peak hours (8–9 AM and 5–6 PM). Therefore, the traffic increase due to construction activities for the proposed project is not expected to result in any significant adverse traffic impacts.

The proposed project would result in an estimated ~~114~~105 construction-related transit trips which is fewer than the *CEQR Technical Manual* analysis threshold of 200 trips. Therefore, there would not be any potential for any significant adverse transit impacts during construction. In addition, ~~305~~280 pedestrian trips would be expected during the peak hour. Because these pedestrian trips would primarily occur outside of the typical commuter peak hours and would originate from several nearby transit services and Parking Lot S~~1~~1 (located west of Meridian Road, within the NTC leased area) they would be distributed among numerous sidewalks and crosswalks in the area. Furthermore, all of the subway person trips generated by the construction of the proposed project would connect directly from the station to the project site via the Passerelle ramp without utilizing any of the pedestrian facilities—sidewalks, corner reservoirs, and crosswalks—from the local street network. Therefore, no pedestrian elements are expected to incur 200 or more incremental pedestrian trips (the *CEQR Technical Manual* analysis threshold) resulting from the construction of the proposed project. Hence, there would not be a potential for significant adverse pedestrian impacts during construction. Also, if temporary sidewalk closures are required, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with New York City Department of Transportation (NYCDOT) requirements.

AIR QUALITY

Construction of the proposed project would not result in any significant adverse air quality impacts. The quantity of air pollutants emitted during the construction period would likely vary over time. The proposed project's construction activities would take place within the proposed NTC leased premises, except for the relocated connector road and park improvement projects. Construction activities would take place over a period of four years with discrete project elements lasting two years or less, except for the possible construction of the canopy over the center court of Arthur Ashe Stadium (Stadium 1). The walls of the stadium would act as barriers to the transport of air pollutants to nearby areas. The proposed project would not involve extensive excavation, foundation, or superstructure construction activities, which often generate the highest levels of air emissions. With the exception of adjacent portions of Flushing Meadows Corona Park and the Passerelle Building, there are very few sensitive receptors near the project site. However, the most intense construction activities (excavation and foundation work) in proximity to the Passerelle Building in terms of air pollutant emissions would be much less than two years. In addition, construction activities associated with the construction of Parking Garage B would not be considered out of the ordinary in terms of intensity and, in fact, emissions would be lower due to the emission control measures that would be implemented during construction of the proposed project. The park areas immediately adjacent to the current NTC fence line but within the proposed lease boundaries are lightly used, primarily for walking and jogging activities on the perimeter paths. Furthermore, the Passerelle ramp that connects the Long Island Rail Road (LIRR)'s Mets-Willets Point station to the Metropolitan Transportation Authority (MTA)'s 7 train station is primarily for transient use, and pedestrians passing through to access public transportation would not be expected to be present for extended durations. The nearest residences located more than 500 feet away from the project site and separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. Moreover, an emissions control program would be implemented to minimize potential construction-period effects on air quality. To ensure that the construction of the proposed project would result in the lowest practicable diesel particulate matter (DPM) emissions, the project would implement an emissions reduction program for all construction activities, including diesel equipment reduction; clean fuel; best available tailpipe reduction technologies; utilization of newer

equipment; dust control; and restrictions on vehicle idling. Therefore, construction of the proposed project would not result in any significant adverse air quality impacts.

NOISE AND VIBRATION

Noise

Noise associated with the proposed project's construction activities would not result in any significant adverse impacts. The construction duration for most of the project elements in the proposed project is expected to be short term (less than two years), and therefore any potentially intrusive noise levels generated by construction activities would be of limited duration. Although the possible construction of the canopy at Arthur Ashe Stadium (Stadium 1) would take approximately 28 months to complete, most of the equipment used for this construction element would be located within the stadium where the walls of the stadium would provide acoustical shielding for noise sources. In addition, there are few noise sensitive receptors near the project site. With the exception of adjacent portions of Flushing Meadows Corona Park and the Passerelle Building, there are very few sensitive receptors near the project site, with the nearest residences located more than 500 feet away from the project site and separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. The proposed project does not involve extensive excavation, foundation, or superstructure construction activities, which often generate the highest noise levels. The noisiest construction activity associated with the proposed project—pile driving—would be of limited duration compared to the overall project timeline. The most noise intrusive construction activities (excavation and foundation work) in proximity to the Passerelle Building would be much less than two years. The park areas immediately adjacent to the current NTC fence line but within the proposed lease boundaries are lightly used, primarily for walking and jogging activities on the perimeter paths. In addition, the Passerelle ramp that connects LIRR's Mets-Willets Point station to the Metropolitan Transportation Authority (MTA)'s 7 train station is primarily for transient use, and pedestrians passing through to access public transportation would not be expected to be present for extended durations. Due to distance and existing noise levels generated by traffic on Grand Central Parkway and Van Wyck Expressway and the other factors described above, no significant adverse noise impacts would be expected at sensitive receptor locations due to the construction of the proposed project.

As in the existing and future without the proposed project conditions, noise levels at Flushing Meadows Corona Park during construction of the proposed project are expected to be above the CEQR 55 dBA $L_{10(1)}$ guideline for open spaces requiring serenity and quiet, the predicted levels are comparable to or lower than noise levels in a number of open space areas that are within range of substantial noise sources (e.g., roadways, aircraft, etc.), including Hudson River Park, Riverside Park, and Bryant Park. The 55 dBA $L_{10(1)}$ guideline is a worthwhile goal for outdoor areas requiring serenity and quiet; however, due to the level of activity present at most open space areas and parks throughout New York City (except for areas far away from traffic and other typical urban activities), this relatively low noise level is often not achieved. Consequently, noise levels during construction at Flushing Meadows Corona Park, while exceeding the 55 dBA $L_{10(1)}$ CEQR guideline value, would not constitute a significant noise impact.

Therefore, based on these factors, no significant adverse noise impacts would be expected at any sensitive receptor locations from the proposed construction activities.

Vibration

The proposed project is not expected to result in significant adverse construction impacts with respect to vibration. To avoid architectural damage, a Construction Protection Plan (CPP) would be developed to protect two known architectural resources—the Freedom of the Human Spirit sculpture and the Passerelle Building—with a lateral distance of 90 feet from the proposed construction activities. The CPP would include a monitoring component to ensure that if vibration levels approach the 0.5 inches per second peak particle velocity (PPV) criterion, corrective action would be taken to reduce vibration levels, thereby avoiding architectural damage and significant vibration impacts.

Construction resulting in vibration levels greater than 65 vibration decibels (VdB) (e.g., equipment used during pile driving) would be perceptible and irritating and would have the potential to result in significant adverse impacts if they were to occur for prolonged period of time. However, the proposed project's construction activities would take place within the proposed NTC leased premises, except for the relocated connector road and park improvement projects. Construction activities would take place over a period of four years with discrete project elements lasting two years or less, except for the possible construction of the canopy over the center court of Arthur Ashe Stadium (Stadium 1). Therefore, these vibration levels are not expected to occur at any location of frequent and prolonged human use, including the nearby Passerelle Building, Olmsted Center (approximately 250 feet north of the project site separated by the railway tracks of the LIRR), and Queens Museum of Art (approximately 500 feet south of the project site). Furthermore, the operations which would result in these perceptible vibration levels would only occur for finite periods of time at any particular location and therefore the resulting vibration levels, while perceptible and irritating, would not result in any significant adverse impacts.

OTHER TECHNICAL AREAS

Open Space

The proposed project would result in improvements to landscaping, circulation, and amenities at the NTC that would be provided for the US Open and the public. The proposed project's construction activities would take place within the proposed NTC leased premises, except for the relocated connector road and park improvement projects; no additional areas of Flushing Meadows Corona Park are anticipated to be used for staging for construction activities associated with the NTC. In order to minimize the effects of construction-related closures on the public, to the extent practicable, court construction would take place during the winter months when these courts are not actively used and are replaced by more activity in indoor courts. At limited times, construction activities would generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction fences around the project site would shield the park from construction activities. In addition, areas that are outside of the current NTC fence line but within the proposed lease boundaries that would be directly affected by the construction of the proposed project are lightly used, primarily for walking and jogging activities on the perimeter paths. The replacement connector road would be built prior to the closure of the existing connector road, and commencement of construction activities for the new Stadium 3. The replacement connector road would include pedestrian sidewalks that would provide access to the main portions of the park for pedestrians entering the park via the United Nations Avenue North bridge over the Grand Central Parkway. Therefore, vehicle and pedestrian circulation, as well as park activities, would be maintained at all times. It

is not currently anticipated that any changes to the extent of pavement or removal of trees would be necessary in Lot S₁ to accommodate construction-related parking. However, if the use of this area during construction of the proposed project would require such changes, the area would be restored to the existing condition upon completion of the proposed project. Construction activities associated with the proposed project would not be expected to create a strain on nearby sections of Flushing Meadows Corona Park. Park users would continue to have access to sidewalks or pathways in other areas of the park for walking, running, and biking during the entire construction period. Dust control measures—including watering of exposed areas and dust covers for trucks—would be implemented to ensure compliance with the New York City Air Pollution Control Code, which regulates construction-related dust emissions. Therefore, construction of the proposed project would not result in significant adverse impacts on open space.

Historic and Cultural Resources

The proposed project would result in construction activities within 90 feet of the Freedom of the Human Spirit sculpture and the Passerelle Building. Therefore, to avoid potential inadvertent construction-related impacts to these resources during project demolition and construction activities, the proposed project would comply with the New York City Landmarks Preservation Commission (LPC)'s *Guidelines for Construction Adjacent to a Historic Landmark* as well as the guidelines set forth in section 523 of the *CEQR Technical Manual* and the procedures set forth in the New York City Department of Buildings (DOB)'s *Technical Policy and Procedure Notice* (TPPN) #10/88. This includes the preparation of a CPP prior to construction activities and submitted to LPC for review and approval. None of the other architectural resources in the study area are close enough to experience direct, physical impacts from construction of the proposed project. Therefore, the proposed project would not result in any significant adverse construction-related impacts to historic and cultural resources.

Hazardous Materials

The proposed project would involve subsurface disturbance for the proposed NTC improvements and expansion, as well as demolition of or alterations to some existing structures. Soil that would be disturbed by the proposed project includes historical fill materials known to contain ash, which have somewhat elevated concentrations of certain metals and semivolatile organic compounds (SVOCs). In addition, on-site structures may contain hazardous materials such as asbestos-containing materials (ACM), polychlorinated biphenyls (PCBs), and/or lead-based paint.

As discussed in Chapter 8, "Hazardous Materials," to reduce the potential for human or environmental exposure to contamination during and following construction of the proposed project, a Subsurface (Phase II) Investigation Work Plan to determine whether past or present, on or off-site activities have affected subsurface conditions, ~~was~~ would be prepared. The Work Plan has been approved by ~~and submitted to~~ the New York City Department of Environmental Protection (NYCDEP) ~~for review and approval~~. The Phase II investigation would target areas where soil disturbance is proposed. Following implementation of this Phase II investigation, based on its findings, a Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP), to be implemented during project construction, would be prepared and submitted to NYCDEP for review and approval. The RAP would address requirements for items such as soil stockpiling, disposal, and transportation; dust control; quality assurance; and contingency measures, should petroleum storage tanks or contamination be unexpectedly

encountered. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, dust control, air monitoring, and emergency response procedures). During and following demolition and renovation associated with the proposed project, regulatory requirements pertaining to ACM, lead-based paint, PCBs, chemical use, and storage would be followed. With these above-described measures, the proposed project would not result in any significant adverse impacts related to hazardous materials.

Natural Resources

Groundwater within the project site is not potable and soil levels of some compounds are elevated; construction of the proposed project would not be expected to have adverse impacts to groundwater quality or result in human or environmental exposure to contaminants. Nearly all project components would entail redevelopment of existing facilities, relocation of facilities, or construction of new facilities in previously developed areas within the NTC. The relocation of Grandstand Stadium (Stadium 3) and a connector road are the only project elements that would involve developing previously undeveloped land (mostly consisting of lawn and mature shade trees), but this activity would occur in the southwestern section of the NTC, which is outside of any floodplain and would not increase local flood risk. Construction would require the disturbance of ecological communities present on-site and the relocation or removal of approximately ~~349~~ ~~422~~ trees that are both outside the existing fence line and various locations inside the NTC site. USTA is working with DPR's Forestry Division to minimize the number of trees that would be removed and not replanted and has currently identified approximately 45 of the 347 living trees that would be replanted in place or transplanted. The other approximately 302 affected trees are being evaluated. Under a worst case scenario those approximately 302 trees would be removed and not replanted. However, some of these trees are expected to be determined by DPR to be suitable for transplant. Tree replanting and replacement within the NTC and elsewhere within the park would comply with the New York City Department of Parks and Recreation (DPR)'s applicable rules and regulations. Due to the highly urban nature of the terrestrial ecological communities present on the site, the loss of some of these communities as a result of the proposed project would not result in a significant adverse impact on ecological communities of the region. Wildlife occurring in the area is composed of urban-adapted, disturbance-tolerant generalists that would not be affected by construction noise. Some wildlife would be displaced from the site during project construction, but would be expected to relocate elsewhere in Flushing Meadows Corona Park and the surrounding neighborhoods. No federally or state-listed wildlife species are known to or considered to have the potential to occur within the project site or adjacent area. Therefore, construction of the proposed project would not result in a significant adverse impact to federally- or state-listed wildlife of the region.

B. OVERVIEW OF CONSTRUCTION ACTIVITIES

This section describes the City, state, and federal regulations and policies that govern construction, the expected construction schedule, construction practices, and construction tasks. The types of equipment to be used are discussed, and the number of workers and truck deliveries is estimated. A detailed description of each type of construction activity is also provided. This section establishes the framework used for the assessment of potential impacts from construction. Following the discussion of construction techniques, the chapter discusses

potential impacts with regard to transportation, air quality, noise and vibration, open space, historic and cultural resources, hazardous materials, natural resources, community facilities, land use, and neighborhood character.

GOVERNMENTAL COORDINATION AND OVERSIGHT

The following describes construction oversight by government agencies, which involves a number of city, state, and federal agencies. The project site is located within Flushing Meadows Corona Park, which is under the jurisdiction of DPR. DPR is responsible for overseeing construction activities within the park, and would approve and monitor construction activities associated with the proposed project. **Table 16-1** shows the main agencies involved in construction oversight and the agencies’ areas of responsibilities. Primary responsibilities lie with DPR, and with DOB, which ensures that the construction meets the requirements of the Building Code and that the buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect both the workers and the public. The areas of oversight include installation and operation of the equipment, such as cranes and lifts, sidewalk sheds, and safety netting and scaffolding. NYCDEP enforces the Noise Code, reviews and approves RAPs/CHASPs, and regulates water disposal into the sewer system and the removal of tanks. The Fire Department of New York City (FDNY) has primary oversight for compliance with the Fire Code and for the installation of tanks containing flammable materials. LPC approves studies such as a CPP and conducts monitoring to prevent damage to historic structures. DPR is responsible for the oversight, enforcement, and permitting of the replacement of trees that are lost due to construction. The tree removal and replacement program associated with the proposed project would be approved by DPR. Tree replanting and replacement within the NTC and elsewhere in the park would comply with the City’s applicable rules and regulations.

**Table 16-1
Construction Oversight in New York City**

Agency	Areas of Responsibility
New York City	
Department of Buildings	Primary oversight for Building Code and site safety
Department of Environmental Protection	Noise, RAPs/CHASPs, hazardous materials, dewatering, tanks
Fire Department	Compliance with Fire Code, tanks
Landmarks Preservation Commission	Archaeological and architectural protection
Department of Parks and Recreation	Street trees
Department of Design and Construction	Oversight of relocated connector road
New York State	
Department of Labor	Workers/Asbestos workers
Department of Environmental Conservation	Hazardous materials and tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons
Occupational Safety and Health Administration	Worker safety

The New York State Department of Labor (DOL) licenses asbestos workers. The New York State Department of Environmental Conservation (NYSDEC) regulates disposal of hazardous materials, and construction and operation of bulk petroleum and chemical storage tanks. On the federal level, the Environmental Protection Agency (EPA) has wide ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons. Much of the responsibility is delegated to the state level. The Occupational Safety and

Health Administration (OSHA) sets standards for work site safety and the construction equipment.

CONSTRUCTION PHASING AND SCHEDULE

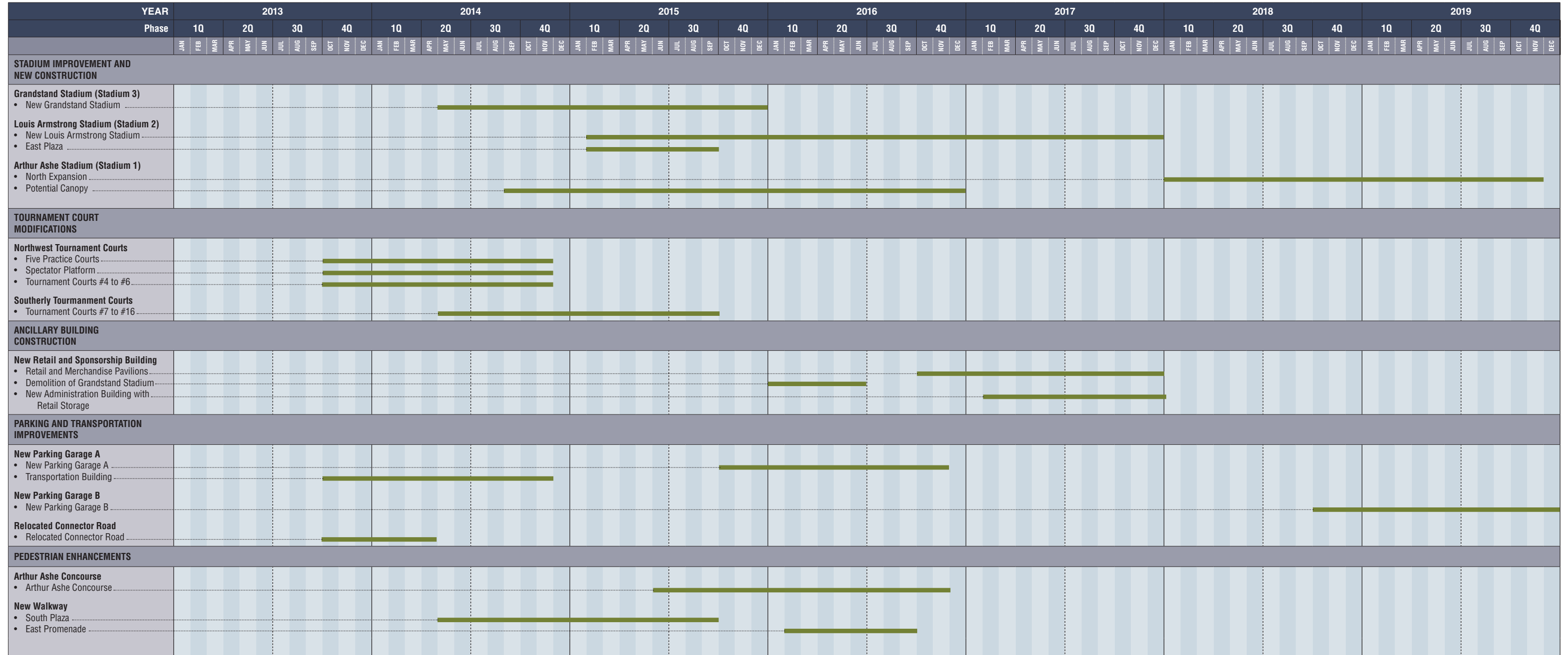
The construction duration for most of the individual project elements is expected to be short-term (less than two years) except for the construction of the possible canopy at the Arthur Ashe Stadium (Stadium 1) where it would take approximately 28 months to complete. Limited construction activities are expected to occur during the US Open event at Louis Armstrong Stadium (Stadium 2) and at the new Grandstand Stadium (Stadium 3) in the southwest corner of the project site. Construction equipment that would be on-site for other project elements would remain idle and would not be in operation during the US Open.

Construction of the proposed project is expected to begin in 2013 and would be completed by 2019, including park improvement projects. **Figure 16-1** and **Table 16-2** show the anticipated construction schedule for the proposed project. As summarized in **Table 16-2**, the major project elements would include stadium improvements and new construction, tournament court modifications, ancillary building construction, parking and transportation improvements, and pedestrian enhancements.

Stadium improvements and new construction elements would include the demolition and replacement of Grandstand Stadium and Louis Armstrong Stadium, and the renovation and expansion of Arthur Ashe Stadium. Demolition of the existing Grandstand Stadium would commence upon completion of the new Stadium 3 in the southwest corner of the project site, which would be completed by the end of ~~2016~~ ~~2015~~—(and would take approximately 6 months). Demolition of Louis Armstrong Stadium would begin in February 2016, with the replacement stadium in place at the same location by the end of 2017. Since the replacement of Louis Armstrong Stadium would take more than one year to complete, the demolition process would be scheduled so that a temporary replacement stadium could be built for the US Open, on the same site. Construction of the new stadium would continue after the US Open and take-down of the temporary structure. Possible construction activities associated with the new canopy at Arthur Ashe Stadium would begin in ~~September 2014~~ ~~April 2013~~—and would take approximately 28 months to complete, while renovation and expansion activities at the stadium would start in the beginning of 2018 and would be completed by November 2019. Construction activities at Arthur Ashe Stadium would not occur during the US Open to avoid any disruption to the tournament.

Tournament court modifications would include the replacement and relocation of existing courts. Construction activities at the northwest tournament courts would commence in October 2013 and would take approximately 14 months to complete. The five practice courts and tournament courts currently in this area would be replaced with five new practice courts, three new tournament courts, along with new elevated viewing platform. Construction at the southerly tournament courts would begin in May 2014 and would take 17 months to complete. The seven tournament courts currently in this area would be relocated to the south. In addition, new bleacher seating areas would be provided. In order to minimize the effects of construction-related closures on the public, to the extent practicable, court construction would take place during the winter months when these courts are not actively used and are replaced by more activity in indoor courts.

Ancillary building construction would include new retail and merchandise pavilions and the new administrative and retail building in the same location as the existing Grandstand Stadium. Construction of the pavilions would begin in October 2016 and would be completed by December 2017, while construction of the new administrative and retail building would commence in February ~~2016~~ 2017 and would be completed by December ~~2016~~ 2017.



Anticipated Construction Schedule
Figure 16-1

**Table 16-2
Anticipated Construction Schedule**

Map No. ¹	Name	Start Month	Finish Month	Approximate Duration (Months)
Stadium Improvements and New Construction				
1	Grandstand Stadium (Stadium 3)			
	<i>New Stadium 3</i>	May 2014	December 2015	20
	<i>Demolition of Grandstand Stadium</i>	January 2016	June 2016	6
2	Louis Armstrong Stadium (Stadium 2)			
	<i>New Stadium 2</i>	February 2016	December 2017	23
	<i>East Plaza</i>	February 2016	September 2016	8
3	Arthur Ashe Stadium (Stadium 1)			
	<i>North Expansion</i>	January 2018	November 2019	23
	<i>Potential Canopy</i>	September 2014	December 2016	28
Tournament Court Modifications				
4	Northwest Tournament Courts			
	<i>Five Practice Courts</i>	October 2013	November 2014	14
	<i>Spectator Platform</i>	October 2013	November 2014	14
	<i>Tournament Courts 4 to 6</i>	October 2013	November 2014	14
5	Southerly Tournament Courts			
	<i>Tournament Courts 7 to 16</i>	May 2014	September 2015	17
Ancillary Building Construction				
6	New Administrative and Retail Building			
	<i>Retail and Merchandise Pavilions</i>	October 2016	December 2017	15
	<i>Demolition of Grandstand Stadium</i>	January 2016	June 2016	6
	<i>New Administrative Building with Retail Storage</i>	February 2016 February 2017	December 2016 December 2017	11
Parking and Transportation Improvements				
7	New Parking Garage A			
	<i>New Parking Garage A</i>	October 2013 October 2015	November 2014 November 2016	14
	<i>Transportation Center</i>	October 2013	November 2014	14
8	New Parking Garage B			
	<i>New Parking Garage B</i>	October 2015 October 2018	December 2016 December 2019	15
9	Relocated Connector Road			
	<i>Relocated Connector Road</i>	October 2013	April 2014	7
Pedestrian Enhancements				
10	Arthur Ashe Concourse			
	<i>Arthur Ashe Concourse</i>	June 2015	November 2016	18
11	New Walkway			
	<i>South Plaza</i>	May 2014	September 2015	17
	<i>East Promenade</i>	February 2016	September 2016	8
Notes:	¹ See Figure 1-4 for the location of these elements under existing conditions. See Figure 1-5 for their proposed future location. -Limited construction activities would occur during the US Open event.			
Source:	USTA			

Parking and transportation improvements would include the construction of two new parking garages, a transportation center, and the relocation of the connector road. Construction of the ~~new Parking Garage A and a new transportation center~~ in the northwest corner of the site would begin in October 2013 and would be completed by November 2014, while construction of the new Parking Garage A would begin in October 2015 and would be completed by November 2016. The construction of the new Parking Garage B would begin in October ~~2015~~2018 and would be completed by December ~~2016~~2019. The connector road displaced by the relocation of

the Grandstand Stadium would be relocated to the area south of United Nations Avenue North near the Queens Museum of Art parking lot. Construction activities associated with the connector road relocation would start in October 2013 and would take approximately 7 months to complete.

Pedestrian enhancements would include concourse expansion at the Arthur Ashe Stadium, a new walkway at the South Plaza, and a new walkway that would connect the new Stadium 3 and Court 17. Construction activities associated with the Arthur Ashe concourse would begin in June 2015 and would be completed by November 2016. The new walkway in the South Plaza would start in May 2014 and would be completed by September 2015, while the new walkway in the East Promenade would start in February 2016 and would be completed by September 2016.

Construction of the relocated connector road and related improvements (including new sidewalks and extension of an existing bike lane) would begin in October 2013 and be completed by May 2014.

CONSTRUCTION PRACTICES

USTA would have a field representative throughout the entire construction period. The representative would serve as the contact point for the community and local leaders, and would be available to resolve concerns or problems that arise during the construction process. New York City maintains a 24-hour-a-day telephone hotline (311) so that concerns can be registered with the city. A security staff is at the NTC site 24 hours a day, 365 days a year.

HOURS OF WORK

For the proposed project, construction is expected to take place Monday through Friday and with minimal, weather make-up work on Saturdays with DPR approval. Certain exceptions to these schedules are discussed separately below. In accordance with New York City laws and regulations, construction work would generally begin at 7:00 AM on weekdays, with most workers arriving to prepare work areas between 6:00 AM and 7:00 AM. Normally weekday work would end by 3:30 PM, but it can be expected that to meet the construction schedule or to complete certain construction tasks, the workday may be extended beyond normal work hours on occasions with DPR approval. The work could include such tasks as completing the drilling of piles, finishing a concrete pour for a floor deck, or completing the bolting of a steel frame erected that day. The extended workday would generally last until about 6:00 PM and would not include all construction workers on-site, just those involved in the specific task requiring additional work time.

Weekend work would not be regularly scheduled, but could occur to make up for weather delays or other unforeseen circumstances. In such cases, appropriate work permits from DOB would be obtained. Similar to an extended workday, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular task at hand. For extended weekday and weekend work, the level of activity would be reduced from the normal workday. The typical weekend workday would be on Saturday from 7:00 AM with worker arrival and site preparation to 5:00 PM for site cleanup. Construction activities would be scheduled to allow for the staging of the US Open and would be managed to minimize effects on traffic and event conditions.

ACCESS AND DELIVERIES

Access to the construction sites would be tightly controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. The location of the work areas would vary depending on the individual construction task and its associated construction activities. All construction activities associated with the NTC are anticipated to occur within the proposed NTC lease boundaries. Typically, worker vehicles would not be allowed into the construction area. Security guards and flagmen may be posted as necessary, and all persons and trucks would have to pass through security points. Workers or trucks without a need to be on the site would not be allowed entry. Security guards would patrol the construction sites after work hours and over the weekends to prevent unauthorized access.

All deliveries to the site would be controlled and scheduled in coordination with DPR. To aid in adhering to the truck delivery schedules, as is normal for construction in New York City, flagmen would be employed where needed. The flagmen could be supplied by the subcontractor on-site at that time or by the construction manager. The flagmen would control trucks entering and exiting the site, so that they would not interfere with one another. In addition, they would provide an additional traffic aid as the trucks enter and exit the on-street traffic streams.

STAGING AREA

The staging area of construction materials, equipment, and trucks would vary depending on the individual construction task and the location of the associated construction activities. Due to the large size of the NTC campus, all of the staging activities associated with NTC construction would be accommodated within the proposed NTC leased premises, including the areas adjacent to the project site that border Meridian Road to the east and the LIRR to the north.

LANE AND SIDEWALK CLOSURES

During the course of construction, closures of traffic lanes and sidewalks on Meridian Road are not anticipated. In addition, construction activities are expected to occur within the proposed NTC lease boundaries only, with the exception of the relocated connector road and park improvement projects. The replacement connector road would be built prior to the closure of the existing connector road, and commencement of construction activities for the new Stadium 3. The replacement connector road would include pedestrian sidewalks that would provide access to the main portions of the park for pedestrians entering the park via the United Nations Avenue North bridge over the Grand Central Parkway. Therefore, vehicle and pedestrian circulation, as well as park activities, would be maintained at all times.

RODENT CONTROL

Construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction the contractor would carry out a maintenance program, as necessary. Signage would be posted, and coordination would be maintained with appropriate public agencies. Only EPA- and NYSDEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife.

CITY-OTHER IMPROVEMENTS

The proposed location for the relocated connector road would be outside of the NTC, in Flushing Meadows Corona Park, and the relocated connector road would be built by the City. ~~In addition, the park improvement projects that would be implemented elsewhere in the park would be constructed by the City. As described in Chapter 1, "Project Description," these improvements potentially include: the renovation of existing soccer fields; development of a new comfort station; the development of new picnic and barbecue areas and improvements to pathways; and vehicular, pedestrian, landscape, and drainage upgrades. Both the connector road relocation and the potential park improvements~~ The City would implement be constructed with substantially the same controls and procedures as those outlined above for work that would be coordinated by the USTA.

CONSTRUCTION TASKS

CONSTRUCTION STARTUP TASKS

Construction startup work prepares the site for construction. Startup work for each of the construction elements would involve the installation of public safety measures, such as fencing, sidewalk sheds, and Jersey barriers, where needed. The construction area would be fenced off, typically with solid fencing to minimize interference between the persons passing by the site and the construction work. Trailers for the construction engineers and managers would be hauled to the site and installed. These trailers could be placed within the proposed lease boundaries of the NTC. Also, portable toilets, dumpsters for trash, and water and fuel tankers would be brought to the site and installed. Temporary utilities would be connected to the construction trailers. During the startup period, permanent utility connections may be made, especially if the contractor has obtained early electric power for construction use, but utility connections may be made almost any time during the construction sequence. Construction startup tasks would be completed within weeks.

STADIUM IMPROVEMENTS AND NEW CONSTRUCTION

Grandstand Stadium (Stadium 3)

New Stadium 3 (May 2014 to December 2015)

Demolition of Grandstand Stadium (January 2016 to June 2016)

~~The existing Grandstand Stadium would be demolished and the replacement Stadium 3 would be located at the southwest corner of the project site. Prior to the demolition of the existing Grandstand Stadium, the structure would be abated of asbestos and any other hazardous materials such as lead base paint and PCBs within the existing structure. Any economically salvageable materials and/or recyclable materials would then be removed. Demolition of the existing Grandstand Stadium would be next. Front end loaders would be used to load materials into dump trucks. The demolition debris would be sorted prior to being disposed at landfills to maximize reuse and recycling opportunities. The phases envisioned for the new stadium construction at the southwest corner of the project site would include excavation and foundations, the lower concrete superstructure, the upper steel superstructure, the seating area and interior finishing, exterior walls, and specialties. Excavators would be used for the task of excavation. The soil would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on a construction site that needs fill. As the final grade of the new Stadium 3~~

is approached, bulldozers or excavators would be used for shaping the ground. A spread footing foundations system is expected to be used for the new Stadium 3. In this type of foundation system, concrete column footings would be used to accommodate the concentrated load placed on them and support the structure above. Forms would first be placed and reinforcing bars installed. Then the concrete would be poured and/or pumped to form the footings. Next, precast elements would be placed by cranes to form the lower superstructure of the stadium, followed by the assembly of the stadium's upper steel superstructure. The exterior walls of the stadium would then be placed by cranes and local hoists on the superstructure frame. Much of the seating area would be constructed of precast concrete stadia members and would be placed inside the stadium by cranes. After placement, the seats, handrails, and other appurtenances would be installed on the precast concrete members using hand tools. Interior finishing would involve trades, such as electrical, heating/ventilation and air conditioning (as necessary), painting, and furnishing. Finally, specialties such as security equipment, secure telecommunications for radio and television, video display systems, IT and audio visual systems, wireless systems, vertical transportation, concessionaire stands, and commercial kitchens would be installed.

Louis Armstrong Stadium (Stadium 2)

New Stadium 2 (February 2016 to December 2017)

East Plaza (February 2016 to September 2016)

The existing Louis Armstrong Stadium would be demolished with the replacement stadium in place at the same location. The construction methodology for Louis Armstrong Stadium would be similar to that as described above for the Grandstand Stadium. Grading would also be required for the new Louis Armstrong Stadium as the elevation of the new stadium would be increased slightly to avoid flooding around the stadium.

Arthur Ashe Stadium (Stadium 1)

North Expansion (January 2018 to November 2019)

Potential Canopy (September 2014 to December 2016)

The renovation and expansion of Arthur Ashe Stadium would include new administrative and operational space and a possible canopy above center court. Construction equipment for the renovation and expansion activities of Arthur Ashe Stadium would mostly be located within the stadium. USTA continues to explore possible methods of covering Arthur Ashe Stadium in the event of rain during the US Open, and is analyzing possible engineering solutions for a canopy system that would attach along the upper edge of the stadium. Scaffolding systems would be needed for the surrounding perimeter roof during the possible construction of the canopy. The canopy system would most likely be pre-fabricated and lifted into place with the use of mobile cranes. As for the new administrative and operational space, construction equipment that would be needed for this project element would include but not be limited to concrete pumps, concrete trucks, roller-compactors, forklifts, and mobile cranes.

TOURNAMENT COURT MODIFICATIONS

Northwest Tournament Courts

Five Practice Courts (October 2013 to November 2014)

Spectator Platform (October 2013 to November 2014)

Tournament Courts 4 to 6 (October 2013 to November 2014)

The five practice courts and tournament courts currently in this area would be replaced with five new practice courts, three new tournament courts, along with new elevated viewing platform. The existing courts and spectator stands would first be demolished with the use of an excavator and a bulldozer. Then, the base layers of the courts would be prepared with use of rollers and paving equipment. Each of the courts at NTC would consist of an asphalt base layered with several coatings of rubber and topped with one of more layers of acrylic paint mixed with sand. The construction of the spectator platform would require the use of pile drivers and concrete trucks for the structure's foundation system and mobile cranes to lift the structural pieces into place. In addition, the existing utility networks including the water, sewage, electric, and telecommunication lines would be upgraded during this project element.

Southerly Tournament Courts

Tournament Courts 7 to 16 (May 2014-September 2015)

The seven tournament courts currently in this area would be relocated to the south. In addition, new bleacher seating areas would be provided. The existing courts and spectator stands would first be demolished with the use of an excavator and a bulldozer. Trees would also be removed to facilitate the construction of the tournament courts at the new locations. Then, the base layers of the courts would be prepared with use of rollers and paving equipment. As described above, each of the courts at NTC would consist of an asphalt base layered with several coatings of rubber and topped with one of more layers of acrylic paint mixed with sand. This project element would also require landscaping work. In addition, the existing utility networks including the water, sewage, electric, and telecommunication lines would be upgraded and a new fence to the south of the tournament courts would be installed during this project element.

ANCIILLARY BUILDING CONSTRUCTION

New Administrative and Retail Building

Retail and Merchandise Pavilions (October 2016 to December 2017)

Demolition of Grandstand Stadium (January 2016 to June 2016)

New Administrative Building with Retail Storage (February ~~2016~~2017 to December ~~2016~~2017)

Ancillary building construction would include new retail and merchandise pavilions and the new administrative and retail building in the same location as the existing Grandstand Stadium. Excavation would start with the installation of augured steel piles, with heavy timbers to support the sides, then excavation and loading of the soil onto trucks and carting of the soil from the site. The soil would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on a construction site that needs fill. Next, concrete pumps and concrete trucks would be used to erect the foundation of the building. When the below-grade construction is completed, construction of the core and shell of the new building would begin. The core would be the central part of the building and would be the main part of the structural system. It would contain the elevators and the

mechanical systems for heating, ventilation, and air conditioning (HVAC). The shell would be the outside of the building. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks would start. As the building progresses upward, the exterior cladding would be lifted into place with mobile cranes, and the interior fit out begins.

The existing Grandstand Stadium would be demolished and the replacement Stadium 3 would be located at the southwest corner of the project site. Prior to the demolition of the existing Grandstand Stadium, the structure would be abated of asbestos and any other hazardous materials such as lead-base paint and PCBs within the existing structure. Any economically salvageable materials and/or recyclable materials would then be removed. Demolition of the existing Grandstand Stadium would be next. Front-end loaders would be used to load materials into dump trucks. The demolition debris would be sorted prior to being disposed at landfills to maximize reuse and recycling opportunities.

PARKING AND TRANSPORTATION IMPROVEMENTS

New Parking Garage A

*New Parking Garage A (October ~~2013~~2015 to November ~~2014~~2016)
Transportation Center (October 2013 to November 2014)*

Parking and transportation improvements would include the construction of the new Parking Garage A and a new transportation in the northwest corner of the project site center (see Chapter 1, "Project Description," for details about these improvements). The existing surface park lot would first be demolished with the use of an excavator and a bulldozer. Excavation of the soils would be next along with the construction of the foundations. Excavation would start with the installation of augured steel piles, with heavy timbers to support the sides, then excavation and loading of the soil onto trucks and carting of the soil from the site. Building construction would then ensue, followed by interior finishing.

New Parking Garage B

New Parking Garage B (October ~~2015~~2018 to December ~~2016~~2019)

Parking and transportation improvements would also include the construction of the new Parking Garage B and a new transportation center in the northeast corner of the project site. The construction methodology would be similar to the one listed for new Parking Garage A above.

Relocated Connector Road

Relocated Connector Road (October 2013 to April 2014)

The connector road displaced by the relocation of the Grandstand Stadium would be relocated to the area south of United Nations Avenue North near the Queens Museum of Art parking lot. Roller-compactor and paving equipment would be used for the construction of the new connector road. In addition, small mobile cranes would be needed for landscaping and tree removals.

PEDESTRIAN ENHANCEMENTS

Arthur Ashe Concourse

Arthur Ashe Concourse (June 2015 to November 2016)

Pedestrian enhancements would include concourse expansion at the Arthur Ashe Stadium. New concessions and seating would be added to the Arthur Ashe Concourse. Construction equipment that would be needed for this project element would include but not limited to concrete pumps, concrete trucks, roller-compactors, forklifts, and mobile cranes.

New Walkway

South Plaza (May 2014 to September 2015)

Transportation Center (February 2016 to September 2016)

Pedestrian enhancements would also include the construction of a new walkway at the South Plaza, and a new walkway that would connect the new Stadium 3 and Court 17 at the East Promenade. Similar to the construction activities for the Arthur Ashe Concourse, construction equipment that would be needed include concrete pumps, concrete trucks, roller-compactors, forklifts, and mobile cranes.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Construction is labor intensive, and the number of workers varies with the general construction task. Likewise, material deliveries generate trucks, and the number also varies. **Table 16-3** shows the estimated numbers of workers and deliveries to the project site by calendar quarter for all construction based on the anticipated schedule outlined above. These represent the average number of daily workers and trucks within each quarter. The average number of workers would be about 146 per day throughout the construction period. The peak number of workers would be ~~381~~350 per day in the 2nd quarter of 2016. For truck trips, the average number of trucks would be approximately two trucks per day, and the peak would occur in the 2nd quarter of 2014 with about ~~six~~five trucks per day.

Table 16-3

Average Number of Daily Workers and Trucks by Quarter

Year	2013				2014				2015				2016			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	--	--	--	<u>17</u>	<u>39</u>	<u>63</u>	<u>153</u>	<u>220</u>	262	254	210	<u>152</u>	<u>210</u>	<u>350</u>	<u>330</u>	<u>244</u>
Trucks	--	--	--	<u>2</u>	<u>3</u>	<u>5</u>	3	2	2	2	2	2	3	<u>4</u>	<u>3</u>	<u>2</u>
Year	2017				2018				2019				Project			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Average	Peak		
Workers	<u>239</u>	<u>278</u>	<u>251</u>	<u>90</u>	7	20	24	<u>33</u>	<u>48</u>	<u>53</u>	<u>35</u>	<u>11</u>	146	<u>445</u> <u>350</u>		
Trucks	<u>2</u>	<u>2</u>	1	1	1	1	1	1	<u>2</u>	<u>2</u>	1	1	2	<u>65</u>		

Notes: Construction estimates do not include City Improvement projects that would be implemented elsewhere in Flushing Meadows Corona Park and not within the project site.
Source: Barton Malow Company

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

As described in Chapter 2, “Land Use, Zoning, and Public Policy,” as part of USTA’s on-going management of capital projects at the NTC, a range of capital improvements are expected to be made to the NTC between US Open periods. These projects are not part of the NTC Strategic

Vision and would proceed regardless of the status of the proposed project. The capital projects program includes repairs, upgrades, and reconstruction of existing facilities and infrastructure, as well as the construction of minor new facilities within the lease boundaries.

D. FUTURE WITH THE PROPOSED PROJECT

Construction of the proposed project, as is the case with any construction activities, may be disruptive to the surrounding area. However, with the exception of Flushing Meadows Corona Park, all of the sensitive receptor locations including the nearest residences are located more than 500 feet away from the project site and are separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. In addition, the proposed project would not involve extensive demolition, foundation, or superstructure construction activities, which often generate the highest levels of noise and air pollutant emissions.

The following analysis describes the overall temporary effects on transportation, air quality, noise, open space, historic and cultural resources, hazardous materials, natural resources, socioeconomic conditions, community facilities, land use and public policy, and rodent control.

TRANSPORTATION

Construction of the proposed project would generate trips from workers traveling to and from the site, as well as from the movement of materials and equipment, and removal of construction waste. The estimated number of daily construction workers for each project element is as follows:

- The construction of the new Stadium 3 ~~and the demolition of the existing Grandstand Stadium~~ would require about 25 to 130 workers on-site.
- The construction activities at Louis Armstrong Stadium would require approximately 45 to 220 workers, depending on the task.
- Workers required for the potential new canopy at Arthur Ashe Stadium and the renovation and expansion activities at the stadium would range from 5 to 75 workers.
- The construction activities at the northwest tournament courts would require up to 20 workers on-site.
- Construction at the southerly tournament courts would require about 10 to 45 workers on-site.
- The construction of the new administrative and retail building and the retail and merchandise pavilions would require approximately 5 to 70 workers, while the demolition of the existing Grandstand Stadium would require approximately 10 to 65 workers.
- The construction of the new Parking Garage A including the new transportation building would require approximately up to 45 workers on-site.
- The construction of the new Parking Garage B would require approximately up to 25 workers on-site.
- Workers required for the relocated connector road would range from 5 to 25 workers.
- Construction activities associated with Arthur Ashe Concourse would require about 5 to 20 workers.
- Construction of the new walkways at the South Plaza and East Promenade would require approximately 5 to 40 workers.

USTA Billie Jean King National Tennis Center Strategic Vision

Truck movements would generally be distributed throughout the day with peak activities occurring in the early morning. The estimated one-way truck trips required for each project element over the course of the construction period are as follows:

- The construction of the new Stadium 3 would require a total of about 375 deliveries over a 20-month construction period. ~~while the demolition of the existing Grandstand Stadium would require approximately 100 trucks over a 6-month construction period.~~
- The construction activities at Louis Armstrong Stadium would require approximately 450 deliveries over a 23-month period.
- The total deliveries required for the potential new canopy at Arthur Ashe Stadium would be approximately 525 over a 28-month construction period, while the renovation and expansion activities at the stadium would require about 150 deliveries over a 23-month construction period.
- The construction activities at the northwest tournament courts would require 320 deliveries over a 14-month period.
- Construction at the southerly tournament courts would require about 110 deliveries over a 17-month construction period.
- The construction of the new administrative and retail building would require approximately 100 deliveries over an 11-month construction period, while the construction of the retail and merchandise pavilions would require about 65 deliveries over a 15-month period, while the demolition of the existing Grandstand Stadium would require approximately 100 trucks over a 6-month construction period.
- The construction of the new Parking Garage A including the new transportation building would require approximately 350 deliveries over a 14-month construction period
- The construction of the new Parking Garage B would require approximately 155 deliveries over a 15-month construction period.
- Deliveries required for the relocated connector road would be approximately 100 over a 7-month construction period.
- Construction activities associated with Arthur Ashe Concourse would require about 190 deliveries over an 18-month period.
- Construction of the new roadways at the South Plaza would require approximately 65 deliveries over a 17-month construction period, while construction of the new roadways at the East Promenade would require about 30 deliveries over an 8-month period.

CONSTRUCTION WORKER VEHICLE AND TRUCK TRIPS

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift (6–7 AM for arrival and 4-5 PM for departure on a regular day shift). Based on the Willets Point Development Plan Final Generic Environmental Impact Statement (2008), it is expected that approximately 70 percent of construction workers would commute to the project site via auto. For construction trucks, deliveries would occur throughout the day when the construction site is active. Truck movements would be spread throughout the day and would generally occur between the hours of 6 AM and 3 PM, depending on the stage of construction. Construction truck deliveries typically peak during the hour before

the normal work day (25 percent of daily total), overlapping with construction worker arrival traffic. Therefore, the early morning 6–7 AM construction peak hour is generally considered the most critical hour for a construction traffic analysis. Since construction activities vary among different project elements, construction stages and tasks, representative daily construction traffic is typically summarized using quarterly averages. **Table 16-4** presents the monthly breakdown of the average construction vehicle trips (including the worker and truck trips in PCEs) for the 6–7 AM construction peak hour. The construction of the proposed project would result in peak construction trips during the second quarter of 2016, with a maximum of ~~192~~ 179 PCEs during the construction AM peak hour during those months. On average, construction of the proposed project would result in ~~6466~~ PCEs during the AM peak hour.

Table 16-4
Quarterly Average 6-7 AM Peak Hour Construction Vehicle Trips in PCEs

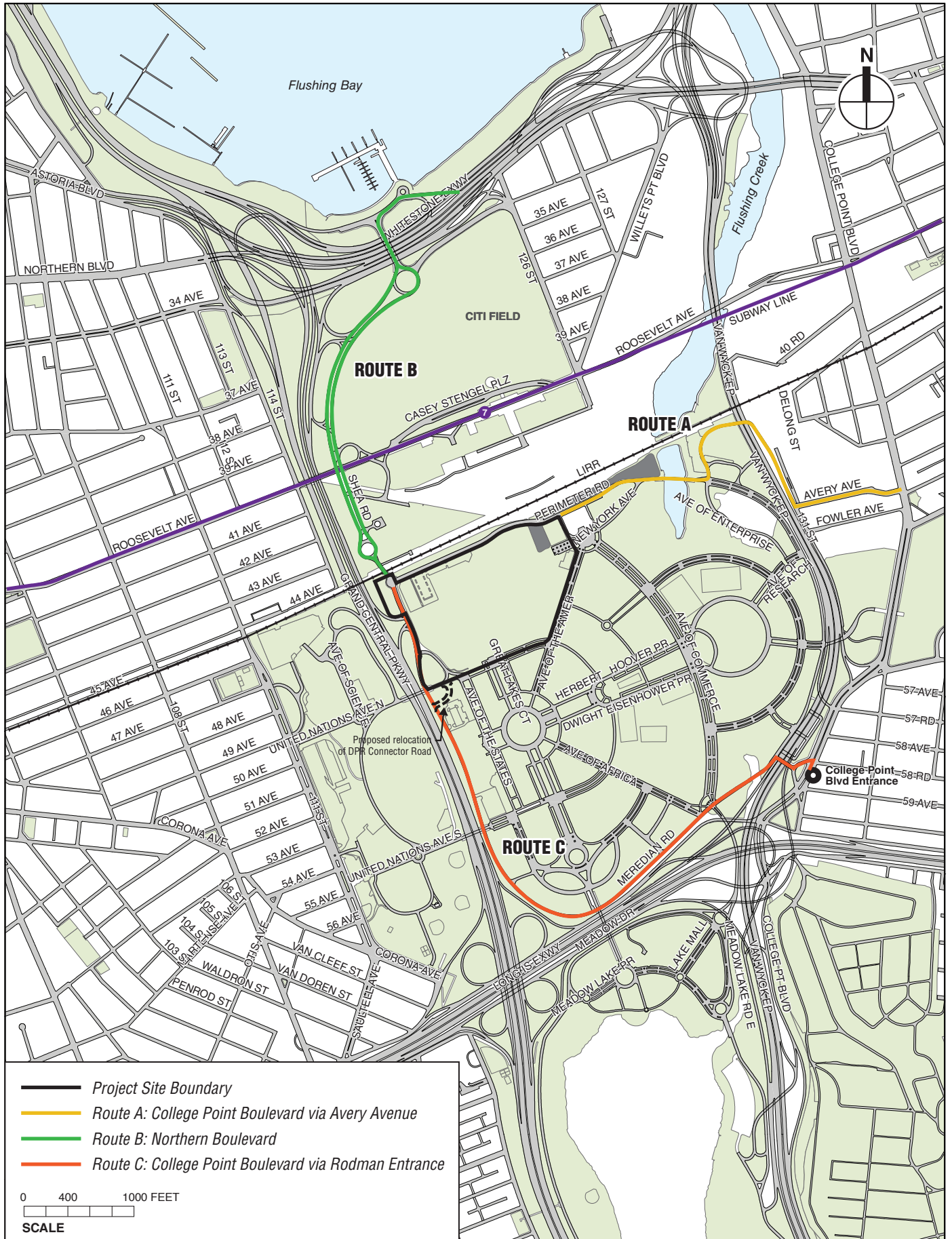
Year	2013				2014				2015				2016			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
PCEs	-	-	-	<u>12</u>	<u>23</u>	<u>38</u>	<u>78</u>	<u>111</u>	132	128	106	<u>78</u>	<u>106</u>	<u>179</u>	<u>165</u>	<u>123</u>
Year	2017				2018				2019				Average	Peak		
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	66	<u>492</u> <u>179</u>		
PCEs	<u>121</u>	<u>140</u>	<u>126</u>	<u>48</u>	7	14	16	<u>20</u>	<u>27</u>	<u>30</u>	<u>21</u>	<u>5</u>				

Notes: Numbers of construction worker vehicles were calculated using a 70-percent auto split and an auto-occupancy of 1.15 based on the Willets Point Development Plan Final Generic Environmental Impact Statement (2008)

Because the NTC is in close proximity to several major highways, including the Grand Central Parkway (GCP), Van Wyck Expressway (VWE), and the Long Island Expressway (LIE), most of the construction worker auto trips are expected to enter and exit the site directly from these roadways. Deliveries could use three routes, as shown on **Figure 16-2**. Route A would utilize College Point Blvd via Avery Avenue and 131st Street, including the Porpoise Bridge over the Flushing River. However, this bridge may not be available at all times due to a needed repair and resurfacing project that DPR intends to implement in the No-Action condition. Depending on the size and weight of the load, deliveries may also use: Route B, which would utilize Northern Boulevard and Shea Road; and Route C, which would utilize College Point Boulevard via the Rodman Entrance (see **Figure 16-2**). When distributed over the transportation network, the construction trip increments at any single location, particularly on local streets, would be minimal. In addition, these trip increments would primarily occur outside of the typical commuter peak hours (8–9 AM and 5–6 PM). Therefore, the traffic increase due to construction activities for the proposed project is not expected to result in any significant adverse traffic impacts.

Traffic Lane and Sidewalk Closures

As noted above, construction activities associated with the NTC are expected to occur within the proposed NTC lease boundaries only. However, it is currently anticipated that construction activities could result in occasional, temporary closures of portions of Meridian Road and United Nations Avenue North for periods of several hours to a full day. Any closures would be subject to DPR approval. The replacement connector road would be built prior to the closure of the existing connector road, and commencement of construction activities for the new Stadium 3. The replacement connector road would include pedestrian sidewalks that would provide access to the main portions of the park for pedestrians entering the park via the United Nations Avenue North bridge over the Grand Central Parkway. As alternative routes would be available,



Proposed Construction Truck Route
Figure 16-2

~~Therefore~~, vehicle and pedestrian circulation, as well as park activities, would be maintained at all times.

PARKING

The construction activities would generate an estimated daily parking demand of up to ~~232~~²¹³ parking spaces during peak construction. This parking demand could be fully accommodated by the existing, approximately 0.94 acre, grass parking Lot S1, which contains space for approximately 200-250 vehicles and is located adjacent to the project site on the west side of Meridian Road, within the existing lease boundaries of the NTC. Any spillover from Lot S1 would be accommodated at the other locations within the NTC. It is not currently anticipated that any changes to the extent of pavement or removal of trees would be necessary to accommodate construction-related parking in Lot S1. However, if the use of this area during construction of the proposed project would require such changes, the area would be restored to the existing condition upon completion of the proposed project. Access to the substation located on the west side of Lot S1 would be maintained, and tree protection would be undertaken if warranted.

TRANSIT AND PEDESTRIAN

With approximately 70 percent of the construction workers predicted to commute via auto, the remaining 30 percent are expected to travel to and from the project site via transit and walking. During the peak month of construction, up to approximately ~~381~~³⁵⁰ workers could be at the project site on a given day. This would result in approximately ~~444~~¹⁰⁵ construction-related transit trips (fewer than the *CEQR Technical Manual* analysis threshold of 200 trips). Therefore, there would not be a potential for any significant adverse transit impacts during construction. In addition, ~~305~~²⁸⁰ pedestrian trips would be expected during the peak hour. Because these pedestrian trips would primarily occur outside of the typical commuter peak hours (8–9 AM and 5–6 PM) and would originate from several nearby transit services including the No. 7 subway line and the Q19, Q48, and Q66 local bus routes and Parking Lot S1 within the NTC lease boundary, they would be distributed among numerous sidewalks and crosswalks in the area. In addition, as described in Chapter 10, “Transportation,” all of the subway person trips generated by the construction of the proposed project would connect directly from the station to the project site via the Passerelle ramp without utilizing any of the pedestrian facilities—sidewalks, corner reservoirs, and crosswalks—from the local street network. Therefore, no pedestrian elements are expected to incur 200 or more incremental pedestrian trips (the 2012 *CEQR Technical Manual* analysis threshold) resulting from the construction of the proposed project. Hence, there would not be a potential for significant adverse pedestrian impacts during construction. Also, where temporary sidewalk closures are required, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with NYCDOT requirements.

AIR QUALITY

Emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust generating activities, have the potential to affect air quality. In general, much of the heavy equipment used in construction has diesel-powered engines and produces relatively high levels of nitrogen oxides (NO_x) and particulate matter (PM). Gasoline engines produce relatively high levels of carbon monoxide (CO). Fugitive dust generated by construction activities is composed of particulate matter. As a result, the primary air pollutants of concern for construction activities include nitrogen dioxide (NO₂), particulate matter with an aerodynamic

diameter of less than or equal to 10 micrometers (PM₁₀), particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers (PM_{2.5}), and CO.

The main component of diesel exhaust that has been identified as having an adverse effect on human health is PM_{2.5}. The construction duration for most of the proposed project's elements is expected to be short-term (less than two years) except for the possible construction of the canopy at Arthur Ashe Stadium (Stadium 1) where most of the construction equipment would be located within the stadium. Nevertheless, in order to minimize the project's potential to have construction-period impacts on air quality, the following measures would be implemented, to the extent practicable:

- *Diesel Equipment Reduction.* Construction of the proposed project would minimize the use of diesel engines and use electric engines, to the extent practicable. This would reduce the need for on-site generators, and require the use of electric engines in lieu of diesel where practicable.
- *Clean Fuel.* To the extent practicable, ultra-low sulfur diesel (ULSD) would be used for diesel engines throughout the construction site.
- *Best Available Tailpipe Reduction Technologies.* Nonroad diesel engines with a power rating of 50 horsepower (hp) or greater would utilize the best available tailpipe (BAT) technology for reducing DPM emissions. Diesel particle filters (DPF) have been identified as being the tailpipe technology currently proven to have the highest PM reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs, either installed on the engine by the original equipment manufacturer (OEM) or retrofit with a DPF verified by the United States Environmental Protection Agency (USEPA) or the California Air Resources Board, and may include active DPFs¹ if necessary; or other technology proven to reduce DPM by at least 90 percent.
- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for nonroad engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons (HC). All nonroad construction equipment in the project would meet at least the Tier 2 emissions standard, and construction equipment meeting Tier 3 and/or Tier 4 emissions standards would be used where conforming equipment is widely available, and the use of such equipment is practicable.
- *Dust Control.* Fugitive dust control plans will be required as part of contract specifications. For example, stabilized truck exit areas would be established for washing off the wheels of all trucks that exit the construction site. Truck routes within the site would be watered as needed to avoid the re-suspension of dust. All trucks hauling loose material will be equipped with tight fitting tailgates and their loads securely covered prior to leaving the site. In addition to regular cleaning by the City, streets adjacent to the site would be cleaned as frequently as needed by the construction contractor. Water sprays will be used for all

¹ There are two types of DPFs currently in use: passive and active. Most DPFs currently in use are the "passive" type, which means that the heat from the exhaust is used to regenerate (burn off) the PM to eliminate the buildup of PM in the filter. Some engines do not maintain temperatures high enough for passive regeneration. In such cases, "active" DPFs can be used (i.e., DPFs that are heated either by an electrical connection from the engine, by plugging in during periods of inactivity, or by removal of the filter for external regeneration).

transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air.

- *Restrictions on Vehicle Idling.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time will also be restricted to three minutes for all equipment and vehicles that are not 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.

Overall, this emissions control program is expected to significantly reduce diesel particulate matter (DPM) emissions by a similar reduction level that would be achieved by applying the currently defined best available control technologies under New York City Local Law 77, which are required only for publically funded City projects.

The proposed project's construction activities would take place within the proposed NTC leased premises over a period of four years with discrete project elements lasting two years or less, except for the possible construction of the canopy at Arthur Ashe Stadium where most of the construction equipment would be located within the stadium. The walls of the stadium would act as barriers to the transport of air pollutants to nearby areas. The proposed project would not involve extensive foundation, or superstructure construction activities, which often generate the highest levels of air emissions. With the exception of adjacent portions of Flushing Meadows Corona Park and the Passerelle Building, there are very few sensitive receptors near the project site. However, the most intense construction activities (excavation and foundation work) in proximity to the Passerelle Building in terms of air pollutant emissions would be much less than two years. In addition, construction activities associated with the construction of Parking Garage B would not be considered out of the ordinary in terms of intensity and, in fact, emissions would be lower due to the emission control measures that would be implemented during construction of the proposed project. The park areas immediately adjacent to the current NTC fence line but within the proposed lease boundaries are lightly used, primarily for walking and jogging activities on the perimeter paths. Furthermore, the Passerelle ramp that connects the LIRR's Met's Willets Point station to the MTA's 7 train station is primarily for transient use, and pedestrians passing through to access public transportation would not be expected to be present for extended durations.

The nearest residences are located more than 500 feet away from the project site and are separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. Therefore, due to the factors described above and with the implementation of an emissions control program, the proposed project would not result in any significant adverse impact on air quality.

NOISE AND VIBRATION

NOISE

Impacts on community noise levels during construction would include noise from the operation of construction equipment and noise from construction and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the type and quantity of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels of typical construction equipment are shown in **Table 16-5**. Noise levels caused by construction activities

would vary widely, depending on the phase of construction (i.e., structure rehabilitation, interior fit-outs, etc.) and the location of the construction activities relative to noise-sensitive receptor locations. As noted above, there are very few noise sensitive receptors near the project site. With the exception of adjacent portions of Flushing Meadows Corona Park and the Passerelle Building, all of the sensitive receptor locations including the nearest residences are located more than 500 feet away from the project site and are separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. In fact, the nearest residences are located approximately 550 feet northwest from the project site, at 111-89 44th Avenue. Furthermore, the park areas immediately adjacent to the current NTC fence are lightly used, primarily for pass-through activity on the perimeter path.

Typically, increased noise levels caused by construction activities can be expected to be greatest during the stages of construction where impact equipment (i.e., pile drivers) would be employed. However, the duration of pile driving activities for the proposed project would be limited in duration for each of construction elements where pile drivers would be needed—approximately 2 to 3 months. For each pile, the actual driving time would be short, on the order of 45 minutes. Within this driving period, driving may be intermittent, with 45 minutes of driving followed by an interval of an hour when no driving occurs, followed by tapping down to the final elevation. Moreover, pile driving activities are expected to utilize vibratory hammers rather than impact hammers to the greatest extent possible. In general, vibratory hammers produce less intrusive noise levels than impact hammers (vibratory hammers produce continuous noise versus impulsive noise from an impact hammer). Aside from pile driving, the demolition of Grandstand Stadium and Louis Armstrong Stadium would also generate a high increase in noise levels but these activities would be limited in duration—approximately 2 to 3 months—and occur at the northern portion of the project site, away from sensitive receptor locations in Flushing Meadows Corona Park. The construction duration for most of the elements in the proposed project is expected to be short term (less than two years) and therefore any potentially intrusive noise levels generated by construction activities would be of limited duration. Although the possible construction of the canopy at the Arthur Ashe Stadium would take approximately 28 months to complete, most of the equipment used for this construction element would be located within the stadium where the walls of the stadium would provide acoustical shielding for noise sources, thus limiting noise disruptions to nearby sensitive locations.

Construction noise is regulated by the requirements of the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113), the NYCDEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28), and the EPA's noise emission standards. These local and federal requirements mandate that specific construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. As described above, if weekend or after hour work is necessary, permits would be required to be obtained, as specified in the New York City Noise Control Code and Parks would be consulted and would need to approve of such activities. As part of the New York City Noise Control Code, a site-specific noise mitigation plan would be developed and implemented that may include source controls, path controls, and receiver controls.

Table 16-5
Typical Noise Emission Levels for Construction Equipment

Equipment Item	Noise Level at 50 ft. (dBA)
Backhoe	80
Bar Bender	80
Chain Saw	85
Compactor (ground)	80
Compressor (air, less than or equal to 350 cfm)	53
Compressor (air, greater than 350 cfm)	58
Concrete Mixer Truck	85
Concrete Pump Truck	82
Concrete Saw	90
Crane	85
Drill Rig	84
Drum Mixer	80
Dump Truck	84
Dumpster/Rubbish Removal	78
Excavator	85
Flat Bed Truck	84
Front End Loader	80
Generator	82
Impact Pile Driver	95
Jackhammer	73
Man Lift	85
Mounted Impact Hammer (Hoe Ram)	90
Pavement Scarafier	85
Paver	85
Pickup Truck	55
Pneumatic Tools	85
Pumps	77
Refrigeration Unit	82
Rivet Buster / Chipping Gun	85
Rock Drill	85
Roller	85
Sand Blasting	85
Soil Mix Drill Rig	80
Tractor	84
Vacuum Excavator (Vac-truck)	85
Vacuum Street Sweeper	80
Vibrating Hopper	85
Vibratory Pile Driver	95
Warning Horn	85
Welder / Torch	73
Source: CEQR <i>Technical Manual</i> , Chapter 22, section 330, Table 22-1, January 2012.	

In terms of source controls (i.e., reducing noise levels at the source or during most sensitive time periods), the following measures for construction would be implemented as required by the New York City Noise Control Code:

- The contractors would use equipment that meets the sound level standards for equipment (specified in Subchapter 5 of the New York City Noise Control Code) from the start of

construction activities and use a wide range of equipment, including construction trucks, which produce lower noise levels than typical construction equipment.

- As early in the construction period as practicable, electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification), would be used.
- All contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

In terms of path controls (e.g., placement of equipment and implementation of barriers between equipment and sensitive receptors), the following measures for construction would be implemented as required by the New York City Noise Control Code:

- Perimeter noise barriers would be constructed that satisfy New York City Noise Control Code requirements.
- To the extent feasible, noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, would be located away from and shielded from sensitive receptor locations.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for more than two years. As described above, the proposed project's construction activities would take place within the proposed NTC lease boundaries, except for the relocated connector road and park improvement projects. Construction activities would take place over a period of four years with discrete project elements lasting two years or less. While noise associated with the proposed construction activities may be considered noisy and intrusive, potential increases in noise levels as a result of construction-related activities would therefore be of limited duration. In addition, as described above, with the exception of adjacent portions of Flushing Meadows Corona Park and the Passerelle Building, there are very few sensitive receptors near the project site, with the nearest residences located more than 500 feet away from the project site and separated from the site by Grand Central Parkway to the west and Van Wyck Expressway to the east. The proposed project does not involve extensive excavation, foundation, or superstructure construction activities, which often generate the highest noise levels. The noisiest construction activity—pile driving—would be of very limited duration, and is expected to utilize vibratory hammers rather than impact hammers to the greatest extent possible. The most noise intrusive construction activities (excavation and foundation work) in proximity to the Passerelle Building would be much less than two years. The park areas immediately adjacent to the current NTC fence line but within the proposed lease boundaries are lightly used, primarily for walking and jogging activities on the perimeter paths. In addition, the Passerelle ramp that connects LIRR's Mets-Willets Point station to the Metropolitan Transportation Authority (MTA)'s 7 train station is primarily for transient use, and pedestrians passing through to access public transportation would not be expected to be present for extended durations. Due to distance and existing noise levels generated by traffic on Grand Central Parkway and Van Wyck Expressway and the other factors described above, no significant adverse noise impacts would be expected at sensitive receptor locations due to the construction of the proposed project.

As in the existing and future without the proposed project conditions, noise levels at Flushing Meadows Corona Park during construction of the proposed project are expected to be above the CEQR 55 dBA $L_{10(1)}$ guideline for open spaces requiring serenity and quiet, the predicted levels

are comparable to or lower than noise levels in a number of open space areas that are within range of substantial noise sources (e.g., roadways, aircraft, etc.), including Hudson River Park, Riverside Park, and Bryant Park. The 55 dBA $L_{10(1)}$ guideline is a worthwhile goal for outdoor areas requiring serenity and quiet; however, due to the level of activity present at most open space areas and parks throughout New York City (except for areas far away from traffic and other typical urban activities), this relatively low noise level is often not achieved. Consequently, noise levels during construction at Flushing Meadows Corona Park, while exceeding the 55 dBA $L_{10(1)}$ CEQR guideline value, would not constitute a significant noise impact.

VIBRATION

The proposed project is not expected to result in significant adverse construction impacts with respect to vibration. As described in Chapter 5, “Historic and Cultural Resources,” a CPP would be developed to protect known architectural resources with a lateral distance of 90 feet from the proposed construction activities. The CPP would include a monitoring component to ensure that if vibration levels approach the 0.5 inches per second PPV criterion, corrective action would be taken to reduce vibration levels, thereby avoiding architectural damage and significant vibration impacts.

Construction resulting in vibration levels greater than 65 vibration decibels (VdB) (e.g., equipment used during pile driving) would be perceptible and annoying and would have the potential to result in significant adverse impacts if they were to occur for a prolonged period of time. However, as described above, the proposed project’s construction activities would take place within the proposed NTC leased premises, except for the relocate connector road and parking improvement projects. Construction activities would take place over a period of four years with discrete project elements lasting two years or less, except for the possible construction of the canopy over the center court of Arthur Ashe Stadium (Stadium 1). Therefore, these vibration levels are not expected to occur at any location of frequent and prolonged human use, including the nearby Passerelle Building, Olmsted Center (approximately 250 feet north of the project site separated by the railway tracks of the LIRR), and Queens Museum of Art (approximately 500 feet south of the project site). Furthermore, the operations which would result in these perceptible vibration levels would only occur for finite periods of time at any particular location and therefore the resulting vibration levels, while perceptible and annoying, would not result in any significant adverse impacts.

OTHER TECHNICAL AREAS

OPEN SPACE

The proposed project would result in improvements to landscaping, circulation, and amenities at the NTC that would be provided for the US Open and the public. All construction activities are expected to occur within the proposed NTC lease boundaries, with the exception of the relocated connector road and park improvement projects; no additional areas of Flushing Meadows Corona Park are anticipated to be used for staging for construction activities associated with the NTC. In order to minimize the effects of construction-related closures on the public, to the extent practicable, court construction would take place during the winter months when these courts are not actively used and are replaced by more activity in indoor courts. At limited times, construction activities would generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction fences around the project site would shield the park from construction activities. In addition, areas that are outside of the

current NTC fence line but within the proposed lease boundaries that would be directly affected by the construction of the proposed project are lightly used, primarily for walking and jogging activities on the perimeter paths. The replacement connector road would be built prior to the closure of the existing connector road, and commencement of construction activities for the new Stadium 3. The replacement connector road would include pedestrian sidewalks that would provide access to the main portions of the park for pedestrians entering the park via the United Nations Avenue North bridge over the Grand Central Parkway. Therefore, vehicle and pedestrian circulation, as well as park activities, would be maintained at all times. It is not currently anticipated that any changes to the extent of pavement or removal of trees would be necessary in Lot S1 to accommodate construction-related parking. However, if the use of this area during construction of the proposed project would require such changes, the area would be restored to the existing condition upon completion of the proposed project. Access to the substation located on the west side of Lot S1 would be maintained, and tree protection would be undertaken if warranted. Construction activities associated with the proposed project would not be expected to create a strain on nearby sections of Flushing Meadows Corona Park. Park users would continue to have access to sidewalks or pathways in other areas of the park for walking, running, and biking during the entire construction period. Dust control measures—including watering of exposed areas and dust covers for trucks—would be implemented to ensure compliance with the New York City Air Pollution Control Code, which regulates construction-related dust emissions. Therefore, construction of the proposed project would not result in significant adverse impacts on open space.

HISTORIC AND CULTURAL RESOURCES

Architectural resources are defined as buildings, structures, objects, sites or districts listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing based on the criteria defined below, National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts, and properties that have been found by the LPC to appear eligible for designation, considered for designation (“heard”) by LPC at a public hearing, or calendared for consideration at such a hearing (these are “pending” NYCLs). Chapter 5, “Historic and Cultural Resources,” provides a detailed assessment of potential impacts on architectural and archaeological resources. This section summarizes potential impacts during construction.

The proposed project would result in construction activities within 90 feet of the Freedom of the Human Spirit sculpture and the Passerelle Building. Therefore, to avoid potential inadvertent construction-related impacts to these resources during project demolition and construction activities, the proposed project would comply with LPC’s *Guidelines for Construction Adjacent to a Historic Landmark* as well as the guidelines set forth in section 523 of the *CEQR Technical Manual* and the procedures set forth in DOB’s TPPN #10/88. This includes the preparation of a CPP that would be prepared prior to construction activities and submitted to LPC for review and approval. None of the other architectural resources in the study area are close enough to experience direct, physical impacts from construction of the proposed project.

Therefore, the proposed project would not result in any significant adverse construction-related impacts to historic and cultural resources.

HAZARDOUS MATERIALS

The proposed project would entail soil disturbance associated with improvements and expansion of NTC facilities, including demolition of existing structures, construction of new structures, and roadway construction and improvements. Based on the findings of the June 2012 *Phase I Environmental Site Assessment* (ESA), several potential sources of contamination were identified, including: historical on-site marshland potentially associated with methane emissions; filling of the project site and nearby land with a mixture of ash, refuse, street sweepings, and soil and rock removed during subway construction in Brooklyn; and a historical on-site underground storage tank (UST). Soil that would be disturbed by the proposed project includes historical fill materials known to contain ash, which have somewhat elevated concentrations of certain metals and semivolatile organic compounds (SVOCs). In addition, on-site structures may contain hazardous materials such as ACM, PCBs and/or lead-based paint.

Based on the above findings, to reduce the potential for human or environmental exposure to contamination during and following construction of the proposed project, a RAP and associated CHASP, to be implemented during project construction, would be prepared and submitted to the NYCDEP for review and approval. The RAP would address requirements for items such as soil stockpiling, disposal, and transportation; dust control; quality assurance; and contingency measures, should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, dust control, air monitoring, and emergency response procedures).

Lead-based paint, ACM and PCB-containing electrical equipment, hydraulic equipment and fluorescent lighting fixtures may be present (primarily within the older structures) at the project site. During and following demolition and renovation associated with the proposed project, regulatory requirements pertaining to ACM, lead-based paint, PCBs, chemical use, and storage would be followed.

With these above-described measures, the proposed project would not result in any significant adverse impacts related to hazardous materials.

NATURAL RESOURCES

Groundwater

As discussed above in “Hazardous Materials,” a RAP and associated CHASP would be prepared for implementation during subsurface disturbance associated with project construction. The RAP would address requirements for items such as soil stockpiling, disposal, and transportation; dust control; quality assurance; and contingency measures, should petroleum storage tanks or contamination be unexpectedly encountered. The RAP would include the requirement for any future enclosed construction to include appropriate vapor control (e.g., vapor barriers) to prevent the migration of methane or VOCs into enclosed areas. The RAP would also include the requirements for a cap of clean imported soil to be placed in areas not covered by buildings or paving. If dewatering is required during construction activities, it would be performed in accordance with NYCDEP requirements. With these measures in place, no significant adverse impacts to groundwater would be expected during the construction of the proposed project.

Floodplain

Nearly all project components would entail redevelopment of existing facilities, relocation of facilities, or construction of new facilities in previously developed areas within the NTC. The relocation of Grandstand Stadium (Stadium 3) and a connector road are the only project elements that would involve developing previously undeveloped land (mostly consisting of lawn and mature shade trees), but this activity would occur in the southwestern section of the NTC which is outside of any floodplain. The elevation in the vicinity of Louis Armstrong Stadium (Stadium 2) would be slightly increased to reduce flooding around the stadium. Redevelopment and construction in other areas of the site would not require grading that would significantly change the elevation of the area. As such, there would be no alteration of the function or distribution of the existing floodplain zone, and no changes to the current risk of flooding in the area during the construction of the proposed project.

Ecological Communities

As described in detail in Chapter 7, “Natural Resources,” the ecological communities present within the project site would be characterized by Edinger et al. (2002) as “terrestrial cultural” communities that include “flower/herb garden,” “mowed lawn,” and “mowed lawn with tress.”

Construction of the proposed project ~~would affect~~ ~~would require the removal of~~ approximately ~~349~~ ~~422~~ trees both outside the existing fence line, including United Nations Avenue North and the proposed location of the connector road south of United Nations Avenue North, and various locations inside the NTC site including in the vicinity of the practice courts, parking Lot A, northwest corner of Arthur Ashe Stadium (Stadium 1), west side of parking Lot B, west side of Grandstand Stadium, proposed Grandstand Stadium relocation site, and a small number in the Food Village. Where possible, some of the existing younger London planetree ~~and willow oak~~ trees may be transplanted within the NTC site or surrounding area where the circumstances deem feasible. USTA is working with DPR’s Forestry Division to minimize the number of trees that would be removed and not replanted and has currently identified approximately 45 of the 347 living trees that would be replanted in place or transplanted. The other approximately 302 affected trees are being evaluated. Under a worst case scenario those approximately 302 trees would be removed and not replanted. However, some of these trees are expected to be determined by DPR to be suitable for transplant. Trees that could not be transplanted would be replaced pursuant to City regulations. Eight of the 27 existing willow oak trees would not be affected by the proposed project. Eighteen of these trees would be temporarily removed and replaced in their original locations, and the one tree located near Parking Lot B would be removed. Tree relocation would take place to maintain the benefits of having larger, more mature trees on-site. In addition, approximately ~~60~~ ~~54~~ percent, or ~~580~~ ~~500~~, of the existing trees would remain in place, would be protected during construction, and would be incorporated into the landscaping design. Due to the highly urban nature of the terrestrial ecological communities present on the site, the loss of some of these communities as a result of the proposed project would not result in a significant adverse impact on ecological communities of the region. Measures would be taken to protect the health and condition of trees on-site that would not require removal. ~~These~~ These measures would include protection plans to minimize impacts to the critical root zones, trunks, and canopies.

Wildlife

The majority of the proposed project would involve construction and reconstruction in presently developed areas of the project site, which are almost entirely unvegetated and covered by

impervious surfaces. Construction of these project elements would not eliminate or degrade any habitat of use to native wildlife. The construction of the new Stadium 3 at the southwestern section of the NTC would not significantly impact species currently inhabiting this area at the individual or population level. Individuals currently inhabiting the area would, as extreme generalists, easily relocate to the extensive amounts of alternative habitat that would remain available elsewhere in Flushing Meadows Corona Park and the surrounding neighborhoods.

Potential impacts to wildlife from construction activities for the project generally include noise and visual disturbances. However, impacts to wildlife would be minimal because wildlife in the surrounding area consists of urban-adapted, highly disturbance-tolerant species, as described in Chapter 7, "Natural Resources." The species of wildlife in the area are ubiquitous throughout the city and commonly inhabit areas with extensive levels of human disturbance and degraded habitat conditions.

Threatened, Endangered, and Special Concern Species and Significant Habitat Areas

No federally or state-listed wildlife species are known to or considered to have the potential to occur within the project site or adjacent area. Therefore, construction of the proposed project would not result in a significant adverse impact to federally- or state-listed wildlife of the region.

SOCIOECONOMIC CONDITIONS

Construction activities associated with the proposed project would not result in any significant adverse impacts on socioeconomic conditions. Construction of the proposed project would not affect the operations of any nearby businesses or block or restrict access to any facilities in the area, including Queens Museum of Art to the south of the proposed project and New York Hall of Science to the west. Lane closures are not expected to occur in front of entrances to any existing or planned retail businesses, and construction activities would not obstruct major thoroughfares used by customers or businesses. Utility service would be maintained to all businesses. Overall, construction of the proposed project is not expected to result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

COMMUNITY FACILITIES

No community facilities are located near the construction site. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care facilities. Construction of the proposed project would not block or restrict access to any facilities in the area, and would not materially affect emergency response times. New York Police Department (NYPD) and FDNY emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas.

LAND USE AND NEIGHBORHOOD CHARACTER

Construction activities would not affect land use on the project site nor would they alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the site. There would also be noise, sometimes intrusive, from construction work as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have minimal effects on land uses within the study area, particularly as most construction activities would take place within the project site or within portions of sidewalks, curbs, and travel lanes of Meridian Road immediately adjacent to the project site. Overall, while the construction at the site would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or neighborhood character in the area. *