THE PORT AUTHORITY
OF NEW YORK & NEW JERSEY

Draft Environmental Assessment

John F. Kennedy International Airport Redevelopment Program

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ES EXECUTIVE SUMMARY

This Environmental Assessment (EA), prepared in accordance with Federal Aviation Administration (FAA) Orders 1050.1F, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions,* analyzes the potential environmental effects of the proposed Redevelopment Program (Proposed Action) at John F. Kennedy International Airport (JFK or Airport).[1] This EA is being prepared pursuant to NEPA because the proposed improvements require the FAA to approve a change to the JFK Airport Layout Plan (ALP), which is a Federal action. In addition, the Port Authority of New York and New Jersey (Port Authority) intends to impose and use Passenger Facility Charge (PFC) funds on certain project elements, in accordance with FAA Order 5500.1 *Passenger Facility Charge (PFC)*, the approval of which is also a Federal action. Based on the analyses described in this EA, the Proposed Action would not result in any significant environmental impacts.

JFK is the nation's leading international gateway and one of the busiest United States (U.S.) airports but has been challenged to meet the needs of current and future passenger demand for the reasons identified in New York Governor Andrew Cuomo's Airport Advisory Panel's (Panel) report on JFK – *A Vision Plan for John F. Kennedy International Airport: Recommendations for a 21st Century Airport for the State of New York* (January 2017). The Panel recommended improvements to the Airport and its supporting infrastructure so that the Airport meets today's standards for a leading global airport, and to better position JFK to meet the needs of the future.

On October 4, 2018, Governor Cuomo announced a plan to transform JFK into a modern 21st century airport anchored by two new world-class international terminal facilities. The plan also includes modernizing on-airport infrastructure, incorporating the latest in passenger amenities and technological innovations, and simplifying the roadways.[2] These proposed terminals and related actions are collectively known as the JFK Redevelopment Program (Redevelopment Program), and are the primary elements of the Proposed Action that is the subject of this EA.

1 P.L. 91-190, 42 U.S.C. 4321, et. seq., *National Environmental Policy Act*, 1969, Section 102(2)(c).
2 New York State, Governor Andrew M. Cuomo, Governor Cuomo Announces $13 Billion Plan to Transform JFK Into a World-Class 21st Century Airport, October 4, 2018, online at: https://www.governor.ny.gov/news/governor-cuomo-announces-13-billion-plan-transform-jfk-world-class-21st-century-airport, Accessed on March 5, 2019.

ES.1 PURPOSE AND NEED

The purpose of the Proposed Action is to accommodate current and projected passengers with an acceptable level of service (LOS) at JFK through the redevelopment of the Central Terminal Area (CTA), associated landside (parking and roadways) infrastructure, and aircraft parking areas to allow more efficient utilization of the available space in the CTA. The Proposed Action has been developed to provide a world-class airport that has a consistently acceptable LOS in all of its facilities, rather than a series of disjointed terminals with varying LOS. The Proposed Action is needed to ensure JFK terminal facilities are sized and equipped to acceptably accommodate existing and forecast passenger demand and to facilitate passenger connectivity within the CTA. Without the Proposed Action, the LOS experienced by passengers at JFK would decline over time.

The Proposed Action is designed to address the following deficiencies at JFK: (1) existing terminals exceed their design capacity and cannot accommodate existing and forecast passenger demand at an acceptable LOS; (2) apron and taxilane space is insufficient and leads to aircraft traffic congestion and delays; and (3) terminal roadways and curb frontages are inefficient, do not deliver an acceptable LOS and do not comply with the Port Authority and Transportation Security Administration (TSA) standards.

A comprehensive demand/capacity and LOS analysis for Terminal 1 (T1), Terminal 2 (T2) and Terminal 7 (T7) identified the following key deficiencies in these terminals:[3]

- Existing T1 Building Deficiencies:
  - T1 is already operating over its design capacity, accommodating more than 7.6 million passengers in 2018[4] with the demand forecast to grow to 8.1 million annual passengers by 2030.[5]
  - The lack of space at security checkpoints impedes the overall efficiency of the security area and queuing at checkpoints has the potential to impede passenger circulation in the ticketing lobby. Due to the layout of the terminal, there is limited ability to reconfigure the interior to reallocate space to the functional areas that are undersized (e.g. holdrooms and international primary facilities).
  - There is no physical connection that enables passengers to access other terminals without exiting the building and taking the AirTrain to another terminal.
- Existing T2 Building Deficiencies:
  - T2 is already operating over its design capacity, serving over 4.2 million passengers in 2018[6] and forecast to accommodate nearly 5.5 million passengers by 2030.[7]

[3] Terminal demand/capacity deficiencies can be found in this EA on **Table 1-1, *Terminal Design Capacity and Demand Levels***.

[4] Port Authority of New York and New Jersey, Airport Traffic Report, 2018 from http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf.

[5] The Port Authority of New York and New Jersey Aviation Demand Forecasts, John F. Kennedy International Airport, June 2017. Approved by the FAA in December 2017.

[6] Port Authority of New York and New Jersey, Airport Traffic Report, 2018 from http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf.

[7] The Port Authority of New York and New Jersey Aviation Demand Forecasts, John F. Kennedy International Airport, June 2017. Approved by the FAA in December 2017.

  - There is currently insufficient capacity in many key functional areas, including the departure hall /ticketing, security area, and baggage claim area.
  - T2 has no facilities to accommodate international arrivals unless the flight originates from an airport with approved pre-clearance.
  - T2 is now exclusively used by Delta Air Lines (Delta), but the bulk of Delta's operation is in Terminal 4 (T4). The lack of a physical connection between T2 and T4 requires Delta's passengers to use an airside shuttle bus to access the other terminals, and check-in facilities in both terminals are confusing for originating passengers who are uncertain about the correct terminal of their departing Delta flight.

- Existing T7 Building Deficiencies:
  - T7 is already operating over its design capacity, accommodating over 4.6 million passengers and is forecast to serve 6.6 million passengers by 2030.[8]
  - International service is expected to grow at T7, which will place more demand on Federal Inspection Service (FIS) areas and security screening areas that are already over-capacity.
  - The lack of space at security checkpoints reduces efficiency of the security area, and queuing at checkpoints can block passenger circulation in the ticketing lobby.
  - Passengers wishing to access other terminals for connecting flights must exit T7, board the AirTrain, and then go through security again at the other terminal.

The lack of adequate aircraft parking positions at the apron areas of existing T1, T2 and T7 and the presence of multiple single taxilane corridors leads to congestion on taxiways near these terminals.

- **T1 and T2** – Airfield congestion can occur during peak periods near T1 and T2 because there is only a single lane taxilane between T1 and T2. A dual lane taxilane would be better able to accommodate the wide-body aircraft that operate at T1, but the terminal is limited to a single lane taxilane because of the narrow width of the apron and the positions of the terminal piers and adjacent aircraft hardstand parking positions.
- **T7** – The configuration of the aircraft parking apron surrounding T7 causes congestion during peak times because of single lane taxilanes that serve the terminal. Arriving aircraft must wait on the active taxiway while waiting for departing aircraft to be towed out and clear the taxilane. This leads to delays. Also, aircraft at gates on the north end of T7 must push back directly on to Taxiway A or onto the taxilane; thus, other operations on the taxiways are delayed.

A landside traffic simulation analysis indicates inadequate frontage lengths result in automobile drivers waiting for curb space in front of the terminal until curb space becomes available. This "spillback" limits frontage throughput and can cause drivers to circle the CTA and return to the curbside to see if curb space has become available, resulting in increased congestion in the CTA.

[8] Port Authority of New York and New Jersey, Airport Traffic Report, 2018 from http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf.

Further, the current roadways do not fully comply with Port Authority standards and TSA recommended setback distances to terminal facilities.[9] The terminal access and frontage roadways are currently congested, which is expected to increase due to forecasted passenger growth. The traffic flow on roadways is impeded by inefficient geometric roadway configurations, which currently requires the use of traffic signals to manage traffic.

ES.2 ALTERNATIVES

As part of this EA, the Port Authority conducted a review of potential alternatives. The following initial alternatives were considered.

- **No-Build Alternative** – This alternative represents the option where no changes would be made from the existing conditions.
- **Off-Airport Alternatives** – These alternatives include options and locations beyond JFK property, including other modes of transportation.
- **On-Airport Alternatives** – These alternatives include development of new facilities outside the CTA to address the need for terminal and apron space.
- **South Terminal Alternatives** – These alternatives include modifications to the South Terminal areas (Green and Blue Zones) – T1, T2, T4 – to address the need for terminal and apron space.
- **North Terminal Alternatives** – These alternatives include modifications to the North Terminal areas (Yellow and Orange Zones) – Terminal 5 (T5) and T7 – to address the need for terminal and apron space.

If an alternative considered in this analysis met the purpose of the Proposed Action and its identified needs, it was retained for a more detailed environmental evaluation in this EA. If the alternative did not meet these criteria, it was eliminated from a more detailed environmental evaluation. Based on the analysis of alternatives, the only development alternative carried forward for further evaluation in this EA is the Proposed Action. The No-Build Alternative was also carried forward as required by FAA Orders 1050.1F, 5050.4B, and the Council on Environmental Quality (CEQ).

[9] The location of the curbs close to the terminal façades is not fully compliant with current TSA recommendations and Port Authority standards. The TSA Recommended Security Guidelines for Airport Planning, Design and Construction, Section C(2)(b), June 2006, recommends that terminal roadways be setback as far away from the terminal as practical to minimize the blast effects of a vehicle bomb. The Port Authority standard for terminal roadway setback is 105 feet between the inner curb and terminal façade.

ES.3 PROPOSED ACTION

The Proposed Action consists of the following elements:

Construction of a new **South Terminal Development**, which includes the construction of a new T1 (New T1) and the following connected actions:

- Demolition of T1 and T2
- Expansion of the existing T4 headhouse and extension of T4 Concourse A to replace gates and terminal space lost from the demolition of T2
- Construction of South Hardstand Area
- Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes
- Construction of a new Ground Transportation Center (GTC)/JFK Central and parking facility within the CTA
- Demolition of the existing Green and Blue Garages and relocation of parking to the newly constructed GTC/JFK Central
- Demolition of Building 95
- Demolition of Buildings 121 and 122 and the construction of an auto parking lot on the site to facilitate the relocation of employee parking from the proposed South Hardstand Area site to the site of Buildings 121 and 122
- Demolition of Buildings 214 and 215 for use as a construction staging area
- Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates
- Construction of a new 40 MVA substation measuring approximately 8,500 square feet between T2 and T4 (Central Substation #2)

Construction of a new **North Terminal Development**, which includes construction of an expansion to T5 to replace T7 gates. In addition, the North Terminal Development would consist of the following connected actions:

- Demolition of T7
- Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes
- Reconfiguration of the first level of the Yellow Garage to accommodate buses, taxis, and other commercial vehicles
- Construction of North Hardstand Area
- Demolition of Buildings 68, 83, 85, and 189, for construction staging and the expansion of the North Hardstand Area Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates

Reconfiguration of the existing terminal roadway system in support of the proposed terminal development.

ES.4 ENVIRONMENTAL CONSEQUENCES

Consistent with applicable FAA requirements, this EA evaluates potential impacts associated with 13 categories of environmental resources for both the Proposed Action and the No-Build Alternative. This EA did not evaluate potential impacts associated with farmlands, wild and scenic rivers, or Section 6(f) resources because these resources are not present in the study area. Based on these analyses, the Proposed Action will not result in significant environmental impacts in any resource category.

Under the No-Build Alternative there would be no new construction or redevelopment of facilities in the CTA. The existing passenger terminals would remain unchanged and would continue to operate at the existing sites within the CTA. In general, the No-Build Alternative would have no impact on existing natural, historic, or human resources given that there would be no change in current conditions. However, the level of air emissions associated with operation of the Airport may increase in the future under the No-Build Alternative because the Airport's existing land- and airside inefficiencies are not able to accommodate the forecast growth in aircraft operations and passengers without both airside and landside delays.

PROPOSED ACTION A summary of potential environmental impacts from the Proposed Action and recommended minimization measures are presented in **Table ES-1, *Summary of Impacts and Proposed Minimization Measures for the Proposed Action***.

TABLE ES-1 SUMMARY OF IMPACTS AND PROPOSED MINIMIZATION MEASURES FOR THE PROPOSED ACTION

RESOURCE TOPIC	IMPACT ANALYSIS
Air Quality	The Proposed Action would not generate emissions in amounts that exceed the applicable criteria pollutant *de minimis* thresholds.[10] Therefore, the Proposed Action conforms to the State Implementation Plan (SIP) and the Clean Air Act (CAA) and it can be presumed that it would not create any new violation of the National Ambient Air Quality Standards (NAAQS), delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. As a result, no adverse impact on local or regional air quality is anticipated due to the Proposed Action. As discussed in **Section 5.2.3**, ***Emissions During the Construction Scenario***, the following measures are project requirements for reducing construction emissions associated with the Proposed Action: • Equipment Less Than 100 HP; 70 percent of non-road diesel construction equipment that is less than 100 horsepower shall meet USEPA Tier 4 Emission Standards; and • Equipment Greater Than 100 HP; 100 percent of non-road diesel construction equipment equal to or greater than 100 horsepower shall meet USEPA Tier 4 Emissions Standards.
Biological Resources	**Ecological Communities and Vegetation:** There are no naturally vegetated areas on the Proposed Action Site that could be impacted. Therefore, the Proposed Action would not have an adverse impact on ecological communities or vegetation. **Wildlife:** The Proposed Action would not noticeably modify the limited wildlife habitat that currently exists at the Airport. Further, wildlife at the Airport is actively managed in accordance with the John F. Kennedy International Airport Wildlife Hazard Management Plan (WHMP). Therefore, the Proposed Action is not likely to have adverse impacts on wildlife. **Federally-listed Species and Designated Critical Habitats:** The Proposed Action Site does not provide habitat for Federally listed species. Therefore, the Proposed Action would have no effect on Federally-listed species or designated critical habitat. **State-listed Species:** Although state-listed bird species were identified as potentially occurring at the Airport, bird presence at the Airport would continue to be discouraged and managed in accordance with the WHMP. Therefore, it is unlikely that the Proposed Action would have adverse impacts on state-listed species.
Climate	Although there are currently no Federal standards for aviation-related greenhouse gas (GHG) emissions, it is well-established that GHG emissions contribute to climate change. Therefore, GHG emissions are presented for disclosure purposes only.

[10] 40 CFR 93 § 153 defines *de minimis* levels, that is, the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas.

RESOURCE TOPIC	IMPACT ANALYSIS
Coastal Resources	The Proposed Action would not result in direct impacts to coastal resources. However, potential indirect impacts to coastal resources could result from increased runoff to nearby receiving waters, such as Jamaica Bay, due to the proposed approximately 5.9-acre increase in impervious paved areas. Given the existing distributed nature of the proposed new paved areas and the quantity of new pavement compared to the overall 4,930-acre footprint of the Airport, the increase in stormwater discharge would be small. Therefore, with existing Best Management Practices (BMP), the Proposed Action would have a minimal indirect adverse impact on coastal resources and surface waters. The installation of glycol collection infrastructure will contribute to improvements in the quality of water that is discharged to surface water. The Proposed Action would be consistent with federal, state, and local coastal zone policies, and would not otherwise affect coastal resources.
Department of Transportation Act Section 4(f) Resources	**Direct Physical Use:** The Proposed Action would not adversely affect public parks or recreational facilities, or wildlife or waterfowl refuges. **Constructive Use:** The Proposed Action is not likely to result in a constructive use of potential Section 4(f) resources.
Hazardous Materials, Solid Waste and Pollution Prevention	Construction and implementation of the Proposed Action may require the removal and/or the relocation of existing fuel tanks, hydrant fueling system, and underground fuel lines. Given the aviation use of the property, impacted soils and hazardous building materials such as asbestos, lead, polychlorinated biphenyls (PCBs) and mercury may be encountered and are not considered to be uncommon. Appropriate Airport-specific disposal practices exist to ensure worker safety and to handle and dispose of the materials safely; therefore, no impact is anticipated. While contaminated materials would be remediated and reused on-site to the extent feasible, off-site facilities are available to receive anticipated waste as needed. Solid waste generated during construction would be recycled to the extent practicable, with a goal of 75 percent recycled or reused. The amount of solid waste generated under the operation of the Proposed Action is anticipated to be the same as that of the No-Build Alternative because the Proposed Action would not increase capacity of the Airport. The Proposed Action would be designed to meet the Port Authority *Sustainable Building Guidelines* and to achieve a minimum rating of Leadership in Energy & Environmental Design (LEED) Silver from the U.S. Green Building Council.[11] Construction activities associated with the Proposed Action are expected to include the short-term use of hazardous and non-hazardous materials and solid waste common to construction. These materials would be handled and stored in accordance with applicable Federal, state, or local regulations. Therefore, no significant impacts related to hazardous materials and waste would occur as a result of the Proposed Action.

[11] Port Authority. Sustainable Building Guidelines. January 1, 2017.

RESOURCE TOPIC	IMPACT ANALYSIS
Historical, Architectural, Archaeological and Cultural Resources	The Proposed Action would have no adverse effects to archaeological resources as a result of the Proposed Action. NY SHPO asked to review the proposed construction plans around the TWA Flight Center to assess any potential contextual effects to this resource. The eligibility of the other buildings within the APEs is being determined in consultation with the NY SHPO and in accordance with Section 106, and effects determinations will be made in consultation with the NY SHPO and consulting parties. Associated correspondence is included in **Appendix D, *Cultural Resources***.
Land Use	The Proposed Action is on JFK property, which is leased by the Port Authority. No land acquisition would occur as part of the Proposed Action. Therefore, the Proposed Action would be compatible with the surrounding area and no impacts to land use would occur with implementation of the Proposed Action.
Natural Resources and Energy Supply	There would be an increase in demand for natural resources (such as sand, gravel, concrete, steel, etc.), electricity and natural gas energy during construction. While the new terminal facilities would be more energy efficient, given the increase in square footage, there would be an increase in the demand for electricity and natural gas energy upon implementation of the Proposed Action. There would also be an increase in demand for fuel for construction vehicles and construction materials during construction. However, the increase in demand could be met by current capacity and existing supplies would not be depleted. Therefore, no significant impact to natural resources or energy would occur as a result of the Proposed Action. No change in the number of aircraft operations would occur in the Proposed Action when compared to the No-Build Alternative. Fuel consumption is anticipated to decrease with the Proposed Action due to the use of electric ground service equipment (eGSE) and more efficient aircraft operations. The Proposed Action would not exceed the existing fuel supplies.
Noise and Noise-Compatible Land Use	The Proposed Action would not result in a change in aircraft operations, fleet mix, runway use, or flight tracks. Therefore, the Proposed Action (2025 and 2030) Noise Exposure Contour would be the same as the No-Build Alternative (2025 and 2030) Noise Exposure Contour. During construction, noise minimization measures would be implemented, and a Noise Control Plan prepared to minimize the potential for adverse effects on the community during the construction period. For example, construction activities would require a construction Noise Control Plan as mandated in Chapter 28, Title 15 of the City of New York Administrative Code, Citywide Construction Noise Mitigation. The Noise Control Plan would incorporate various noise control measures in accordance with the New York City Citywide Construction Noise Mitigation policy and to demonstrate compliance with the City's Noise Control Code (Local Law No. 113 of 2005).[12]

[12] The Noise Control Plan developed for the Proposed Action is unrelated to the Noise Compatibility Program that is being developed by the Port Authority pursuant to 40 CFR Part 150 of the FAA's regulations.

RESOURCE TOPIC	IMPACT ANALYSIS
Socioeconomics, Environmental Justice, and Children's Health and Safety Risks	The Proposed Action would not result in induced growth and would have no adverse impacts to economic growth, no disruption to an established community, no relocation of residences, no adverse impacts to the community tax base, and no adverse impacts to businesses. **Surface Traffic and Transportation:** The Proposed Action is not anticipated to result in significant traffic impacts along off-airport roadways. The traffic study showed that, prior to off-airport traffic operations improvements, there would be some potential temporary increases in additional delays at several locations due to the additional traffic generated by worker trips, delivery trucks, and construction equipment. It should be noted that the duration of the potential temporary traffic impacts would be short, about one hour in the morning and one hour during the afternoon since construction worker trips are highly peaked. Upon implementation of temporary minor changes in traffic operations (i.e., signal timing modifications, signal phasing revisions, and lane utilization changes), the Proposed Action is not anticipated to result in significant traffic impacts along off-airport roadways. However, over the long term, the Proposed Action would provide traffic and air quality benefits. **Environmental Justice:** Although low-income and minority populations are present in adjacent residential neighborhoods, the Proposed Action would only cause temporary, non-significant adverse impacts to environmental justice populations. In the long-term, intersection improvements would reduce congestion and result in a beneficial impact on the surrounding neighborhoods. The Proposed Action would generate construction jobs in areas where minority populations are present. **Children's Health and Safety:** The Proposed Action would not result in the release of or exposure to significant levels of harmful agents in the water, air, or soil that would affect children's health or safety.
Visual Effects	Due to the existing light emissions at JFK, the light emissions from the Proposed Action are not expected to be noticeably different from the Airport's existing lighting and would not cause annoyance or disrupt normal activities of the surrounding community.
Water Resources	The Proposed Action would have no notable impacts on groundwater resources. Furthermore, construction and operation of the Proposed Action would abide by applicable regulations related to spill prevention and control regulations to prevent spills from causing significant adverse impacts to groundwater. The Proposed Action would not result in noticeable adverse impacts to water resources due to existing and proposed stormwater management measures. The Proposed Action Site is not within the 100-year floodplain; therefore, the Proposed Action would have no impact on floodplains.
Cumulative Impacts	The impacts of the Proposed Action, when considered in conjunction with past, present, and reasonably foreseeable future actions, are not expected to result in significant impacts to any of the environmental resources evaluated in this EA.

ES.5 PUBLIC OUTREACH

The following federal, state and local agencies were consulted as part of this EA:

- Federal Aviation Administration
- Federal Emergency Management Agency
- U.S. Fish and Wildlife Service
- New York Department of Environmental Conservation
- New York Natural Heritage Program
- New York State Office of Parks, Recreation, and Historic Preservation
- New York Department of State, Division of Coastal Resources
- New York State Department of Transportation
- New York City Department of City Planning
- New York City Department of Parks & Recreation
- New York City Department of Transportation
- New York City Landmarks Preservation Commission
- Queens Borough President's Office

The Port Authority has published a local Notice of Availability and Request for Comment on the Draft EA in the following local newspapers: *Daily News* (Queens), *Greek National Herald*, *Newsday*, and *Sing Tao Daily,* and weekly papers (*El Especialito*, *Queens Chronicle*, *Queens Courier*, *Queens Gazette*, *Queens Ledger*, and *Queens Times Ledger*).

During the comment period, the Draft EA will be available at the Port Authority's administration building at JFK, the central staff office in Manhattan, and the JFK Redevelopment Community Information Center until the close of the comment period, which is 5:00 PM on Friday, February 7, 2020, and on the website: https://www.panynj.gov/studies-reports (see **Section 6.3, *Public Outreach***). The Port Authority will accept comments on the Draft EA for the duration of the comment period, which closes on Friday, February 7, 2020.

The Port Authority has scheduled four Information Sessions. The purpose of the Information Sessions is to provide an opportunity for the public to learn first-hand about the environmental review process for the Proposed Action. The workshops also offer the public an opportunity to learn about the proposed project, ask questions, and provide formal comment for the record. The dates, times, and locations of the Information Sessions are listed in **Section 6.3, *Public Outreach*** of this EA.

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ACRONYMS

The following is a list of acronyms used in this EA:

ADG	Airplane Design Group
AEDT	Aviation Environmental Design Tool
ALP	Airport Layout Plan
APE	Area of Potential Effect
BMP	Best Management Practices
CAA	Clean Air Act
CBP	Customs and Border Protection
CBRA	Coastal Barrier Resources Act
CEQ	Council on Environmental Quality
CMP	New York State Coastal Management Program
CoGen	Cogeneration Plant
CRIS	Cultural Resource Information System
CTA	Central Terminal Area
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDFS	Design-Day Flight Schedules
DNL	Day-Night Average Sound Level
DOT	United States Department of Transportation
EA	Environmental Assessment
eGSE	Electric Ground Service Equipment
EO	Executive Order
ERM	Environmental Resource Mapper
ESA	Endangered Species Act
EWR	Newark Liberty International Airport
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FFRMS	Federal Flood Risk Management Standard
FHV	For Hire Vehicles
FIRM	Flood Insurance Rate Map
FIS	Federal Inspection Services
GAO	United States Government Accountability Office
GHG	Greenhouse Gas
GSE	Ground Support Equipment
GTC	Ground Transportation Center
GWP	Global Warming Potential
HOV	High Occupancy Vehicle

Hz	Hertz
IATA	International Air Transport Association
IPaC	Information for Planning and Conservation
IROPS	Irregular Operations
JFK	John F. Kennedy International Airport (Airport)
JWS	Jamaica Water Supply Company
KV or kV	Kilovolt
LEED	Leadership in Energy and Environmental Design
LGA	LaGuardia Airport
LOS	Level of Service
LWCFA	Land and Water Conservation Fund Act
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MOVES	Motor Vehicle Emission Simulator
MSW	Municipal Solid Waste
MTA	Metropolitan Transportation Authority
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
New T1	New Terminal 1
NHPA	National Historic Preservation Act
NPL	National Priorities List
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NYCDCP	New York City Department of City Planning
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of the State
NYSDOT	New York State Department of Transportation
NYSECL	New York State Environmental Conservation Law
OPA	Oil Pollution Act
Panel	Airport Advisory Panel
Port Authority	Port Authority of New York & New Jersey
POV	Privately Owned Vehicle
PPA	Pollution Prevention Act
RCRA	Resource Conservation and Recovery Act
Region	New York/New Jersey Metropolitan Region
RPA	Regional Plan Association
SDWA	Safe Drinking Water Act
SHPO	New York State Historic Preservation Office

SIP	State Implementation Plan
SNWA	Special Natural Waterfront Areas
SPCC	Spill Prevention, Control, and Countermeasure
SPDES	State Pollution Discharge Elimination System
SPPP	Stormwater Pollution Prevention Plan
SSCP	Security Screening Check Point
SWAP	Severe Weather Avoidance Plan
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
T4	Terminal 4
T5	Terminal 5
T6	Terminal 6
T7	Terminal 7
T8	Terminal 8
TAAM	Total Airspace and Airport Modeler
TAF	Terminal Area Forecast
TMDL	Total Maximum Daily Load
TOGA	Terminal One Group Airlines
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act
TWA	Trans World Airlines
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGBC	U.S. Green Building Council
WHMP	Wildlife Hazard Management Plan
WRCRA	Waterfront Revitalization and Coastal Resources Act of 1981
WRP	New York City Waterfront Revitalization Program

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1 INTRODUCTION AND BACKGROUND

This Environmental Assessment (EA), prepared in accordance with Federal Aviation Administration (FAA) Orders 1050.1F, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions,* analyzes the potential environmental effects of the proposed Redevelopment Program (Proposed Action) at John F. Kennedy International Airport (JFK or Airport).[13] This EA is being prepared pursuant to NEPA because the Proposed Action requires the FAA to approve a change to the JFK Airport Layout Plan (ALP), and to approve an application to impose and use Passenger Facility Charge (PFC) funds on certain project elements in accordance with FAA Order 5500.1 *Passenger Facility Charge*, both of which are Federal actions.

JFK is the nation's leading international gateway and one of the busiest United States (U.S.) airports but has been challenged to meet the needs of current and future passenger demand for the reasons identified in New York Governor Andrew Cuomo's Airport Advisory Panel's (Panel) report on JFK – A Vision Plan for John F. Kennedy International Airport: *Recommendations for a 21st Century Airport for the State of New York* (January 2017). The Panel identified a number of deficiencies at JFK and concluded that JFK is in the condition that it is today due to:

1) the lack of a coordinated, cohesive airport plan;

2) terminals that were developed on a piecemeal, ad hoc basis resulting in varying levels of quality and passenger service across the Airport; and

3) a confusing on-airport roadway system with multiple bottlenecks at terminal entrances.[14,15]

In addition, JFK's passenger terminals were designed decades ago and do not reflect current expectations for airline and passenger services and amenities. The Proposed Action addresses these critical operational deficiencies at JFK.

The transformation of JFK into a 21st century airport is needed as passenger demand has exceeded the design capacity of the terminals and roadways, which is detailed in **Section 1.1.1, *Background***, on **Table 1-1, *Terminal Design Capacity and Demand Levels***. As the Panel noted, failure to transform JFK could have adverse economic impacts such as loss of annual wages, loss of annual sales, and loss of jobs to the New York/New Jersey Metropolitan Region (Region).[16]

As part of its analysis, the Panel recommended improvements to the Airport and its supporting infrastructure so that the Airport meets today's standards for a leading global airport, and to better

13 P.L. 91-190, 42 U.S.C. 4321, et. seq., *National Environmental Policy Act*, 1969, Section 102(2)(c).
14 A Vision Plan for John F. Kennedy International Airport January 4, 2017.
15 In addition to the JFK Vision Plan, New York State Department of Transportation (NYSDOT) is planning for implementation of other improvements that are consistent with the goals of the JFK Vision Plan, including the Van Wyck Expressway Capacity and Access Improvements to JFK Airport. This proposed project is being planned by the NYSDOT. FHWA issued a combined Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) on August 30th, 2019. The purpose of the project is to provide increased capacity on the Van Wyck Expressway between the Kew Gardens Interchange and JFK to improve vehicular access to and from the Airport. While this project has independent utility and is being proposed independently of the Redevelopment Program, it exemplifies a concerted effort to improve transportation and infrastructure in the New York Region.
16 The Region consists of 31 counties in the three states of New York, New Jersey and Connecticut.

position JFK to meet the needs of the future. The Panel's recommendations to improve terminals and roadways within the Central Terminal Area (CTA) include:

- Development of passenger terminals that meet global world-class standards to ensure a more consistent passenger experience
- Improving interconnection and cohesiveness among the terminals
- Redevelopment of older terminals (such as Terminal 1 (T1), Terminal 2 (T2), and Terminal 7 (T7), opened in 1998, 1962, and 1972, respectively) through development agreements in partnership with their private lessees
- Enhancing passenger experience
- Redesigning the on-airport roadway network and providing expanded parking capabilities within the CTA, as well as improving wayfinding to create a more efficient, simple airport roadway network, and creating appropriately sized and centrally located parking facilities
- Enhancement of security measures (with a particular focus on new technology) to maintain the safety and security of passengers, employees, and the surrounding community

On October 4, 2018, Governor Cuomo announced a plan to transform JFK into a modern 21st century airport anchored by two new world-class international terminal facilities. To implement that plan, proposals have been accepted by the Port Authority of New York and New Jersey (Port Authority) for the development of two new terminal facilities to be constructed on the north and south sides of the CTA. The plan also includes demolishing old terminals and cargo facilities, utilizing vacant space, and modernizing on-airport infrastructure, while incorporating the latest in passenger amenities and technological innovations.[17] The overall site of the Proposed Action is shown on **Exhibit 1-1, *Proposed Action Site***.

These proposed terminals and related actions are collectively known as the JFK Redevelopment Program (Redevelopment Program), and are the primary elements of the Proposed Action that is the subject of this EA.

The Port Authority Board of Commissioners (Board) is required to review and authorize capital projects proposed by each Port Authority department, including Aviation. This authorization is the trigger that allows Port Authority departments to extend funds and staff resources on projects for activities such as design, construction, and lease negotiations. This practice of securing authorization and approval has been in-place and applied to numerous capital projects at Port Authority airports in the past.

Previous authorizations related to the JFK Redevelopment Program have included the February 16, 2017 and December 13, 2018 authorizations for planning and early stage expenditures. At the October 25, 2018 meeting, the Board authorized the Port Authority to negotiate lease agreements with the developers of the proposed north and south terminal developments. On February 14, 2019 the Board then authorized Port Authority to enter a lease supplement with American Airlines for the implementation of the Terminal 8 Improvements Project. On December 10, 2019 the Board authorized funding for early works actions, additional planning, and design services.

[17] New York State, Governor Andrew M. Cuomo, Governor Cuomo Announces $13 Billion Plan to Transform JFK Into a World-Class 21st Century Airport, October 4, 2018, Online at: https://www.governor.ny.gov/news/governor-cuomo-announces-13-billion-plan-transform-jfk-world-class-21st-century-airport, Accessed on March 5, 2019.

It is important to note, that while the Board Authorizations may reference projects under the "JFK Redevelopment" program, their terms have different meaning than those used as part of this EA. The Board authorizations and associated resolutions define the "JFK Redevelopment Program" more broadly and include projects with independent utility and that are outside the scope of this EA. For additional information on projects with independent utility, such as Terminal 8 Improvements Project, West Hardstand Development, and Taxiway K4 Extension Project, see **Section 5.15, *Cumulative Impacts*** in this EA.

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EXHIBIT 1–1 PROPOSED ACTION SITE



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1.1 BACKGROUND AND DESCRIPTION OF THE PROPOSED ACTION

1.1.1 BACKGROUND

The Port Authority operates JFK through a lease agreement with the City of New York that extends through 2050. The Airport comprises over 4,930 acres of land in the Borough of Queens, New York City, NY. As shown on **Exhibit 1-2, *John F. Kennedy International Airport and Surroundings***, the Airport is bounded by Metropolitan Transit Authority (MTA) tracks to the west, Jamaica Bay to the south, Head of Bay to the east, and the Nassau Expressway to the north.

JFK is one of three large-hub airports within the Region and is an important gateway for domestic and international air travel.[18] Nearly 80 different airlines operate out of JFK, serving about 155 nonstop destinations.[19] JFK is the busiest airport in the Region. In 2018, the Airport accommodated 61,623,756 passengers and 455,524 aircraft operations.[20] Of the total passengers, 45 percent are carried on domestic flights and 55 percent are carried on international flights. According to the U.S. Department of Transportation (USDOT), in 2018 this level of activity ranked JFK as No. 1 in the U.S. for international passenger enplanements, making it the nation's leading international gateway. JFK was also ranked No. 6 in the U.S. for total domestic and international passenger enplanements combined.[21] Over 29 percent of departing passengers are connecting to a domestic flight or international flight.[22] Along with its importance to the global and domestic passenger traffic, JFK is also a major contributor to the Region's economic activity. The Airport employs approximately 41,000 people and contributes about $51.3 billion in economic activity to the Region, generating about 279,000 total jobs and more than $17 billion in annual wages.[23] The City of New York invested about $150 million in the original construction of the Airport. Since then, the Port Authority has invested more than $8 billion in capital projects at JFK.[24]

JFK is a gateway to the U.S.; however, JFK consistently ranks at the bottom half of world airports for passenger services and amenities, including ranking surveys in Skytrax. The ranking is developed based on an annual passenger survey.[25] The survey evaluates traveler experiences across different airport services and key performance indicators - including check-in, arrivals, departures, transfers, shopping, security, and immigration processes. Based on the 2016 Skytrax World Airport Awards, JFK was ranked 59th out of 100 of the world's leading airports. The Airport has continued to slide in rankings of passenger services and amenities – in 2017 JFK was ranked at 63rd and in 2018 it was ranked at 69th.[26]

18 Federal Aviation Administration, Report to Congress, National Plan of Integrated Airport Systems, 2019-2023, September 26, 2018.
19 Port Authority, 2018 Airport Traffic Report, April 2019.
20 Port Authority, 2018 Airport Traffic Report, April 2019.
21 U.S. Department of Transportation, Bureau of Transportation Statistics: https://www.bts.gov/airport-rankings-2018. Accessed (website) on March 23, 2019.
22 Port Authority, 2018 Airport Traffic Report, April 2019.
23 Port Authority, 2018 Airport Traffic Report, April 2019.
24 Port Authority, 2018 Airport Traffic Report, April 2019.
25 Skytrax Works Airports Awards, Online at https://www.worldairportawards.com/awards-methodology/. Site Accessed on March 23, 2019.
26 Accessed on March 21, 2019: https://www.worldairportawards.com/worlds-top-100-airports-2018/.

In accordance with FAA regulations, JFK is a Level 3 slot-controlled airport. A slot is defined by the FAA as an authorization to either take-off or land at a particular airport on a particular day during a specified time period. This authorization is for a planned aircraft operation and is distinct from air traffic control clearance or similar authorizations. In accordance with 14 CFR 93, the FAA officially limits daily operations at JFK to 81 slots per hour between 6:00 a.m. and 10:59 p.m. seven days a week (this limitation is known as a "slot control"). The FAA has imposed slot controls at JFK since 2008 as a way to avoid extreme congestion at the Airport.[27] Slot controls will be in place through at least October 24, 2020.[28] The Proposed Action assumes that operating limitations are still in effect.

Existing Airfield

As shown in **Exhibit 1-2, John F. Kennedy International Airport and Surroundings,** JFK has four runways: two widely spaced parallel runways oriented in a northwest/southeast direction (Runways 13L/31R and 13R/31L), and two closely-spaced parallel runways oriented in a northeast/southwest direction (Runways 4L/22R and 4R/22L).

Central Terminal Area

The CTA is between Runways 13L/31R and 13R/31L and to the west of Runways 4L/22R and 4R/22L. The CTA encompasses approximately 880 acres and is surrounded by a dual ring of peripheral taxiways. JFK serves passengers from six passenger terminals within the CTA. The terminals range in age from 11 to 57 years, and four of the terminals were constructed before enhanced security requirements were put into place following the terrorist attacks on September 11, 2001.[29] Each terminal is operated independently by third parties pursuant to leases with the Port Authority. The AirTrain light rail system serves each of the terminals and provides connections to the New York City public transportation network at the Jamaica and Howard Beach Stations. The CTA also includes an interior roadway system, five parking garages and surface parking lots. A cogeneration plant (CoGen) within the CTA produces electrical power. This electricity is fed to the local power grid that supplies power to JFK for lighting, heating, and air conditioning for the entire CTA.[30]

Vehicles can access the CTA from I-678 (Van Wyck Expressway) and the JFK Expressway. The CTA can also be accessed indirectly by local roads. There are five main roadway loops in the CTA which provide access to the terminal facilities and parking areas. Each of the five roadways and parking areas are divided into zones that include one or more terminals, each designated by a different color as shown on **Exhibit 1-3, *Central Terminal Area***. The Green Zone provides access to T1 and T2, and the Green Garage. The Blue Zone provides access to Terminal 4 (T4) and the Blue Garage and surface parking lot. The Yellow Zone provides access to Terminal 5 (T5), the Trans World Airlines (TWA) Flight Center, and the Yellow Garage. The Orange Zone provides access to T7 and the Orange Garage. The Red Zone provides access to Terminal 8 (T8) and the Red Garage.

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27 Airports are designated by the FAA at one of three levels indicating their degree of airfield congestion: Level 1 airports have sufficient capacity to meet demand. Level 2 airports may have some periods when demand approaches capacity limits, but voluntary schedule adjustments by airlines prevents delays. At Level 3 airports, demand for airport infrastructure significantly exceeds capacity during peak periods and without demand management strategies (such as slot controls), would have unacceptable delays. Airlines operating at a Level 3 slot-controlled airport require advance approval from the FAA to operate during slot-controlled hours. In the U.S., the Level 3 airports are John F. Kennedy International Airport (JFK), LaGuardia Airport (LGA), and Ronald Reagan Washington National Airport (DCA).

28 Federal Register, Volume 83, Number 180, Page 46865, September 17, 2018.

29 Transportation Research Board (TRB), Airport Cooperative Research Program, Report 25: Airport Passenger Terminal Planning and Design, Section VI.1.5.3, New Operational Requirements, 2010.

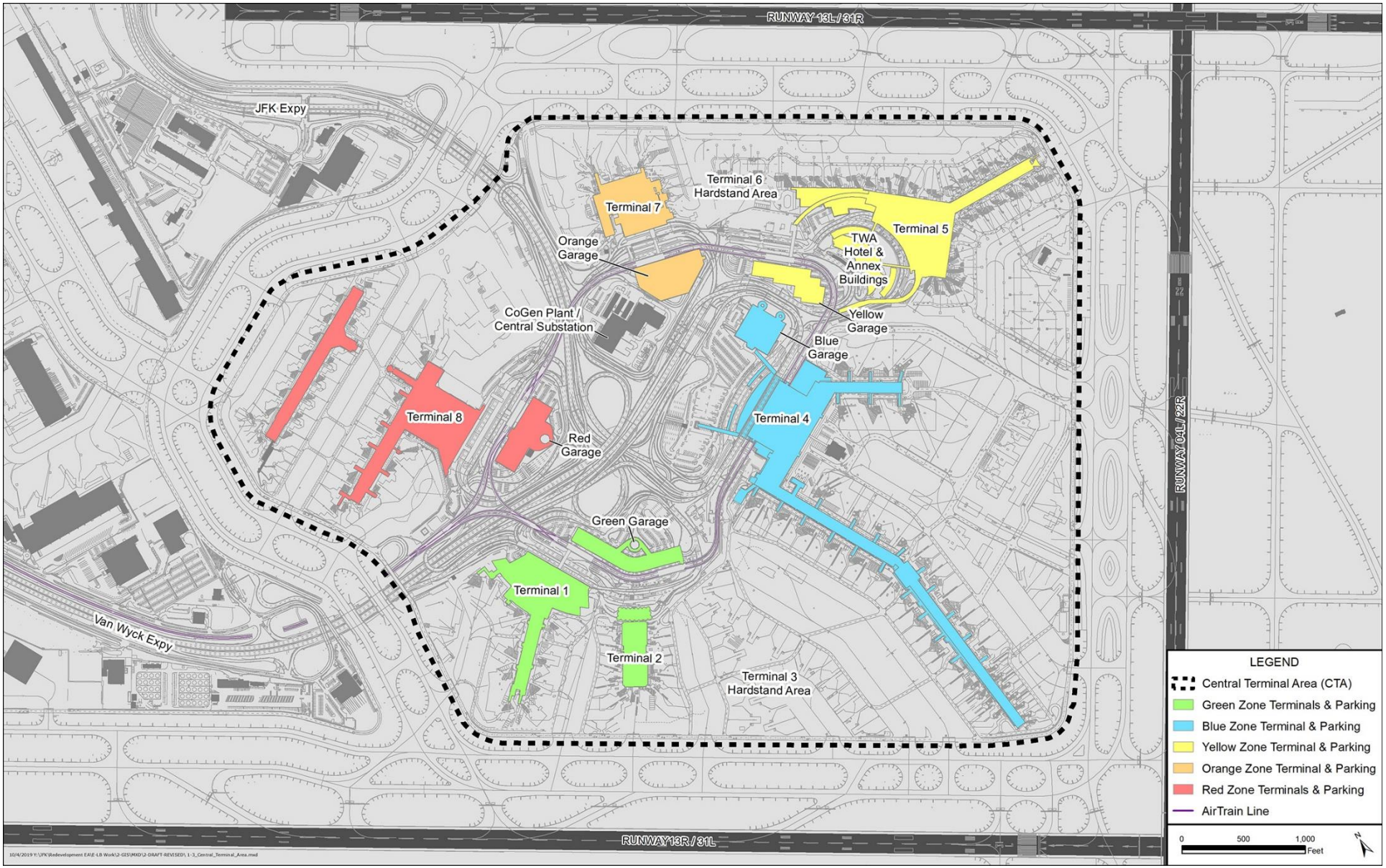
30 Port Authority, Airport Traffic Report, April 2019.

EXHIBIT 1–2 JOHN F. KENNEDY INTERNATIONAL AIRPORT AND SURROUNDINGS



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EXHIBIT 1–3 CENTRAL TERMINAL AREA



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Table 1-1, *Terminal Design Capacity and Demand Levels* summarizes the design capacity of each terminal on its opening day relative to the current level of passengers that use each terminal. Each of the terminals currently exceeds its original design capacity to accommodate a specified level of annual passengers. The design capacity dictates the overall size of the terminal and processing areas such as ticketing, security, hold rooms, circulation and concessions space. This level of activity over and above what the terminal was designed to accommodate affects the passenger experience in terms of constrained circulation space, accelerated facility wear and tear, and overall maintainability. Terminals 3 (T3) and 6 (T6) were previously demolished and therefore are not listed in **Table 1-1**.

TABLE 1-1 TERMINAL DESIGN CAPACITY AND DEMAND LEVELS
John F. Kennedy International Airport

TERMINAL	YEAR OPENED	CURRENT DESIGN CAPACITY (ANNUAL PASSENGERS)	2018 PASSENGER LEVELS	PERCENT OF EXISTING PASSENGER LEVELS TO DESIGN CAPACITY
Terminal 1	1998	7,000,000	7,605,053	109%
Terminal 2	1962	1,500,000	4,251,822	283%
Terminal 4	2001	17,500,000	21,572,752	123%
Terminal 5	2008	14,000,000	14,589,513	104%
Terminal 7	1972	1,500,000	4,637,733	309%
Terminal 8	2007	6,500,000	8,966,794	138%

Sources: Port Authority Planning Standards, Mott MacDonald analysis, 2019
Port Authority, Airport Traffic Report, April 2019.

Terminal 1 (T1)

T1 opened in 1998 and is operated exclusively by international airlines known collectively as the Terminal One Group Airlines (TOGA) which consists of Air France, JAL, Korean Air, and Lufthansa. Overall, T1 serves 22 international airlines.[31] It also provides all international airlines with Customs and Border Protection (CBP) and Federal Inspection Services (FIS) processing facilities for arriving international passengers. In 2018, T1 served 7,605,053 total annual inbound and outbound passengers.[32] The design capacity of T1 is 7 million annual passengers.

The T1 building has approximately 621,380 square feet of total floor area that is divided among the arrival level, mezzanine level, departure level, and concourse levels. The facility has 10 contact gates that are capable of accommodating Airplane Design Group (ADG) IV, ADG V and ADG VI aircraft.[33] When an ADG IV or larger aircraft is parked at Gate 1, Gate 2 is unusable, effectively reducing the

31 Airlines that operated out of Terminal 1 as of March 2019 are Air France, Aeroflot, Royal Air Maroc, Alitalia, EVA Air, Air China, Norwegian, TAM Ecuador, Hainan Airlines, Meridiana, Azerbaijan Airlines, JAL, Korean Air, Cayman Airlines, Lufthansa, China Eastern, FlyJamaica, Austrian Airlines, Philippine Airlines, Brussels Airlines, Saudia, and Turkish Airlines.

32 Port Authority, Airport Traffic Report, April 2019.

33 Airplane Design Group (ADG) is a classification of aircraft based on wingspan and tail height. When the aircraft wingspan and tail height fall in different groups, the higher group is used.

number of gates to nine. Two of the contact gates can accommodate an A380 aircraft (ADG VI).[34] When an ADG VI aircraft is parked at Gate 7, only an ADG IV or smaller can be parked at Gate 9. T1 also has access to two aircraft hardstand parking positions to the west of Gates 1 and 2 for additional parking capacity.[35]

Passenger vehicle parking for T1 is available at the Green Garage, which provides 1,500 parking spaces. The T1 AirTrain Station is situated on an elevated platform between T1 and the Green Garage. Pedestrians can access T1 from the AirTrain through a pedestrian bridge above the terminal roadway and curbfront. The existing T1 building, apron, and surrounding taxiways are shown on **Exhibit 1-4, *Terminal 1 & 2 – Existing Facilities***.

Terminal 2 (T2)

T2 opened in 1962 and is operated by Delta Air Lines (Delta). T2 is comprised of a single building with three levels that are designated as the arrival level, departure level, and mezzanine level with a total area of approximately 233,100 square feet. Currently, T2 does not have CBP/FIS processing facilities. In 2018, T2 served 4,251,822 total annual inbound and outbound passengers. The design capacity of T2 is 1.5 million annual passengers. The 10 contact gates are capable of accommodating one ADG III and nine ADG IV aircraft. T2 also has access to two aircraft hardstand parking positions capable of handling regional jet aircraft on the south side of the terminal.

Passenger vehicle parking is available at the Green Garage and there is a separate AirTrain Station serving T2. The parking facility and AirTrain are only accessible by ground-level pedestrian walkways, which require passengers to cross the terminal roadway. The existing T2 building, apron, and surrounding taxiways are shown on **Exhibit 1-4**.

Terminal 4 (T4)

T4 opened in 2001 and was expanded in 2013 and again in 2015. It has approximately 2,290,000 square feet of total floor area among three levels, designated as the arrival level, mezzanine level, and departure level. T4 is operated by JFK International Air Terminal LLC (JFKIAT), a subsidiary of Schiphol USA Inc. T4 is used by Delta along with 27 other international and domestic air carriers and provides CBP/FIS facilities for international arriving passengers on a 24-hour, seven day a week basis.[36]

In 2018, T4 served 21,572,752 total annual inbound and outbound passengers. The design capacity of T4 is 17.5 million annual passengers. T4 has 36 gates on two concourses designated Concourse A and Concourse B. Concourse A has six gates, four of which are capable of accommodating ADG V aircraft and two are capable of accommodating ADG VI aircraft. The 30 contact gates on Concourse B can accommodate five ADG IV and 14 ADG V type aircraft and 11 ADG III aircraft. The majority of the gates have access to full CBP/FIS processing facilities for arriving international passengers. Aircraft hardstand parking positions are located to the east between T4 and Taxiway H. The aircraft hardstand

[34] Although some ADG VI aircraft are no longer in production, existing ADG VI aircraft will continue to operate for the foreseeable future.

[35] At T1, Gate 1b and Gate 7 are A380 capable. Aircraft hardstand parking positions are designated HS1 and HS2.

[36] Airlines that operated out of T4 as of March 2019 are Aeromexico, Air Europa, Air India, Air Serbia, Arik Air, Asiana, Avianca, Caribbean Airlines, China Airlines, China Southern, Copa, Delta, Egyptair, El Al, Emirates, Etihad, KLM, Kuwait Airlines, Swiss, Singapore Airlines, South African Airlines, Thomas Cook, Sun Country Airlines, Uzbekistan Airlines, Virgin Atlantic Airways, Volaris Westjet, XL Airways, and Xiamen Airlines.

parking positions provide capacity for up to 11 additional aircraft parking positions for T4 airlines including one ADG IV, six ADG V, and four ADG VI aircraft positions.[37] Additional aircraft hardstand parking positions are available at the former site of T3 with positions for up to 15 aircraft.

Passenger vehicle parking is available in the Blue Garage and adjacent surface lot. The AirTrain Station is incorporated into the terminal processor building so that passengers can board and disembark the AirTrain from inside the terminal. The existing T4 building, apron, and surrounding taxiway is shown on **Exhibit 1-5, *Terminal 4 – Existing Facilities***.

[37] The T4 aircraft hardstand parking positions are designated 61, 62, 63, 72, 73, 74, 78, 79, 80, 81, and 82.

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EXHIBIT 1–4 TERMINAL 1 & 2 – EXISTING FACILITIES



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EXHIBIT 1–5 TERMINAL 4 – EXISTING FACILITIES



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Terminal 5 (T5)

T5 is operated by JetBlue Airways (JetBlue).[38] The Terminal was opened in 2008 and was expanded in 2014. The total terminal floor area is 817,000 square feet. T5 has two main levels designated as the arrival level and departure level. In 2018, T5 served 14,589,513 total annual inbound and outbound passengers. The design capacity of this terminal is 14 million annual passengers.

T5 has 29 contact gates. Seventeen (17) gates are distributed along the terminal headhouse and 12 are along a single double-loaded pier. All gates can accommodate ADG III aircraft. Four gates (Gates 9, 11, 14 and 30) can accommodate ADG V aircraft, though doing so restricts the usage of adjacent gates.[39] There are three active aircraft hardstand parking positions and two independent positions to the west of T5 on the site of the former T6, and 13 positions to the southeast of T5 that can be used by the designated airlines.[40] Six gates at T5 have access to a CBP/FIS processing facility.

T5 is connected to the original TWA Flight Center by way of two preserved tubular departure-arrival corridors. The TWA Flight Center, which is listed on the National Register of Historic Places, has been rehabilitated, restored, and repurposed as a hotel, now named the TWA Hotel. The TWA Flight Center was designed by Eero Saarinen and opened in 1962. The AirTrain Station for T5 is located to the west of the TWA Flight Center and connects to the Yellow Garage. The parking facility and AirTrain are only accessible by way of ground-level pedestrian walkways which require passengers to cross the terminal roadway. Pedestrian access between T5 and the AirTrain and Yellow Garage is through a pedestrian bridge over the terminal roadway. T5 is shown on **Exhibit 1-6, *Terminals 5 & 7 – Existing Facilities***.

Terminal 7 (T7)

T7 opened in 1972 and comprises 534,456 square feet of total floor area, which includes departure and arrival concourses. British Airways operates T7 with Alaska Airlines as an anchor tenant, as well as multiple other airlines.[41] The existing T7 is shown on **Exhibit 1-6**. In 2018, T7 served 4,637,733 total annual inbound and outbound passengers. The design capacity of T7 is 1.5 million annual passengers.

The facility accommodates international carriers typically on 12 contact gates; although two gates do not have access to CBP/FIS processing facilities for international arrivals. T7 is configured as a traditional headhouse terminal with all contact gates originating from the main terminal building (as opposed to having gates at different concourses). The T7 gate configuration is capable of accommodating six ADG III and six ADG V aircraft.

T7 is connected to the T7 AirTrain Station and Orange Garage through a pedestrian bridge over the terminal roadway and curbfront.

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38 Airlines that operated out of Terminal 5 as of March 2019 are Aer Lingus, Hawaiian Airlines, JetBlue, and TAP Portugal.

39 At Terminal 5, if an ADG-V aircraft is parked at Gate 9, Gate 8 cannot be used, if an ADG-V aircraft is parked at Gate 11, Gate 10 cannot be used, if an ADG-V aircraft is parked at Gate 14, Gate 12 cannot be used, and if an ADG-V aircraft is parked at Gate 30, Gate 29 cannot be used.

40 Three active aircraft hardstand parking positions to the west of Terminal 5 on the former Terminal 6 site are designated H31, H32, H33. Two independent aircraft hardstand parking positions, H34 and one north of H33, are dedicated to Terminal 7. The 13 aircraft hardstand parking positions to the southeast of Terminal 5 are designated H1, H2, H3, H4, H5, H6, H7, H7a, H9, H10, H11, H12, and H14.

41 Airlines that operated out of T7 as of March 2019 are Aerolineas Argentinas, Alaska Airlines, ANA, British Airways, Iberia, Interjet, Icelandair, LOT Polish Airlines, Ukraine International, Qatar Airways, and Virgin America.

Terminal 8 (T8)

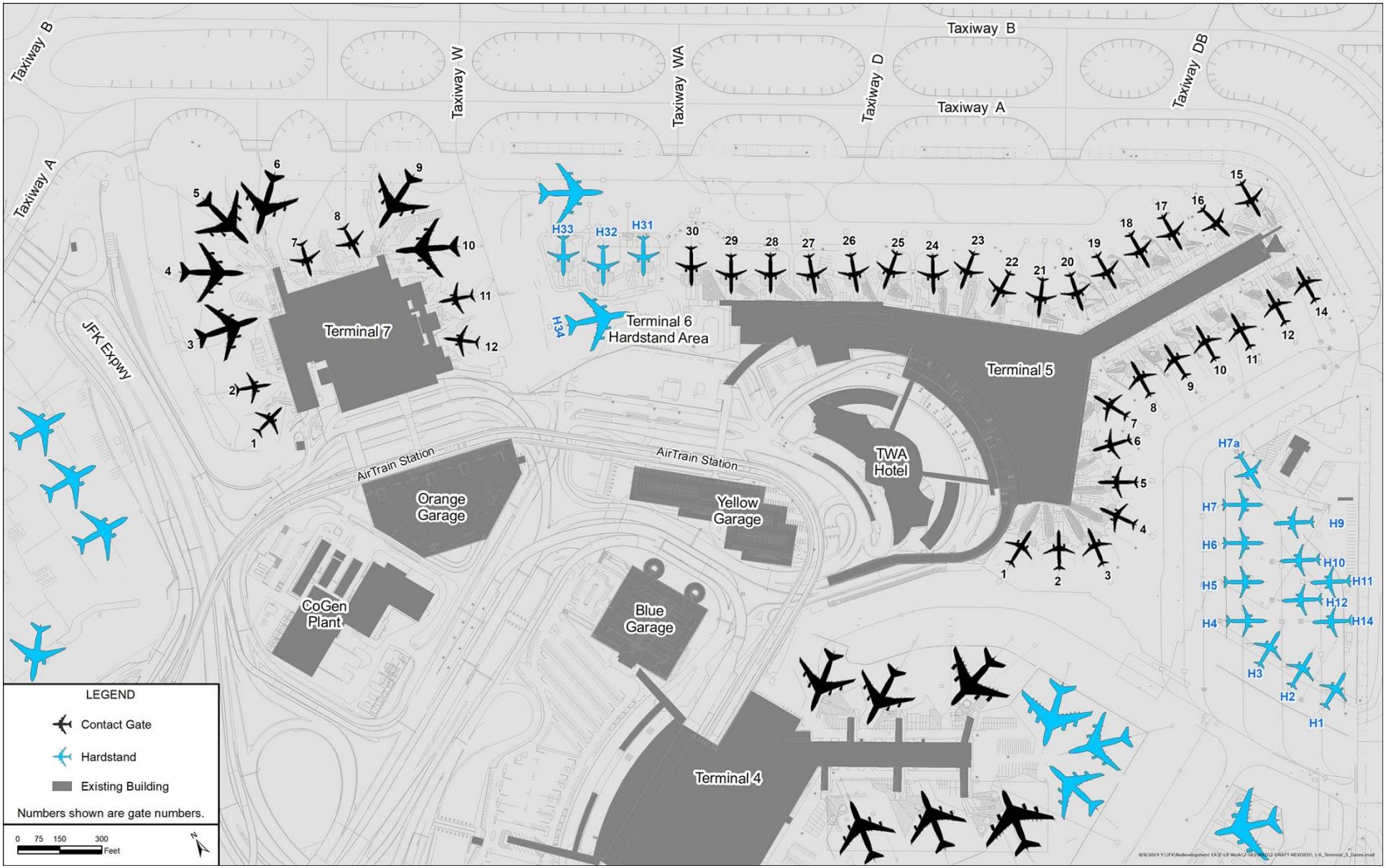
T8 is not part of the Proposed Action but is included here in to describe the available terminal facilities at JFK. T8 is operated by American Airlines and serves domestic and international flights.[42] T8 opened in 2007 and is currently configured for 35 gates and comprises 1,497,900 square feet of space along two double-loaded linear concourses. In 2018, T8 had 8,966,794 total annual inbound and outbound passengers. The design capacity of this terminal is 6.5 million annual passengers.

Concourse B includes 12 gates and Concourse C includes 23 gates accessible from the terminal headhouse through an underground walkway. T8 provides CBP/FIS international arrivals facilities and services at all of the contact gates on Concourse B. Concourse B's 12 international arrival-capable gates are configured along a double-loaded pier concourse and are capable of accommodating five ADG IV and seven ADG V aircraft. Concourse C's double-loaded linear satellite configuration has 23 gated positions that accommodate nine ADG III, 13 ADG-IV, and one ADG V aircraft. Five aircraft hardstand parking positions are located to the east of Concourse B. American Airlines has proposed to expand T8 as part of a separate project that is currently under NEPA review and is included in **Section 5.15, *Cumulative Impacts*** in this EA.

T8 is connected to the AirTrain Station and the Red Garage by way of dedicated pedestrian walkways. These walkways pass between the elevated departure level roadway and the at-grade arrival roadway. The existing T8 is shown in **Exhibit 1-7, *Terminal 8 – Existing Facilities***.

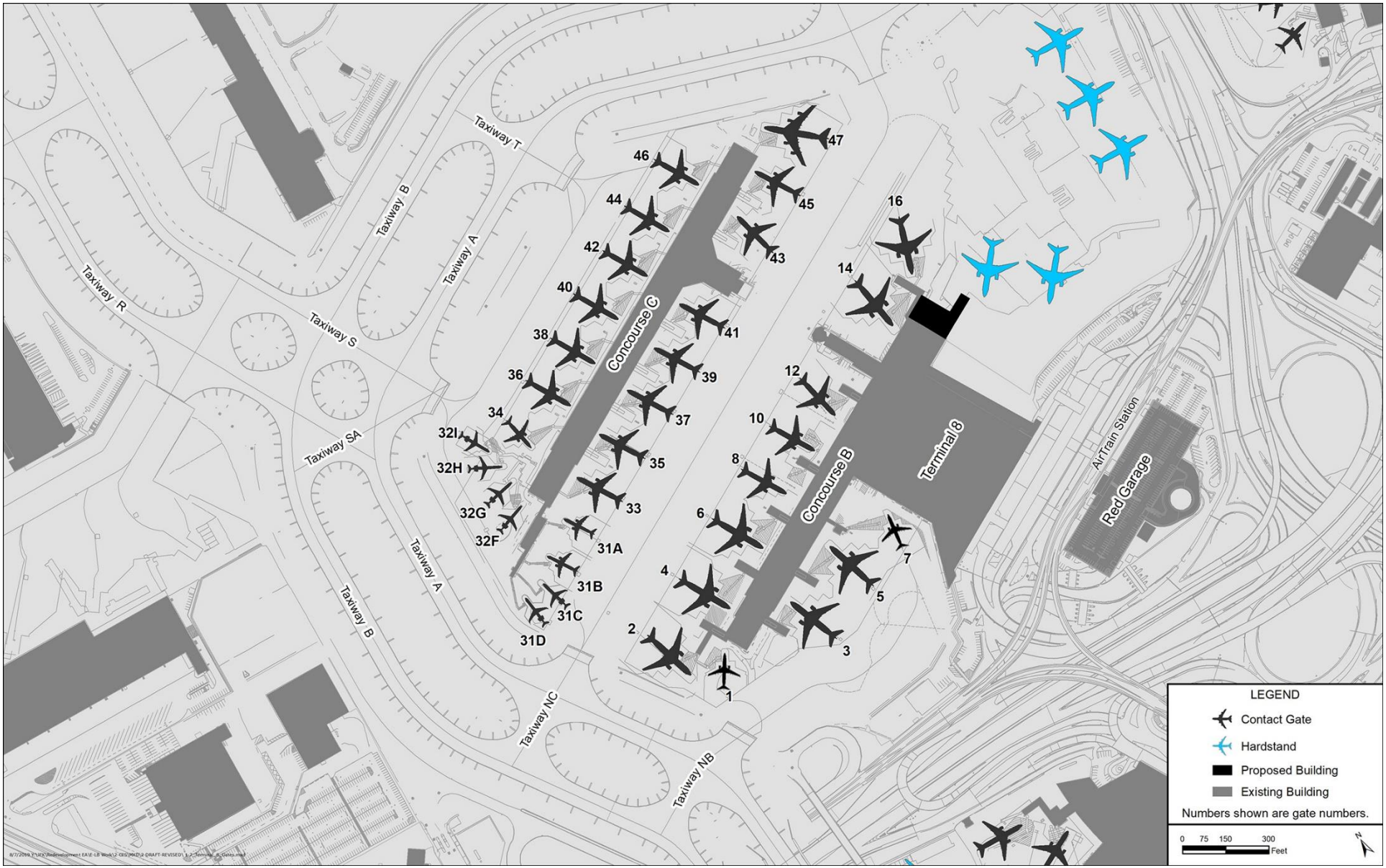
[42] Airlines that operated out of Terminal 8 as of March 2019 include American Airlines, Cathay Pacific, Finnair, LATAM Chile, LATAM Ecuador, TAM Brasil, Qantas Airways, Royal Jordanian, and Southwest Airlines.

EXHIBIT 1–6 TERMINALS 5 & 7 – EXISTING FACILITIES



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EXHIBIT 1–7 TERMINAL 8 – EXISTING FACILITIES



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Summary of Terminal Gates and Aircraft Hardstand Parking Positions

As shown in **Table 1-2, E*xisting Contact Gates and Associated Aircraft Hardstand Parking Positions***, there are 132 contact gate positions at the six terminals and 53 aircraft hardstand parking positions at JFK. Due to limited terminal gate space at JFK, some airlines currently load and unload passengers at aircraft hardstand parking positions (non-contact positions). Boarding at aircraft hardstand parking positions currently occurs from T4 and T5. Aircraft hardstand parking positions occur at positions 63, 72, 79, 80, 81, and 82 from T4 and positions H31, H32, and H33 from T5.[43]

TABLE 1-2 EXISTING CONTACT GATES AND ASSOCIATED AIRCRAFT HARDSTAND PARKING POSITIONS
John F. Kennedy International Airport

TERMINAL	NUMBER OF CONTACT GATES	NUMBER OF AIRCRAFT HARDSTAND PARKING POSITIONS
T1	10	2
T2	10	2
Former T3 Ramp	N/A*	15
T4	36	11
T5	29	13
Former T6 Ramp	N/A*	5
T7	12	0
T8	35	5
Total	**132**	**53**

Notes: Gate counts represent the official gate count from JFK Redevelopment. In some cases, total available gates change during periods when a widebody aircraft parked at one gate limits the use of an adjacent gate as described in the previous sections.

* Not Applicable (N/A): The former T3 and T6 ramps are listed to show the current aircraft hardstand parking positions at these locations. These sites do not have contact gates.

Source: Port Authority, March 2019.

Many of the gate configurations do not reflect the aircraft types that are currently used by airlines at JFK. For example, in the mid-1990s there was a proliferation in the use of 50-seat regional jets that required the use of modified passenger boarding bridges. These aircraft have been dropping out of use by the airline industry since the 2010s. Commercial airlines are relying more on larger variants of regional jets (known as cross-over jets), which are closer in size to narrow-body jets. Cross-over jets have a typical seating capacity of 70-150 passengers. Unlike 50-seat regional jets, the cross-over jets can use typical passenger boarding bridges which are also used by narrow-body and wide-body jets. Consistent with this airline industry-wide shift, the JFK fleet mix has been changing over the past four years and will continue to change. This change was contemplated in the FAA approved forecast for JFK, as the airlines continue to move away from regional jets to larger cross-over jets. Therefore, the

[43] Port Authority, JFK Redevelopment Program, NEPA Schedule Development & TAAM Input Update, No-Build Scenario, February 5, 2019.

existing regional jet gates at JFK will soon be obsolete, necessitating the installation of gates that can serve larger aircraft.

1.1.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is shown in **Exhibit 1-8, *Proposed Action – Full Buildout***, and is described in detail in the following sections. To accommodate construction of the Proposed Action, several existing buildings need to be demolished as shown on **Exhibit 1-9, *Proposed Demolition***. The Proposed Action includes the following major elements and connected actions:

South Terminal Development

- Construction of a new South Terminal Development, which includes the construction of a new T1 (New T1) and the following connected actions:
  - Demolition of T1 and T2
  - Expansion of the existing T4 headhouse and extension of T4 Concourse A to replace 10 gates and two live aircraft hardstand parking positions and terminal space lost from the demolition of T2
  - Construction of South Hardstand Area
  - Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes
  - Construction of a new Ground Transportation Center (GTC)/JFK Central and parking facility within the CTA
  - Demolition of the existing Green and Blue Garages and relocation of parking to the newly constructed GTC/JFK Central
  - Demolition of Building 95
  - Demolition of Buildings 121 and 122 and the construction of an auto parking lot on the site to facilitate the relocation of employee parking from the proposed South Hardstand Area to the site of Buildings 121 and 122
  - Demolition of Buildings 214 and 215 for use as a construction staging area[44]
  - Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates
  - Construction of a new 40 MVA substation measuring approximately 8,500 square feet between T2 and T4 (Central Substation #2)

[44] The building 214 and 215 area will remain as a construction staging area in support of construction projects post JFK Redevelopment.

North Terminal Development

- Construction of a new North Terminal Development, which includes construction of an expansion to T5 to replace T7 gates and the following connected actions:
  - Demolition of T7
  - Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes
  - Reconfiguration of the first level of the Yellow Garage to accommodate buses, taxis and other commercial vehicles
  - Construction of North Hardstand Area
  - Demolition of Buildings 68, 83, 85, and 189 for construction staging and the expansion of the North Hardstand Area
  - Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates

Terminal Roadway Reconfiguration

- Reconfiguration of the existing terminal roadway system in support of the proposed terminal development

Under the Proposed Action, the total number of gates at JFK would increase by 11, and existing gates would be reconfigured to accommodate the existing and projected aircraft fleet mix. **Table 1-3, *Existing and Proposed Contact Gates and Aircraft Hardstand Parking Positions*** shows the total proposed number of contact gates and the number of aircraft hardstand parking positions associated with the Redevelopment Program. The change in gate configuration is intended to respond to forecast fleet mix changes that would also reduce live aircraft hardstand parking positions. The additional gates are to accommodate existing and forecast aircraft operations and passengers at an acceptable level of service (LOS). There are not enough gates today for the aircraft operations that currently occur. The addition of new gates does not mean that there would be more air traffic at JFK than what has already been forecasted. JFK is currently slot-controlled and is limited to 81 aircraft operations per hour between 6:00 a.m. and 10:59 p.m. seven days a week. The forecast increase in passengers will take place with or without the new gates.

Construction of the Proposed Action is assumed to take place from the beginning of 2020 to the end of 2025. It is expected that most of the parking for construction workers (about 80 percent) would be provided at the existing parking lot at the Aqueduct Racetrack during that time period.[45] No construction at the Aqueduct Racetrack parking lot would be required to support this temporary parking. The remaining parking spaces for construction workers would be provided at the site of former Building 80 (demolished). Shuttle buses would transfer personnel between both Airport parking lots and the

[45] The proposed area to be utilized for contractor parking is part of the Airport property (depicted on the JFK ALP) as there is a lease agreement in place between the New York Racing Authority (NYRA) and Port Authority permitting the Port Authority to utilize 22.7 acres of land. The NYRA/Aqueduct Racetrack continues to maintain their own parking areas to accommodate their facilities.

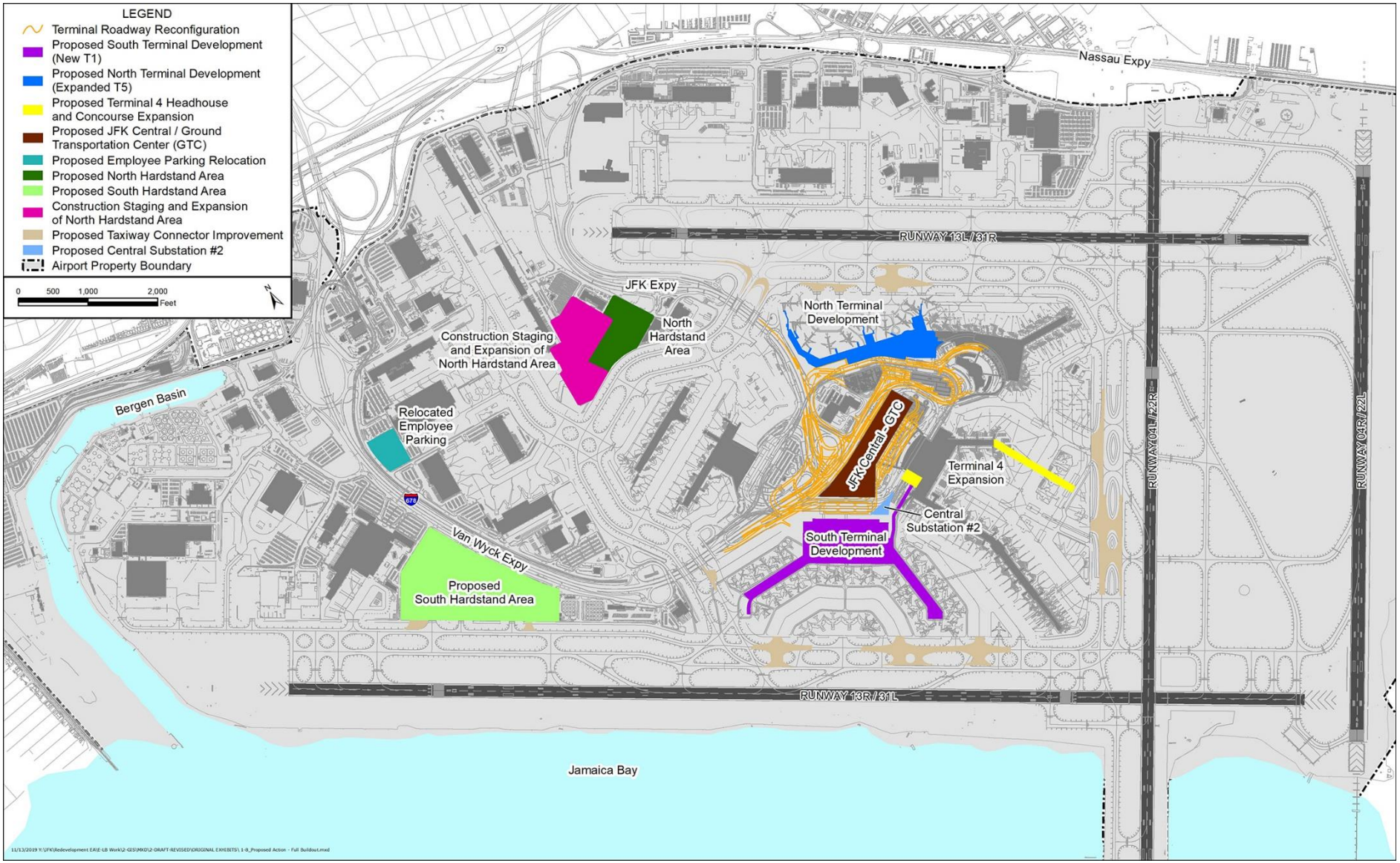
construction site(s). Shuttle buses would also be provided between Jamaica Station and the construction sites and staging areas.

TABLE 1-3 EXISTING AND PROPOSED CONTACT GATES AND AIRCRAFT HARDSTAND PARKING POSITIONS
John F. Kennedy International Airport

TERMINAL	CONTACT GATES	AIRCRAFT HARDSTAND PARKING POSITIONS
EXISTING CONDITION		
T1	10	2
T2	10	2
Former T3 Ramp	N/A	15
T4	36	11
T5	29	13
Former T6 Ramp	N/A	5
T7	12	0
T8	35	5
Total	**132**	**53**
PROPOSED ACTION		
T1 –South Terminal Development	23	8
T4	50	4
T5 – North Terminal Development	39	13
South Hardstand Area	0	13
North Hardstand Area	0	5
Expansion of North Hardstand Area	0	10
Total	**112**	**53**
OTHER PROJECTS		
T8 Concourse Reconfiguration and Expansion	31	4
TOTAL		
Total	**143**	**57**
Net Change	**+11**	**(+4)**

Notes: Existing gate counts represent the official gate count from JFK Redevelopment. In some cases, total available gates change at gates where parking a widebody aircraft at one gate limits the use of an adjacent gate as described in the previous sections.
N/A - Not Applicable
Source: Port Authority, 2019.

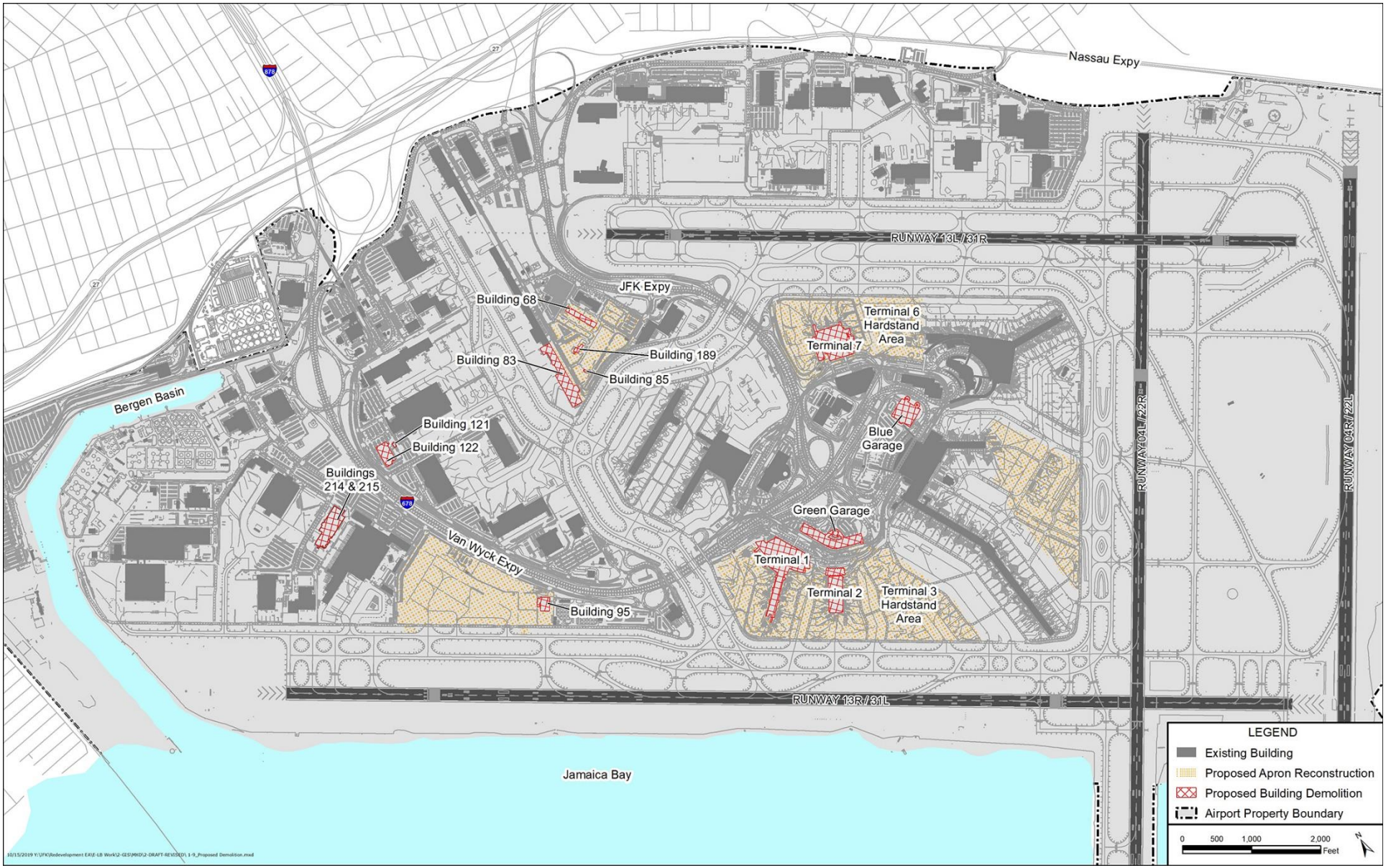
EXHIBIT 1–8 PROPOSED ACTION – FULL BUILDOUT



*The "*Construction Staging and Expansion of North Hardstand Area*" will be used initially for construction staging and later developed to support expanded aircraft parking.

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EXHIBIT 1–9 PROPOSED DEMOLITION



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The following sections provide a more detailed description of each of the previously listed Proposed Action elements.

South Terminal Development

The proposed South Terminal Development is on the south side of the CTA and includes the demolition of the existing T1 and T2 and construction of a new passenger terminal facility (New T1) to replace the existing T1 and T2 and the aircraft parking apron on the former T3 site. The proposed New T1 is shown in more detail on **Exhibit 1-10, *Proposed New Terminal 1 Development Concept*.**

Construction of New Terminal 1

The facility space of the New T1 building would be approximately 2.9 million square feet of total floor area. This terminal is expected to primarily accommodate the airlines that currently operate out of T1. This new terminal would include 23 international gates, 22 of which would accommodate wide-body aircraft, along with eight aircraft hardstand parking positions.

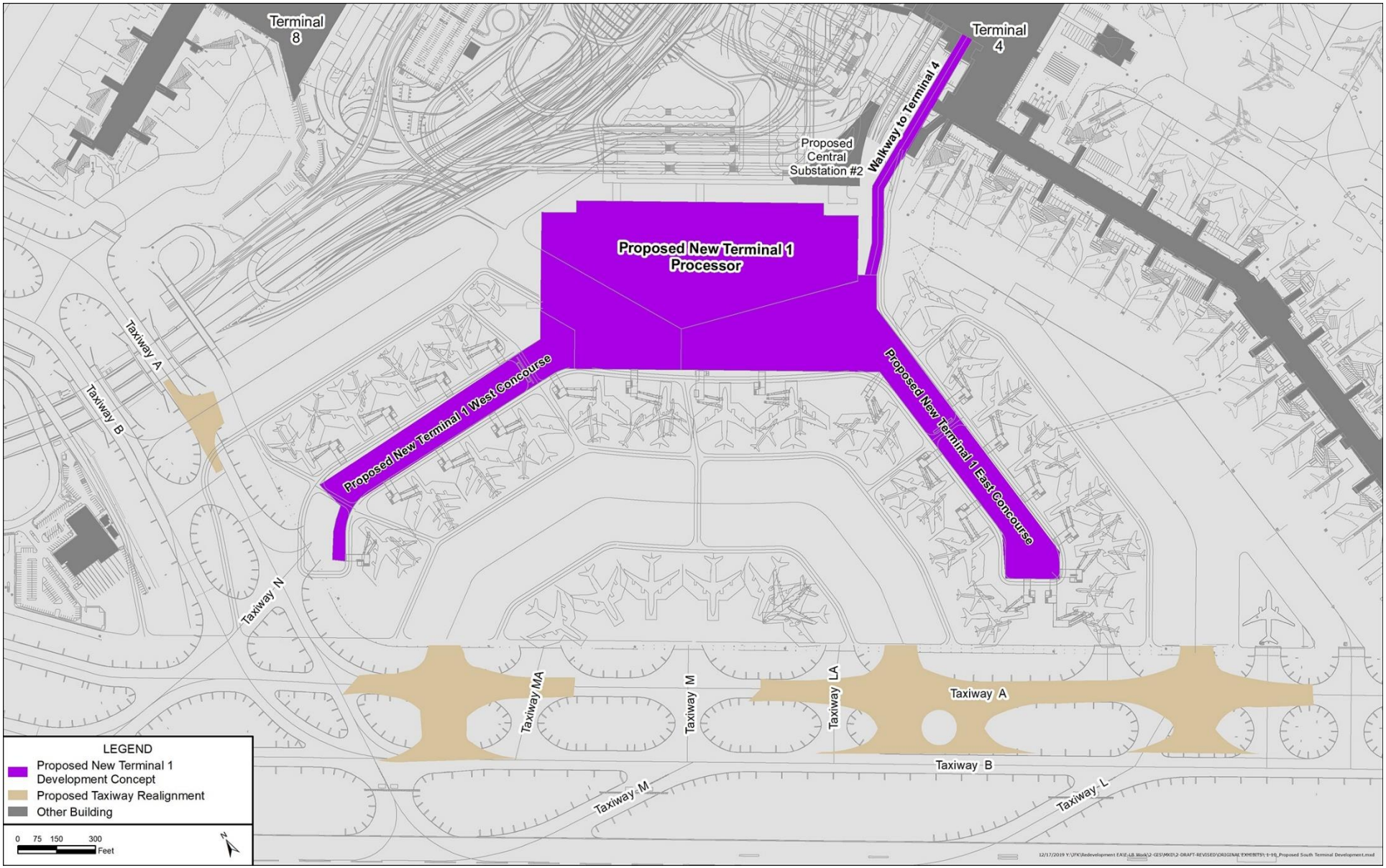
While the New T1 would be connected to the existing T4, it would include its own central passenger processing facility complete with ticketing, baggage claim, security checkpoint, and CBP/FIS facilities for international passenger processing. The proposed new terminal would include a single central processor (i.e., a headhouse) and two double-sided concourse piers. The benefit of having a single headhouse rather than dual headhouses is that consolidation of services such as ticketing, baggage check-in, security, and baggage claim maximizes space and provides a consistent LOS to passengers.

The New T1 would include three levels: departures, concourse, and arrivals. The departure level (845,000 square feet) would consist of a ticketing/check-in lobby, premier passenger lounge, and the security screening check points (SSCP), followed by the concourse level (1,030,000 square feet) with holding rooms and most of the terminal's concessions. Arriving passengers would deplane into the sterile circulation corridor at the departure level, followed by the arrival level (1,030,000 square feet), which would house the CBP/FIS, international bag claim, and meeter/greeter halls.

The New T1 design would feature expansive waiting areas with high ceilings, natural light and modern architecture compared to the existing T1 and T2. The use of interior green space would add to a comfortable and inviting travel experience for passengers. The terminal would promote the region by featuring exhibits and art focused on iconic New York landmarks and local artists, as well as featuring locally-based restaurateurs, craft beverage options, and "Taste NY" stores. Free, high-speed Wi-Fi and an abundance of charging stations located throughout the terminals would allow passengers to stay connected at each step of their journey. Other passenger amenities include world-class retail and restaurants, intuitive wayfinding, and total holdroom space of 201,000 square feet.

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EXHIBIT 1–10 PROPOSED NEW TERMINAL 1 DEVELOPMENT CONCEPT



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A consolidated SSCP operation covering all security processes would be located at the new departure area. Centralization of this function would enable staff efficiencies and aid passengers in wayfinding. The SSCP has been sized based on processing speeds during peak hours with a maximum wait time of 10 minutes consistent with formulas provided by Port Authority's Airport Planning Standards.[46]

State-of-the-art technological improvements in the new terminal building would include the latest security enhancements, such as radiation detection and next-generation identification of unattended packages.

Other features of the terminal design include:

- A check-in processing area with five ticketing islands and 30 airline ticket office counter positions; five curbside positions, 34 self-check-in kiosks with expandable infrastructure; and a premium lounge check-in.
- A baggage handling system equipped with belt conveyors and high-speed diverters for sortation and permanent magnetic motor technology to accommodate various levels of demand.
- For the airfield, LED ramp lighting in lieu of traditional metal halide lighting to provide a better quality of light with lower operating costs and longer life, and better coverage than the traditional metal halide lights.
- Three passenger boarding bridges for each ADG VI gate and one boarding tower for enplaning and deplaning passengers.
- Two passenger boarding bridges for each ADG V gate.

The New T1 apron would provide improved aircraft circulation by eliminating multiple single taxilanes with one way to access the taxiway. These existing taxilanes would be replaced by a taxilane loop with two exits providing access from the T1 apron area to the Airport taxiway network. (See **Exhibit 1-10** for proposed apron and improved aircraft access.).

Line of Sight – Concourse Configuration

As part of its safety review in connection with the Proposed Action, the FAA will analyze whether FAA Airport Traffic Control Tower (ATCT) staff are able to view all areas of the Airport for which air traffic control services are provided (known as a Line of Sight analysis). These areas are classified as "movement areas," and encompass the runways and parallel taxiway systems including their associated safety areas. Taxilanes, apron areas and hangar areas are considered "nonmovement areas", meaning aircraft movement in these areas is not provided with air traffic control services. To provide taxiing instructions to aircraft going from a nonmovement area to a movement area, the ATCT staff must be able to see the aircraft and other operating aircraft in the vicinity of it. The Line of Sight analysis validates that ATCT staff are able to visually observe aircraft in the movement areas in order to safely direct the aircraft along their desired routes.

To support the FAA Line of Sight analysis, the Port Authority performed a preliminary Line of Sight review that meets FAA standards.[47] Based on this analysis, the majority of the preliminary designed

[46] Port Authority, Airport Planning Standards, Version 1, December 2017.
[47] Federal Aviation Administration (2006). Airport Traffic Control Tower Siting Order, (U.S. Department of Transportation Federal Aviation Administration Technical Report # 6480.4a). Washington D.C.: U.S. Department of Transportation.

project elements as described in **Section 1.1.2, *Description of the Proposed Action*** would not obstruct the Line of Sight from the ATCT to the movement area. However, there is a potential for the New T1 concourses to obstruct views to a portion of Taxiway A from the ATCT. Accordingly, the preliminary configurations of the east and west concourses at the New T1 are expected to be refined to resolve any safety concerns while still achieving the desired gate and square footage improvements at the terminal.

The Port Authority is considering two configurations for the ends of the New T1 east and west concourses to validate the Line of Sight analysis. In comparison to the description of the New T1 provided in **Section 1.1.2**, the two configurations under consideration have varying concourse length and width and a reduction in overall height of the concourses, but would not change the total square footage area of the New T1 or the number of proposed gates at each concourse. Nor would such changes affect the New T1 passenger capacity, level of service, or its ability to accommodate future and projected passengers. The area of the east and west concourses under all configurations will remain at approximately 180,000 square feet.

Further, the aircraft hardstand parking capacity would not change. Also, the elevation of the Taxiway A pavement adjacent to the New T1 West Concourse may be increased 3 feet over its existing elevation - from approximately 11 feet above sea level to approximately 14 feet above sea level. This would be accomplished by placing fill and an asphalt overlay on Taxiway A. The result would raise the relative height of aircraft on the taxiway improving visibility from the ATCT to Taxiway A.

In addition, these configurations retain the multiple taxilane options for aircraft entering and exiting the terminal apron area, preventing congestion from arriving and departing aircraft accessing the same taxilane in opposite directions. These configurations have been subject to preliminary review and are expected to achieve the FAA's line of sight requirements. Final FAA review is expected to verify the preliminary review of the configurations.

Two concourse configurations are being contemplated: Configuration 1 and Configuration 2. These are described as follows:

Configuration 1: West Concourse

- Reduce concourse length from 1,096 feet to 807 feet, see **Exhibit 1-11A, *Configuration 1 Footprint***
- Widen concourse from 130 feet to 150 feet and add a 300-foot-wide hammerhead to concourse end
- Reduce concourse roof height from 79'-6" to 59'-5", a 20-foot reduction, see **Exhibit 1-11B, *Configuration 1 West Concourse Roof Slope***
- Total area: approximately 180,000 square feet
- Raise Taxiway A pavement three feet from its current 11 feet elevation to approximately 14 feet for a length of 600 feet

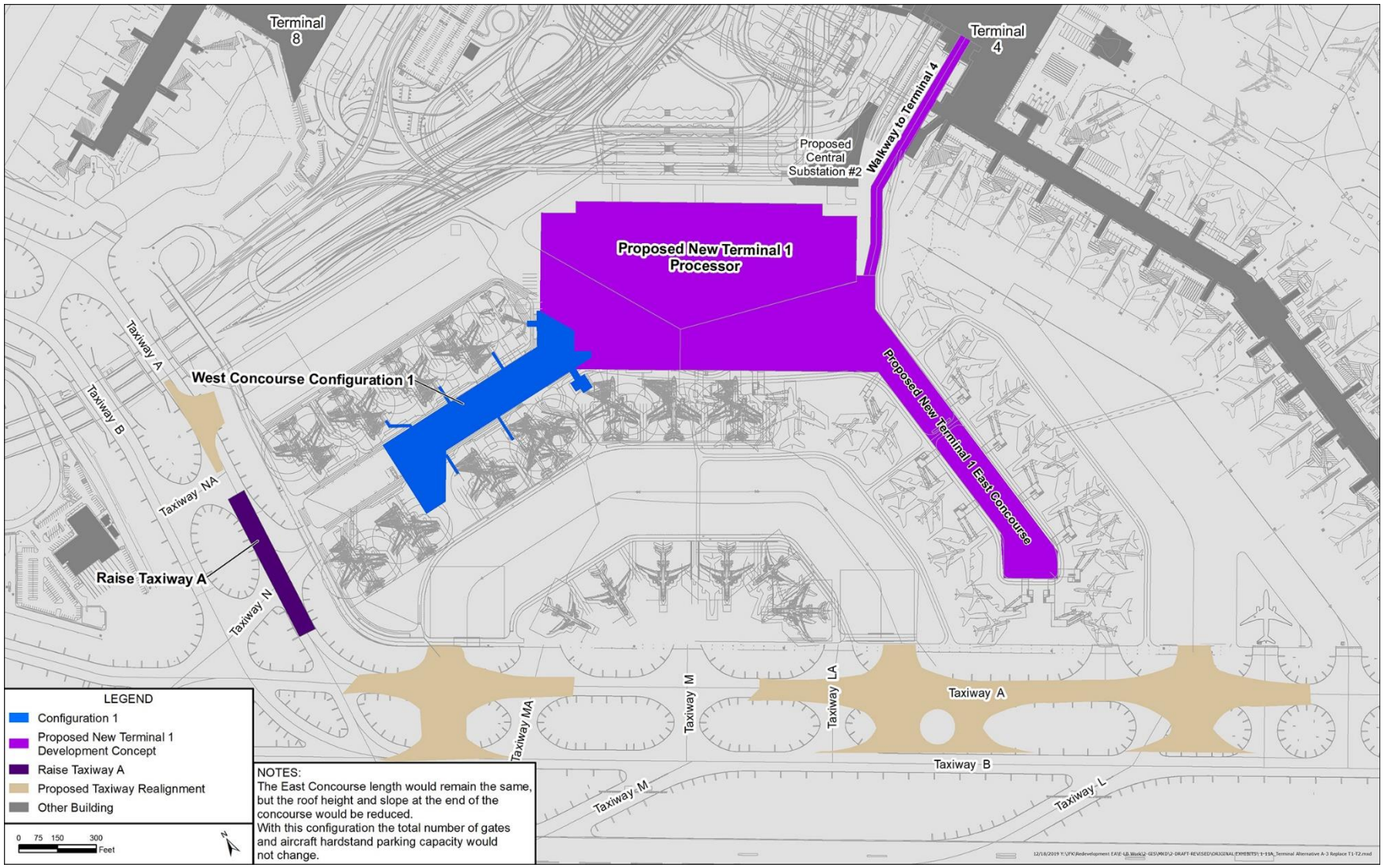
Configuration 1: East Concourse

- Length remains unchanged
- Reduce concourse roof height from 79'-6" to 66'-6", a 13-foot reduction, see **Exhibit 1-11C, *Configuration 1 East Concourse Roof Slope***
- Total area: approximately 180,000 square feet

Exhibit 1-11D, *Comparison of Configuration 1 and Proposed New Terminal 1 Development Concept* provides a comparison of Configuration 1 superimposed over the Proposed New T1 Development Concept as described in **Section 1.1.2** of this EA.

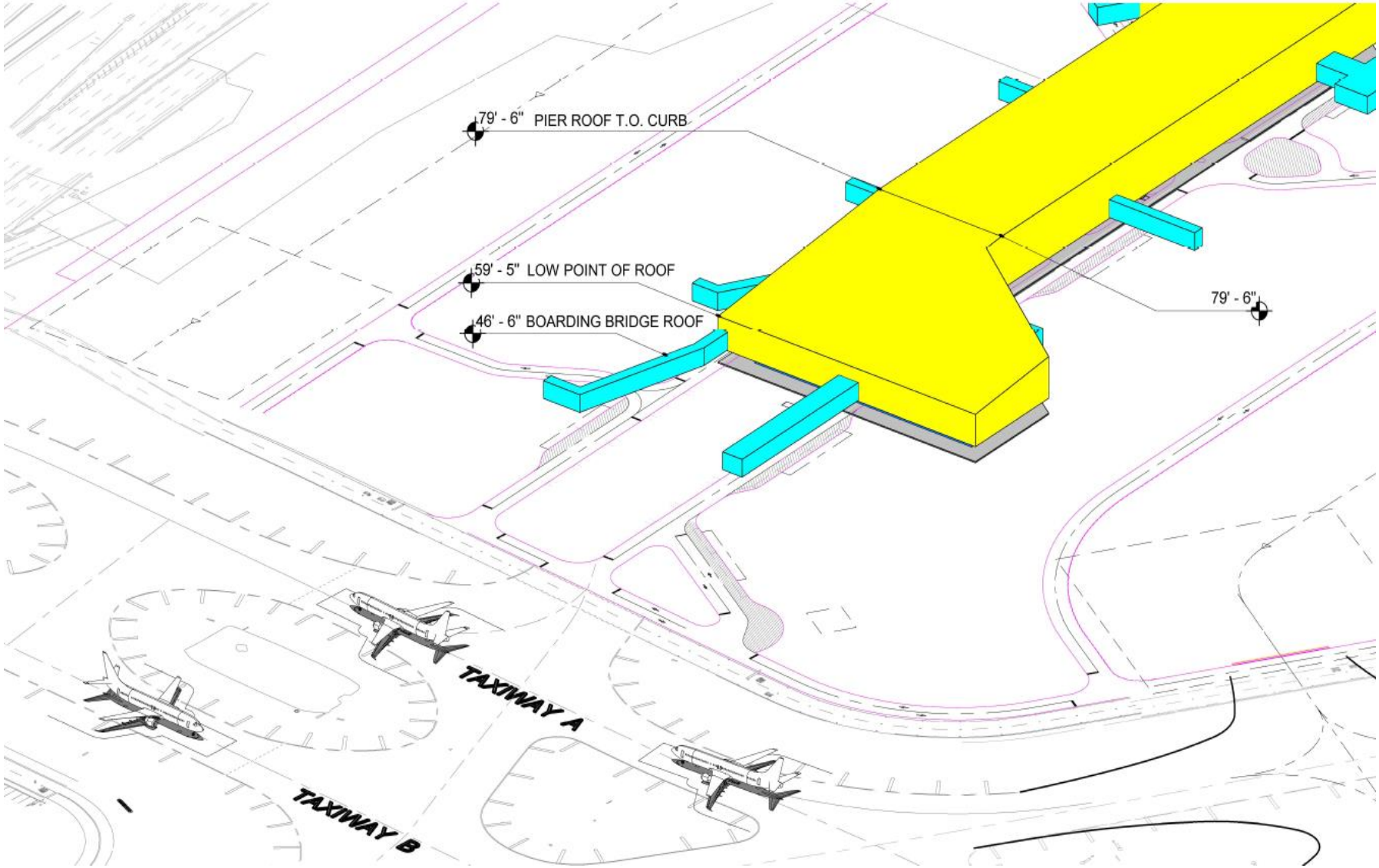
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EXHIBIT 1–11A CONFIGURATION 1 FOOTPRINT



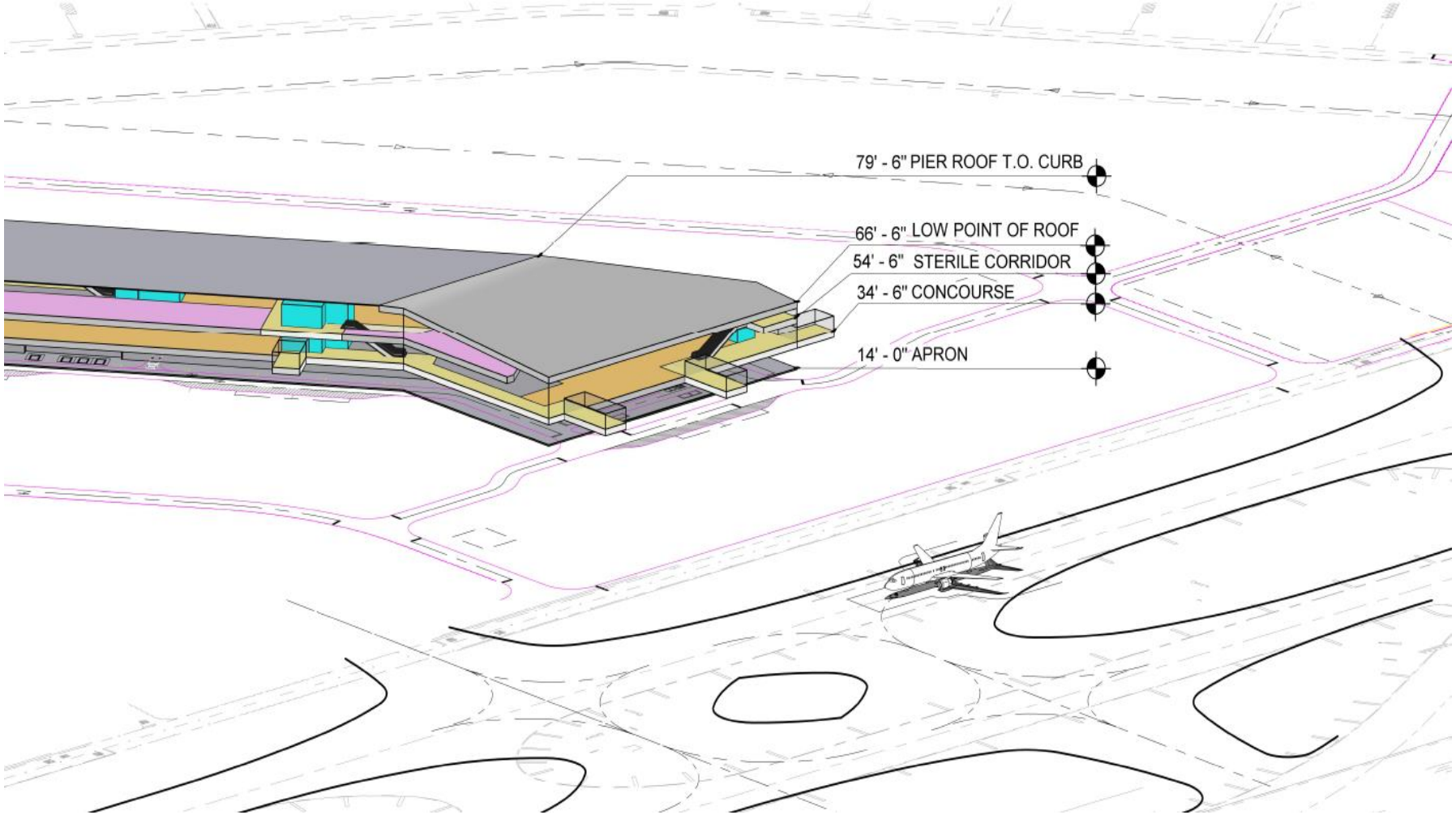
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EXHIBIT 1–11B CONFIGURATION 1 WEST CONCOURSE ROOF SLOPE



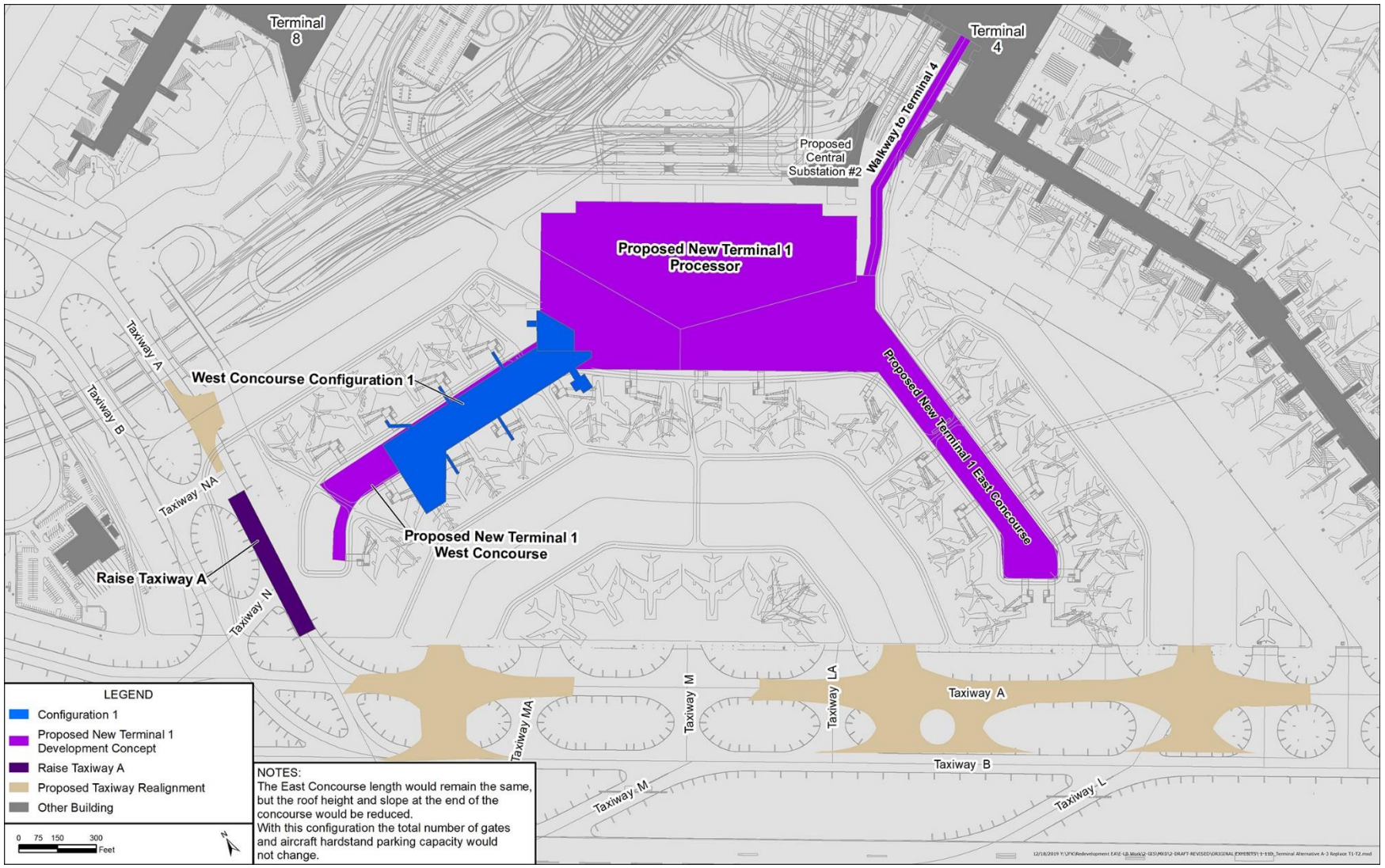
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EXHIBIT 1–11C CONFIGURATION 1 EAST CONCOURSE ROOF SLOPE



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EXHIBIT 1–11D COMPARISON OF CONFIGURATION 1 AND PROPOSED NEW TERMINAL 1 DEVELOPMENT CONCEPT



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Configuration 2: West Concourse

- Reduce concourse length from 1,096 feet to 885 feet, see **Exhibit 1-12A, *Configuration 2 Footprint***
- Widen concourse from 130 feet to 150 feet and add a 252-foot-wide hammerhead to concourse end
- Rotate concourse to the east
- Relocate one hardstand from center apron to west apron
- Reduce concourse roof height from 79'-6" to 54'-3", a 25-foot reduction, see **Exhibit 1-12B, *Configuration 2 West Concourse Roof Slope***
- Total area: approximately 180,000 square feet
- Raise Taxiway A pavement three feet from its current 11 feet elevation to approximately 14 feet for a length of 600 feet

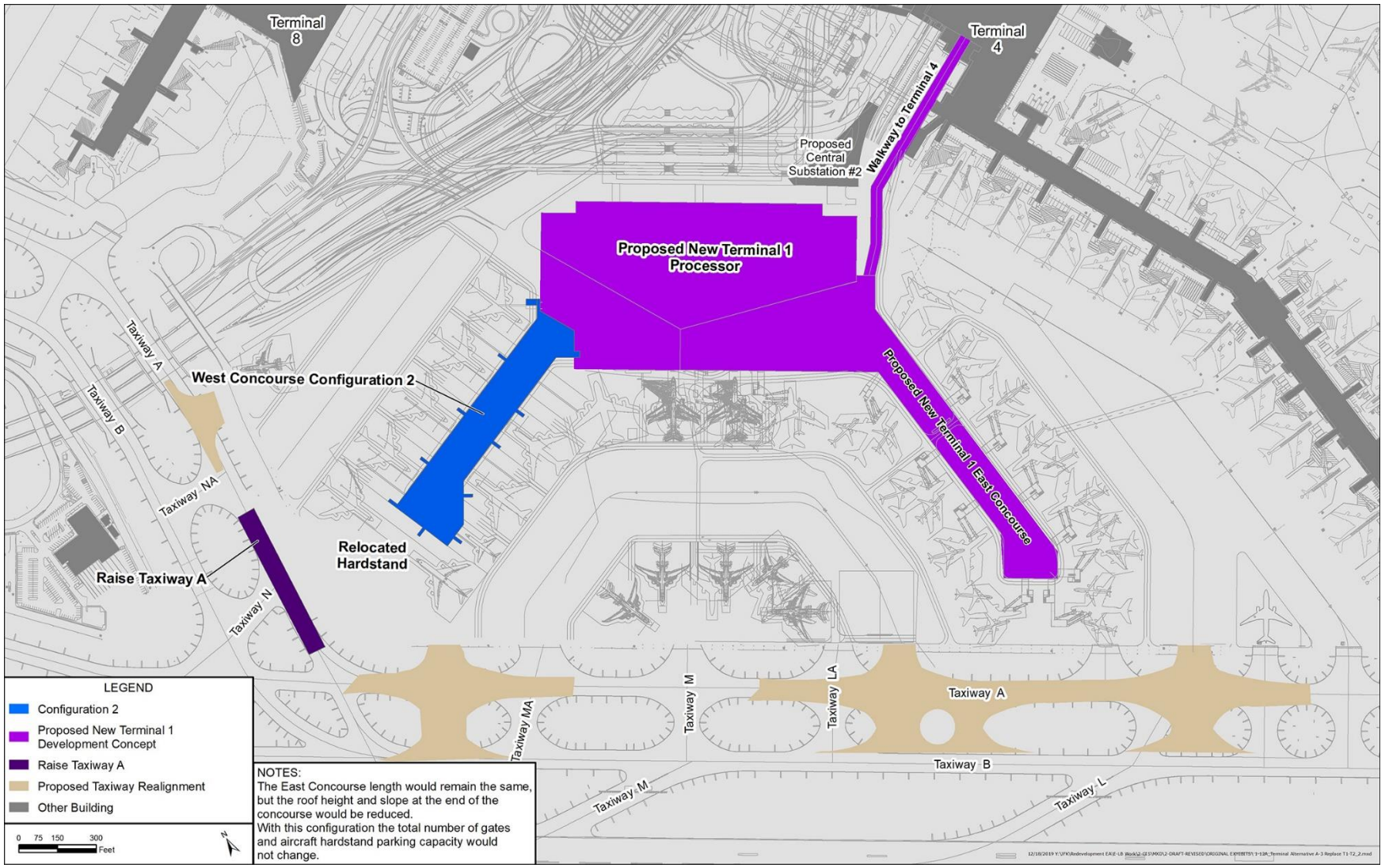
Configuration 2: East Concourse

- Length remains unchanged
- Reduce concourse roof height from 79'-6" to 66'-6", a 13-foot reduction, similar to Configuration 1, see **Exhibit 1-11C**
- Total area: approximately 180,000 square feet

Exhibit 1-12C, *Comparison of Configuration 2 and Proposed New Terminal 1 Development Concept* provides a comparison of Configuration 2 superimposed over the Proposed New T1 Development Concept as described in **Section 1.1.2, *Description of the Proposed Action*** of this EA.

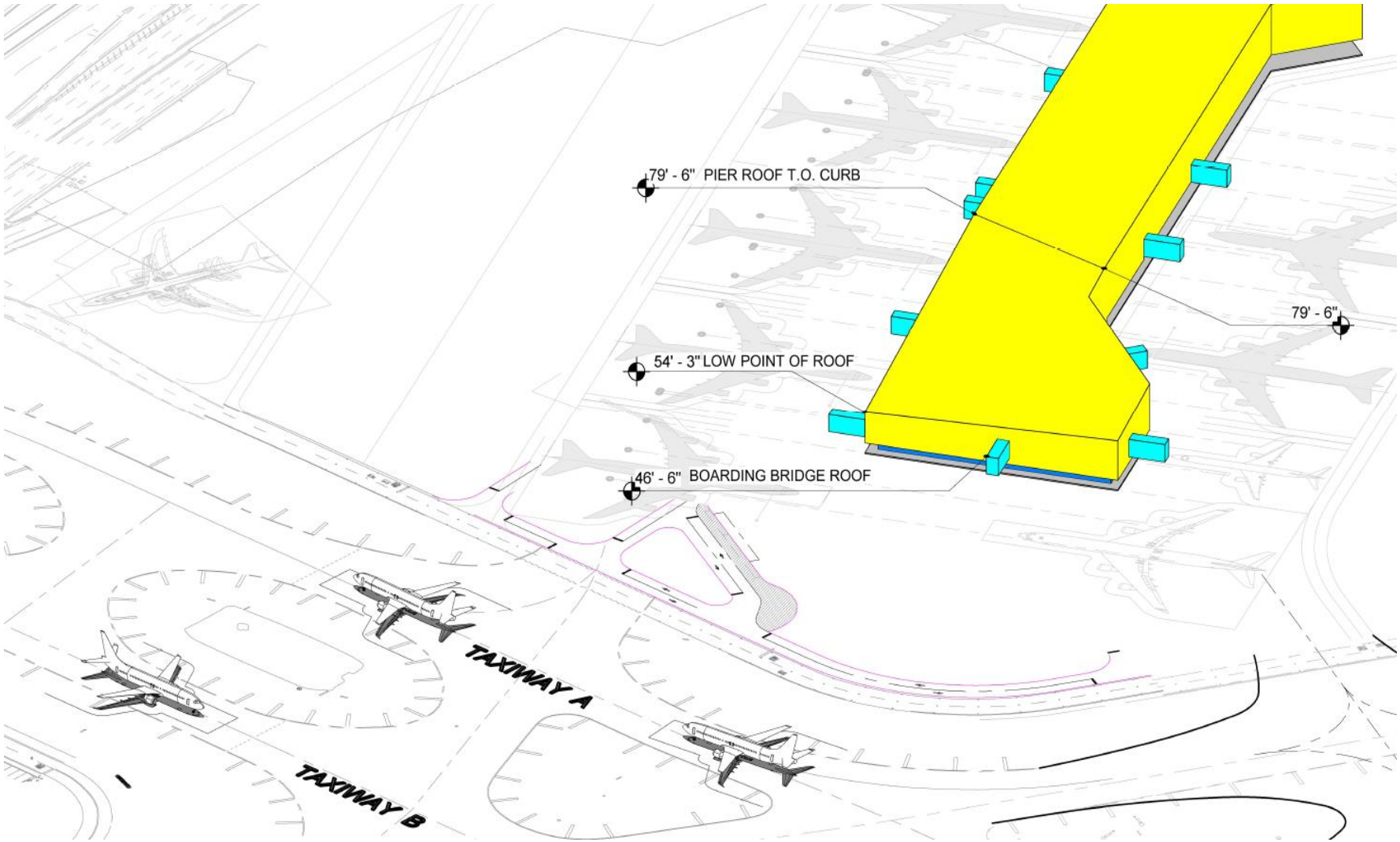
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EXHIBIT 1–12A CONFIGURATION 2 FOOTPRINT



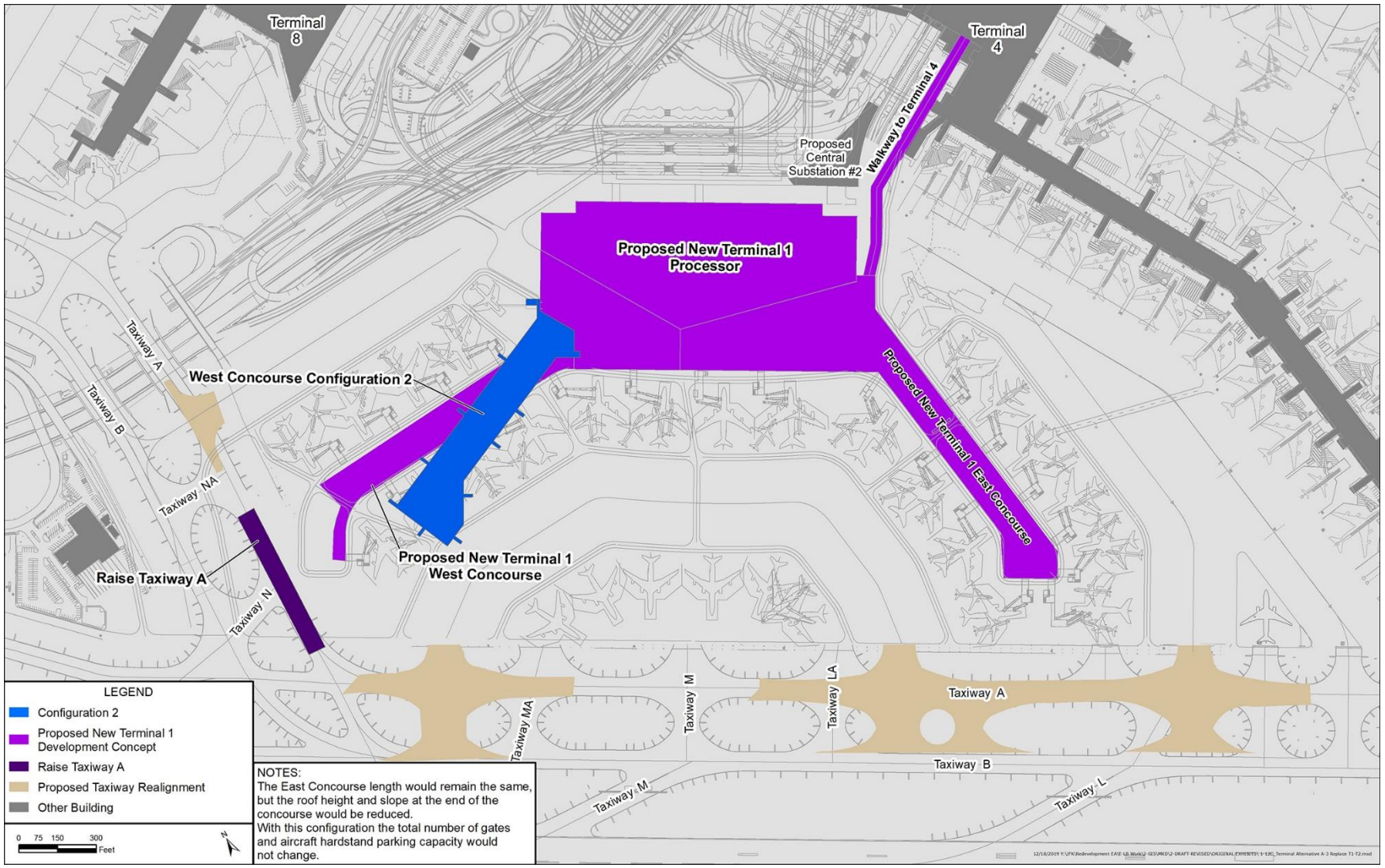
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EXHIBIT 1–12B CONFIGURATION 2 WEST CONCOURSE ROOF SLOPE



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EXHIBIT 1–12C COMPARISON OF CONFIGURATION 2 AND PROPOSED NEW TERMINAL 1 DEVELOPMENT CONCEPT



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As can be seen in **Exhibit 1-11D** and **Exhibit 1-12C**, Configuration 1 and Configuration 2 are shown overlain on the Proposed New T1 Development Concept layout. It is evident that the overall footprint of New T1 is the same for the Proposed New T1 Development Concept as it is for both Configuration 1 and Configuration 2. The terminal size is the same, the capacity is the same and the terminal would function in the same manner as described in **Section 1.1.2, *Description of the Proposed Action***. Due to the similarities in these designs, the associated construction methods, duration, and phasing would also be similar regardless of the configuration selected.

As the footprint of the Configurations 1 and 2 and the Proposed New T1 Development Concept are the same, the analysis of the environmental impacts of the South Terminal Development is also the same. The environmental analysis is based on construction and operational impacts and given that the Proposed New T1 Development Concept, Configuration 1 and Configuration 2 are the same square foot area and would accommodate the same number of passengers and aircraft at the same level of service, the environmental impacts would be no different. There would be no material difference in terms of environmental impacts such as noise (construction or aircraft), air quality, traffic, natural resources, or socio-economic impacts, among others, between the Proposed New T1 Development Concept, Configuration 1 and Configuration 2.

The only resource category that could change due to potential final design modifications from the Line of Sight analysis would be air quality during the construction to raise a portion of Taxiway A. Therefore, to be conservative, construction impacts of the elevation of Taxiway A have been assessed in the **Chapter 4: *Affected Environment*** and **Chapter 5: *Environmental Consequences*** of this EA.

Exterior Landside Elements of the South Terminal Development

The landside elements of the Proposed Action include new grade separated terminal frontage access ramps from the Van Wyck and JFK Expressways, generous dual curbside frontages at the terminal's departure and arrival levels, bypass roadways to provide independent access to T4, and pedestrian connectors.

Approximately 3,000 linear feet of curbside at the departure and arrival frontages are proposed. A curbside capacity of 975 linear feet would be provided at the high occupancy vehicle (HOV) level of the GTC/JFK Central. In addition, two-lane individual ramps would be provided from the Van Wyck and the JFK Expressways to the departure level, arrival level, ground level HOV, and T4 bypass roadway, where feasible, to maximize the capacity of the ramps.

In addition to vehicular access from the Van Wyck and JFK Expressways, passengers traveling on the AirTrain would have direct connection from the AirTrain platform to the terminal's arrival or departure levels. A secure pedestrian corridor would also be added between the New T1 and T4, parallel to the JFK AirTrain tracks between these terminals.

In accordance with the Port Authority's commitment to environmental stewardship, the New T1 design incorporates features that would enhance the overall sustainability of Airport operations including the following:

- **Greywater Capture and Reuse** – Stormwater (greywater) would be collected for reuse for landscaping.
- **Preconditioned Air and Ground Power** – Each gate would have 400 hertz (Hz) ground power,[48] potable water, and pre-conditioned air to limit aircraft emissions while at the gate
- **Hydrant Fueling** – A hydrant fueling system would limit the need for the operation of fuel trucks.
- **LED apron lighting** – The apron lighting would include LED fixtures to reduce electricity demand.
- **Electric Ground Service Equipment (eGSE)** – Each gate would have equipment to charge electric ground service equipment. Upon opening of each gate, 100 percent of the GSE operating at New T1 would be zero emission eGSE, subject to commercial availability of such equipment.
- **Glycol Recovery** – 60 percent of the annual volumes of deicing fluid applied to aircraft utilizing the South Terminal Development would be captured and either recycled or treated and disposed of off-airport at a wastewater treatment facility.
- **LEED Certification** – New T1 would be designed to meet the Port Authority Sustainable Design Guidelines and to achieve a minimum rating of Leadership in Energy and Environmental Design (LEED) Silver from the U.S. Green Building Council (USGBC).

The existing AirTrain alignment would not change and the T1 AirTrain Station would be located inside the New T1 building. New T1 would be constructed around the AirTrain line and platform, which would allow the AirTrain station to be accessible from inside the new terminal building, allowing the AirTrain service to continue without affecting the track alignment. Construction work near the AirTrain would proceed in compliance with Port Authority-approved protocols for maintaining, supporting, protecting, and underpinning the various components of the AirTrain system. When planning and performing work, the developers would be required to avoid all interference with AirTrain and its operations.[49] If interference with scheduled AirTrain operations cannot be avoided, the work could be scheduled to avoid peak usage periods. In the event work must be performed on the AirTrain tracks, either sufficient service would be maintained on a single track or equivalent bus service would be provided. AirTrain peak periods occur in the morning from 6:00 a.m. - 7:00 a.m. and in the afternoon from 2:00 p.m. to 3:00 p.m. Similarly, the AirTrain system operates with varying frequency depending on time of day and passenger volumes. For example, the AirTrain system is less frequent between 12:00 a.m. and 4:00 a.m., when ridership is at its lowest. This is the typical period when work proximate to the AirTrain system can be accommodated and without a shutdown of the system. Full AirTrain system shutdowns typically are coordinated for weekends and when passenger activity is not at peak. During such

[48] 400 Hertz electrical power is needed for the operation and control of on-board aircraft equipment such as various sensors, heating and air conditioning, avionics and instrumentation, and communications systems.

[49] Developers – Airline or private developer team responsible for designing, constructing, operating, financing and maintaining the terminal projects contained in this EA.

weekend closures of the AirTrain system, a bus bridging service is implemented to accommodate those passengers who would normally use AirTrain.

As a result, staging work contiguous to or potentially impacting the AirTrain system would be planned during those periods of low passenger demand in an effort to minimize AirTrain service shutdowns, and thus, the need for bus service and any significant inconveniences to passengers

The proposed New T1 would include a passenger walkway to connect the secure side of the New T1 processor to the secure side of existing T4. This would provide easier connectivity for passengers so they would not have to exit one terminal and re-enter the other terminal and pass through security after they have already been screened at their origin airport.

Construction of New Central Substation #2

As shown in **Exhibit 1-13, *Proposed Central Substation #2***, the new 40 MVA Central Substation #2 would be located between T2 and T4. The Central Substation #2 site would measure approximately 8,500 square feet and would be placed on an existing vehicle parking and construction staging area. The purpose of the proposed new Central Substation #2 is to overcome capacity limits of the existing system. At present, the existing Central Substation is overloaded, resulting in diminished reliability.

Expansion of the Existing Terminal 4

The proposed T4 expansion includes the expansion of the headhouse and extension of Concourse A at T4. The expansion is expected to accommodate Delta operations that currently operate out of T2. The headhouse expansion provides additional space for security, ticketing, and baggage claim to accommodate the increase in passenger levels from the relocation of flights from T2. The proposed expansion would increase the total area of T4 by approximately 469,000 square feet among three levels. The expanded concourse includes the addition of 12 narrow-body gates, two widebody gates and reconfiguration of four aircraft hardstand parking positions. This would accommodate the loss of 10 existing gates from the demolition of T2; and provide two additional wide-body gates (to replace two existing aircraft hardstand parking positions that would be displaced by the extension of T4). A new aircraft apron is proposed that would surround the footprint of the T4 Concourse A extension. In addition, taxilanes would be reconfigured to provide access from the T4 apron to the Airport taxiway network. Aircraft hydrant fuel lines, storm drainage, and associated utilities would be installed. A glycol recovery system would be installed to capture 60 percent of annual volumes deicing fluid. The proposed T4 expansion plans are shown in more detail in **Exhibit 1-14, *Proposed Terminal 4 Expansion***. Improvements to the terminal roadway and curb front would be incorporated into this element.

Construction of a Multi-Use Ground Transportation Center (GTC)/JFK Central

The vision for the GTC/JFK Central is to create a centrally located commercial and recreational public space to serve today's travelers and Airport employees. GTC/JFK Central capitalizes on the broader transformation of JFK currently underway. GTC/JFK Central would be a highly visible public space in the middle of JFK Airport. It would be seamlessly accessible from the New T1 and T4 in the southern half of the Central Terminal Area, serving all Airport passengers and employees. GTC/JFK Central could create opportunities for local, minority-owned and woman-owned businesses; connect local residents to employment opportunities at JFK; enhance education in the aviation and STEM (Science,

Technology, Engineering and Math) fields with facilities for educational training; and improve the Airport in environmentally responsible ways.[50]

The new four level GTC/JFK Central would have a 16-acre footprint. The GTC/JFK Central includes a new parking garage and arrivals functions. The parking garage would have technological features to enhance efficiency, including automated entrance gates for passholders (e.g., EZPass), electric vehicle charging stations, and a wayfinding system to direct drivers to available parking. The GTC/JFK Central would consist of the following functions:

- **Ground Level** – The ground level would include the arrivals plaza and associated functions for the new parking garage serving T1 and T4 where Privately Owned Vehicles (POVs) would enter the garage. This level would provide staging areas to accommodate For Hire Vehicles (FHV), HOVs and taxi cabs.
- **Levels 2 and 3** – These levels would include self-parking areas for POVs. Pedestrian access to New T1 and T4 would be available by pedestrian bridges from the fourth level or crosswalks at the ground level. Dedicated employee parking would be provided on the third level.
- **Level 4** – This level would be a mixed-use facility. Approximately 60 to 70 percent of the footprint of this level is passenger circulation space with access to New T1 and T4 across covered walkways over the terminal roadways. The remaining 30 to 40 percent of space would include office space for airport administration and airport operations. The total building height for the Airport administration and operations building would be up to 150 feet above the ground surface. The remainder of the structure would not exceed 45 feet in height above ground surface.

Office space at the GTC/JFK Central would accommodate the operators of the new terminals and their staff. The purpose of locating these staff members in the GTC/JFK Central rather than the terminals is to maximize the area within the terminals dedicated to serving passengers. Presently, these functions occur within the existing terminals.

The GTC/JFK Central construction would be phased to ensure there is adequate parking capacity as existing parking garages are demolished. Parking would be further accommodated by increasing the use of under-utilized CTA parking facilities to meet current and forecasted parking needs during construction. Designated parking needed to maintain airport operations would be provided at locations convenient to terminals to minimize operational impacts to passengers. AirTrain connectivity to the CTA and long-term parking facilities may similarly be leveraged to offset the loss of CTA parking.

The GTC/JFK Central would optimize landside operations by consolidating passenger pick-up activity in one central area and simplifying the access to parking. The GTC/JFK Central would have ample space for taxis, shuttles, and other FHV vehicles in a single location, thus removing them from the terminal curbfront. The GTC/JFK Central would have a parking capacity of approximately 3,500 parking spaces to replace the existing Green Parking Garage (1,500 parking spaces) and Blue Parking Garage (2,000 parking spaces). The proposed GTC/JFK Central is shown in more detail on **Exhibit 1-15, *Proposed Ground Transportation Center/JFK Central***.

[50] The Port Authority issued a Request for Information (RFI) on July 16, 2019 for potential development concepts for Level 4 of the GTC/JFK Central. The RFI sought input from firms that specialize in designing, developing, and operating multi-use commercial developments or large-scale public spaces.

Demolition of the Existing Green and Blue Garages

The proposed South Terminal Development would require the demolition of the existing Green Garage to accommodate the New T1 headhouse. The existing Blue Garage would be demolished to make room for new roadways to accommodate T4 and the footprint of the proposed GTC/JFK Central. The Green and Blue parking facilities are expected to be demolished at the onset of construction. However, there is sufficient capacity at the Red, Orange, and Yellow Garages and Long-Term Parking lot to accommodate parking demand throughout construction. A comprehensive communication plan is currently under development to assist in the preparation for such identified parking impacts.

Construction of the South Hardstand Area

The South Hardstand Area would provide up to 13 aircraft hardstand parking positions for temporary parking, overnight parking, deicing and glycol recovery, or as a hold area during ground metering, Severe Weather Avoidance Plan (SWAP)[51] days, Irregular Operations (IROPs)[52], and other periods of airside congestion. The New T1 building would be constructed on the former T3 aircraft hardstand parking site. Currently, there are 15 aircraft hardstand parking positions on the T3 site and the construction of T1 would require these positions to be relocated as close as practical to T4. The existing T3 aircraft hardstand parking positions would be replaced with six positions at the New T1 and nine at the South Hardstand Area. In addition, the South Hardstand Area would have four additional aircraft hardstand parking positions. Along with providing aircraft hardstand parking space, the South Hardstand Area would also be used for aircraft deicing operations. Taxiways would be included to provide access from the South Hardstand Area to the Airport taxiway network. The South Hardstand would include the placement of an administrative building to be used on a temporary basis during deicing activities. The purpose of the temporary building would be to house deice staff and office administrative functions for the coordination of deicing activities between Port Authority staff and airlines. This building would have utility connections for power and communications and would measure approximately 8 feet x 20 feet.

The new South Hardstand Area would be equipped with a glycol recovery system which is expected to recover 60 percent of the annual volumes of deicing fluid applied to aircraft utilizing the area. The collected deicing fluid would ultimately be recycled or treated and disposed of off-airport at a waste water treatment facility. The collection system would be operated by a third-party contractor who would recycle the spent fluid or treat and dispose of off-airport at a waste water treatment facility. This system would improve the overall stormwater discharges from the Airport.

Development of the South Hardstand Area would require demolition of existing Building 95. This Proposed Action element requires the relocation of the existing American Airlines employee parking lot to the site of Buildings 121 and 122 (currently, vacant and functionally obsolete). Buildings 121 and 122 would be demolished to accommodate the relocated auto parking. The proposed South Hardstand Area is shown in more detail on **Exhibit 1-16, *Proposed South Hardstand Area***.

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51 Severe Weather Avoidance Plan (SWAP) – An approved plan to minimize the effect of severe weather on air traffic flows. SWAP is normally implemented to provide the least disruption to the National Airspace System (NAS) when flying through portions of airspace is difficult or impossible due to severe weather.

52 Irregular Operations (IROPS) – Exceptional events that require actions and/or capabilities beyond those considered usual by aviation service providers. During these events passengers typically experience delays, often in unexpected locations for an undetermined amount of time. Examples include extreme weather events (such as snowstorms, hurricanes, tornados), geological events (such as earthquakes, volcano eruptions), and other events (such as power outages or security breaches).

North Terminal Development

The proposed North Terminal Development is located on the north side of the CTA and would include an expanded T5 onto the former T6 site and the replacement of T7. The proposed North Terminal Development is shown in more detail on **Exhibit 1-17, *Proposed North Terminal Development***.

Construction of Expanded T5

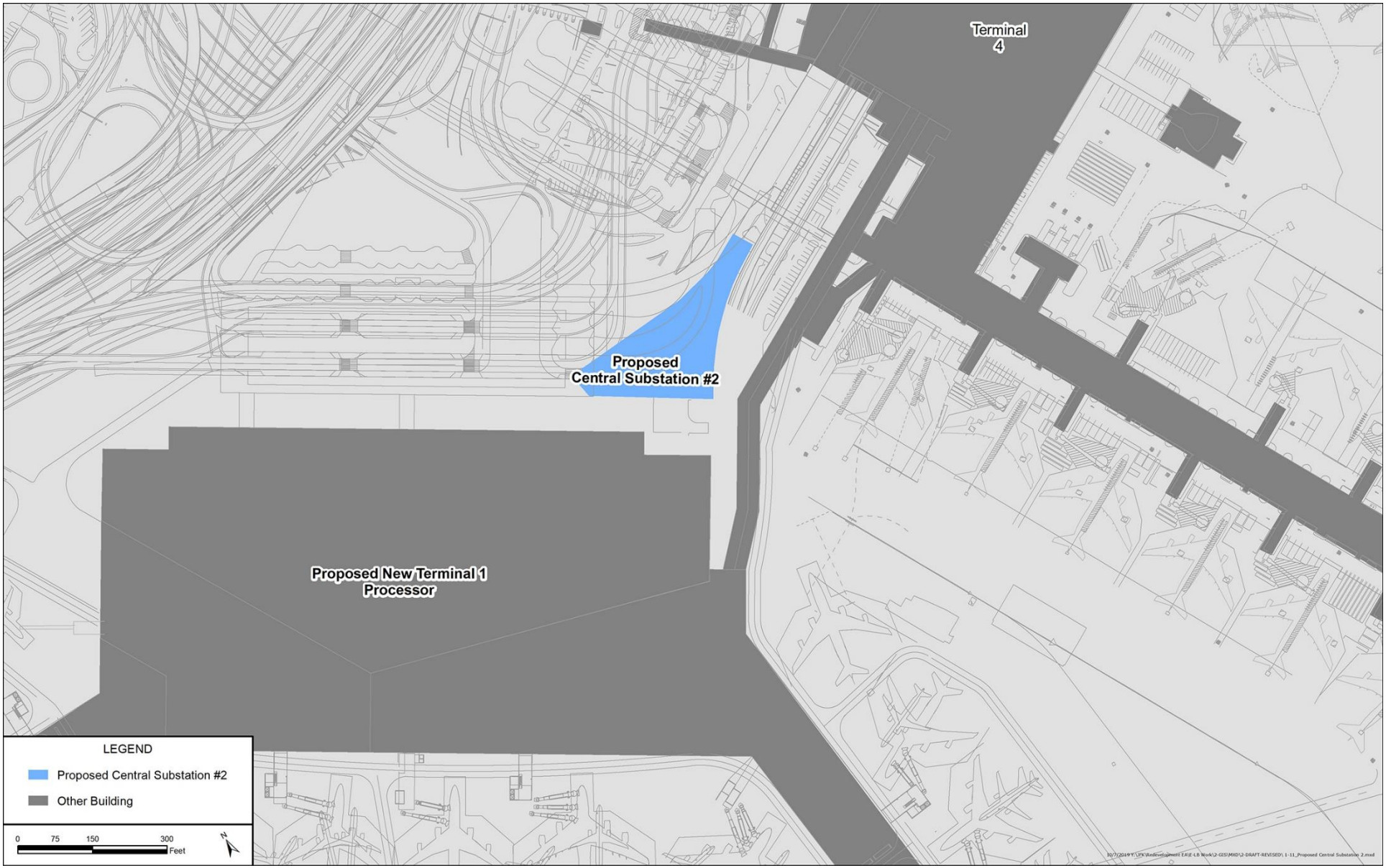
The proposed North Terminal Development is located on the north side of the CTA to the west of the existing T5. This development would require demolition of T7. The proposed Expanded T5 would consist of a 1.2 million square foot expansion of the existing T5. The expansion would include construction of a three-level terminal headhouse with a continuous concourse constructed within the footprint of the existing T6 aircraft hardstand parking positions/GSE parking area and the T7 site. The proposed addition would provide 11 contact gates and 13 aircraft hardstand parking positions.[53] Taxiways would be reconfigured to provide access from the Expanded T5 apron to the Airport taxiway network. It would be connected to the existing portion of T5 on both the secure side and non-secure side. The proposed addition would provide passenger processing facilities, including check-in areas, passenger security screening checkpoint, baggage claim, gate holdrooms, and concessions.

Similar to the New T1, the Expanded T5 design features significantly larger waiting areas with high ceilings, natural light and modern architecture compared to the existing T7. The interior would feature green space, exhibits and art featuring iconic New York landmarks and local artists. World-class retail and restaurants would include locally based restaurateurs, craft beverage options and "Taste NY" stores. Free, high-speed Wi-Fi and an abundance of charging stations would be located throughout the terminals enabling passengers to stay connected at each step of their journey.

State-of-the-art technological improvements would be part of the terminal upgrades, including the latest security enhancements, such as radiation detection and next-generation identification of unattended packages. These improvements would be carried through into the existing T5 to provide passengers with consistent LOS. The proposed Expanded T5 is shown in more detail on **Exhibit 1-17**.

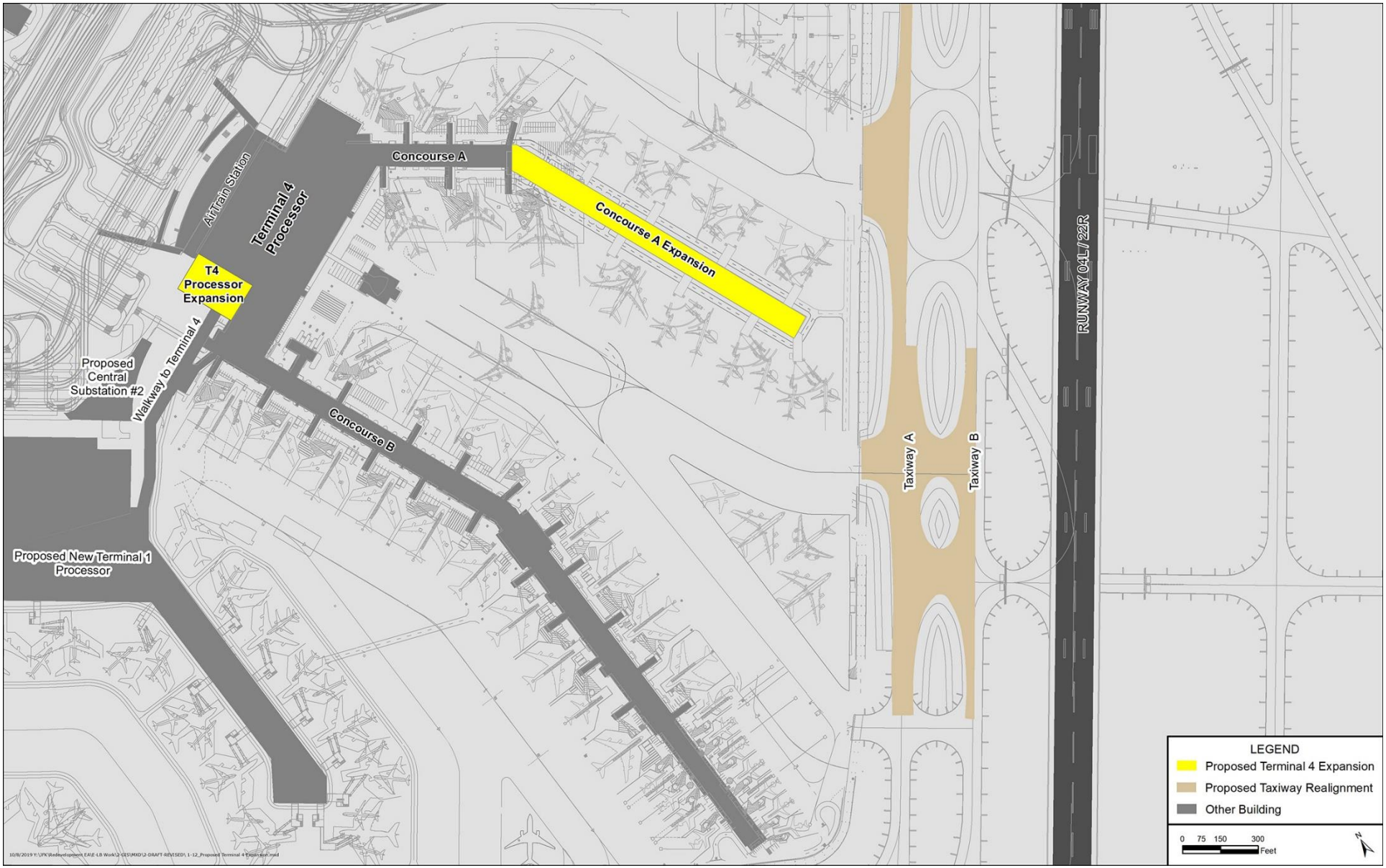
[53] Two of the existing gates at T5 would be demolished and reconstructed as part of the 11-gate expansion of T5.

EXHIBIT 1–13 PROPOSED CENTRAL SUBSTATION #2



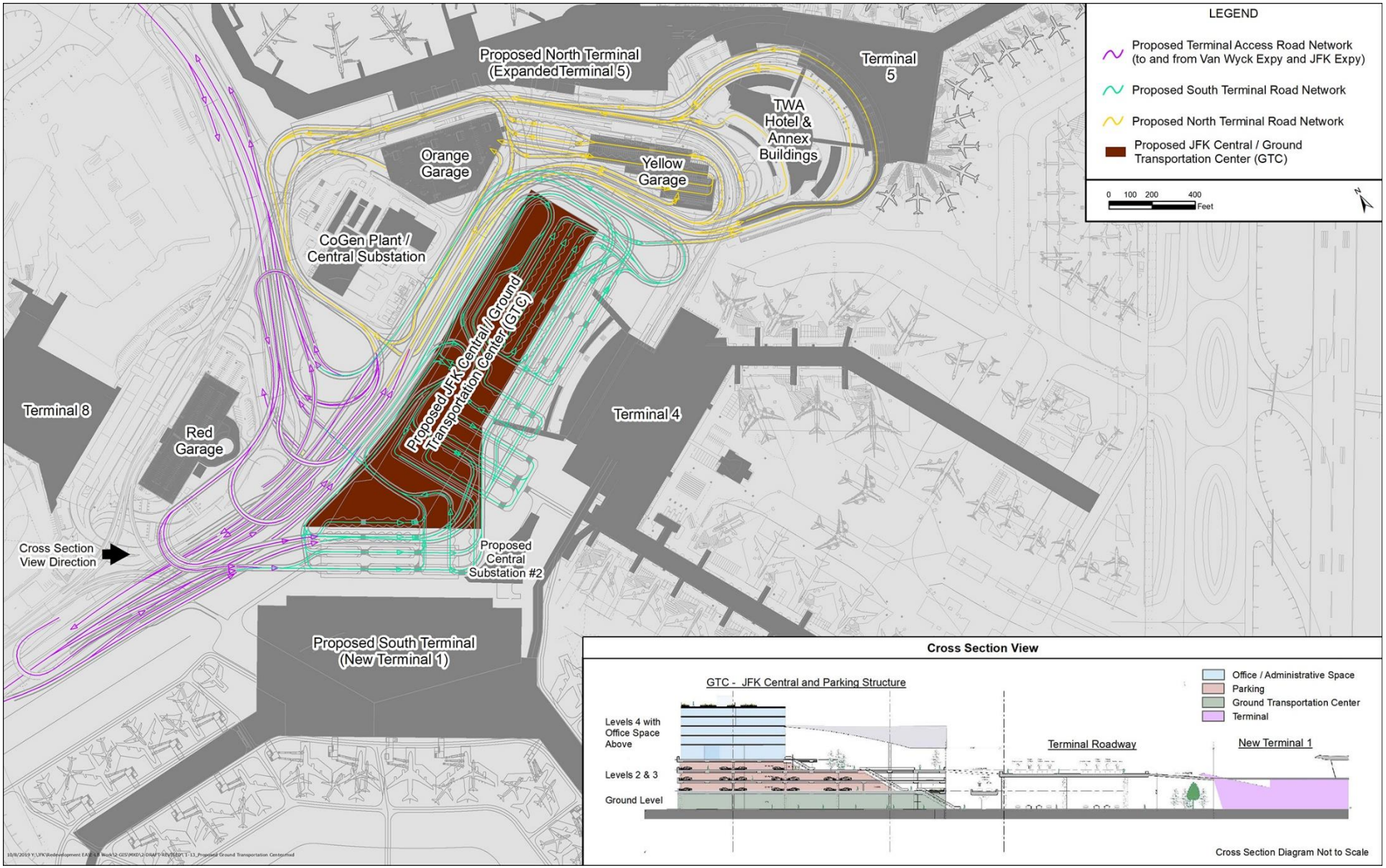
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EXHIBIT 1–14 PROPOSED TERMINAL 4 EXPANSION



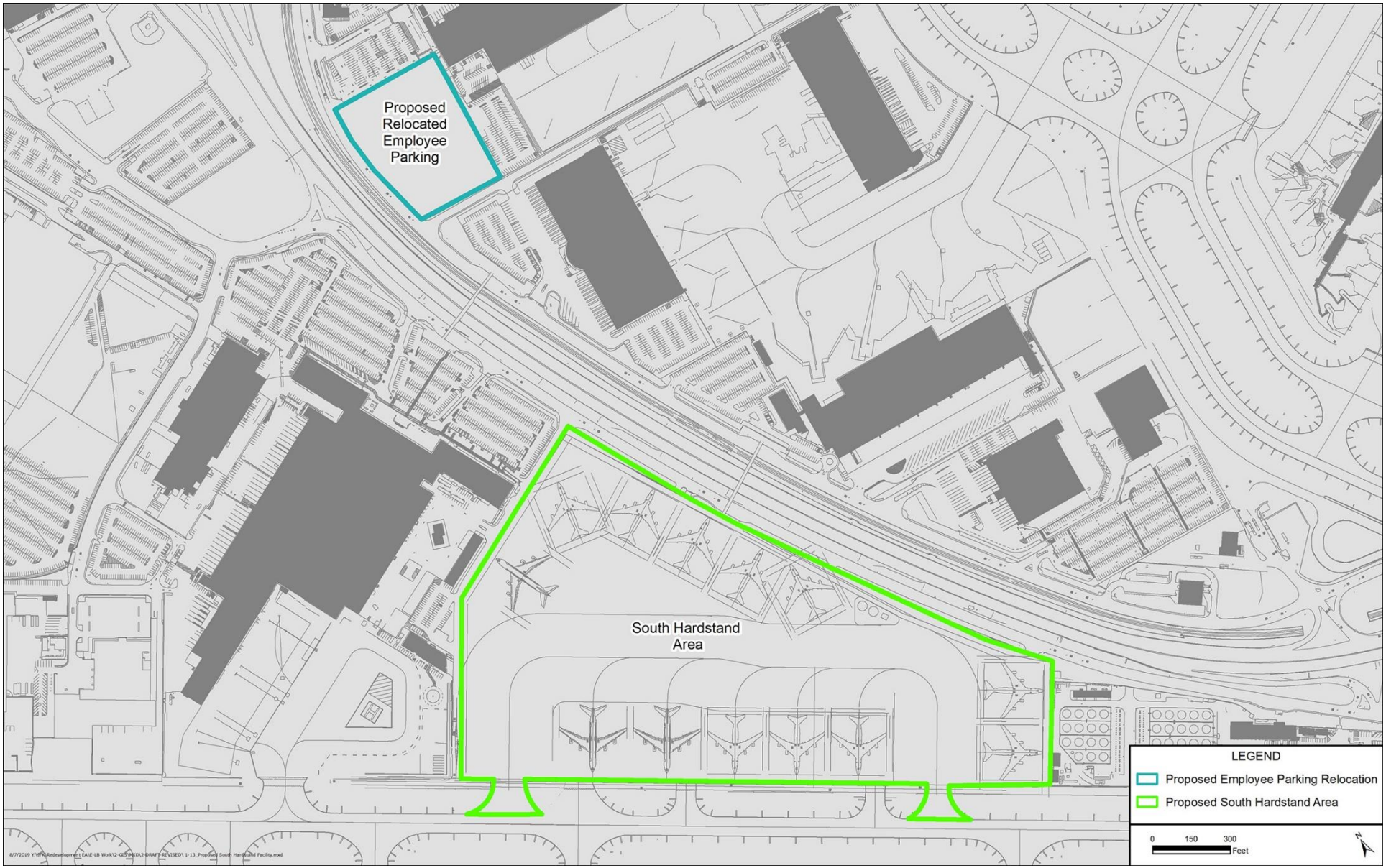
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EXHIBIT 1–15 PROPOSED GROUND TRANSPORTATION CENTER/JFK CENTRAL



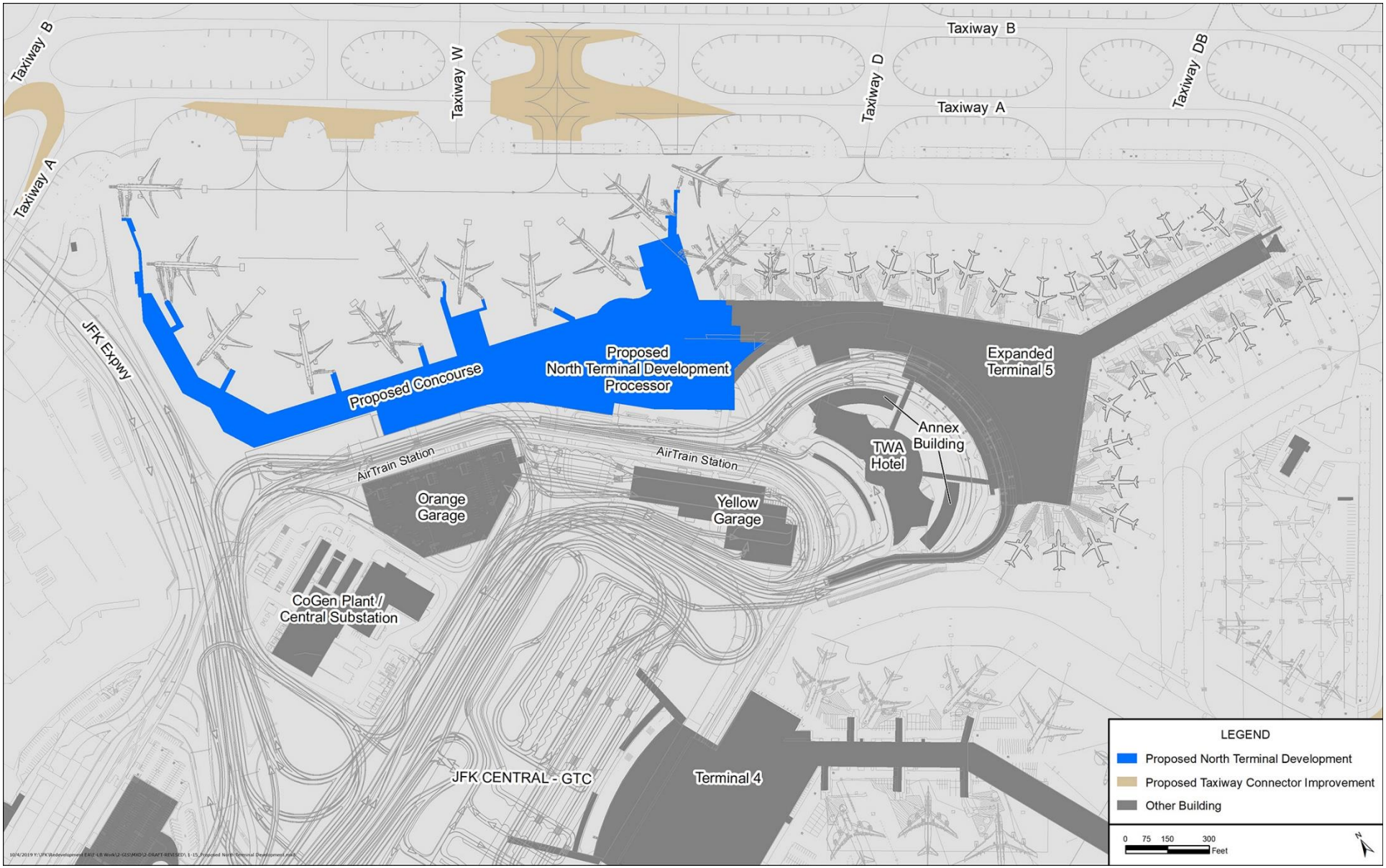
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EXHIBIT 1–16 PROPOSED SOUTH HARDSTAND AREA



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EXHIBIT 1–17 PROPOSED NORTH TERMINAL DEVELOPMENT



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In accordance with the Port Authority's commitment to environmental stewardship, sustainability elements include the following:

- **Greywater Capture and Reuse** – Greywater capture systems and cisterns are proposed with the capability to reduce stormwater runoff by 50 percent. Potential greywater uses include fire-loop (sprinkler system), equipment cleaning (should any such facilities be contemplated near the terminal), and "purple pipe" (separate piping) greywater system for restrooms. The feasibility of these uses depends on the quality of the water and need for water treatment.
- **Glycol Recovery** – 60 percent of the annual volumes of deicing fluid applied to aircraft utilizing the North Terminal Development would be captured and either recycled or treated and disposed of off-airport at a wastewater treatment facility.
- **Preconditioned Air and Ground Power** – Preconditioned air and power would be provided at all gates. Remote ground power would be provided at all aircraft hardstand parking positions.
- **All eGSE** – Subject to commercial availability, an all eGSE fleet would be utilized at the Expanded T5 facilities upon opening of each new gate.
- **Renewable Energy** – 50 percent of the energy use would be supplied by renewable energy sources.
- **LEED Certification** – Commitment to achieve LEED BD+C Silver Certification, in compliance with Port Authority Sustainable Building Guidelines and in compliance with Port Authority Sustainable Infrastructure Guidelines for applicable program elements.

Demolition of Terminal 7

To enable construction of the proposed North Terminal Development, the existing T7 would be demolished, and the surrounding apron would be reconstructed.

Reconfiguration of the Yellow Garage

The ground level of the Yellow Garage is proposed to be redeveloped into a GTC/JFK Central. The facility would accommodate commercial vehicles, removing this traffic from existing T5 frontage to alleviate congestion at both the existing and New T5 arrivals curbs. The facility is expected to provide customers efficient access to buses, taxis, and other FHV for hire vehicles. The existing Yellow Garage would continue to accommodate parking for private vehicles on Levels 2 through 6.

Construction of the North Hardstand Area

Prior to expansion, the North Hardstand Area would provide five aircraft hardstand parking positions for temporary parking, overnight parking, deicing and glycol recovery, swing space, or as a hold area during ground metering, SWAP days, IROPs, and other periods of airside congestion. The North Hardstand Area would include a taxiway throat entrance from Taxiway B, as part of the JFK airfield, and subject to the same security requirements as the remainder of the airfield. The proposed North Hardstand Area is located on **Exhibit 1-18, *Proposed North Hardstand Area and Expansion***.

Demolition of Buildings 68, 83, 85, and 189 and Expansion of North Hardstand Area

Buildings 65, 83, 85 and 189 would be demolished to make room for the receipt and storage of construction materials and equipment during construction of the North Terminal Development, as well as conversion to an aircraft parking ramp post construction of the North Terminal Development.

To accommodate the need for additional aircraft hardstand parking positions, the North Hardstand Area would be expanded following the conclusion of the North Terminal Development and removal of the construction/laydown area.

The expanded facility would be expected to provide for added flexibility for aircraft parking during IROPs at JFK. The North Hardstand Area expansion would provide an additional 10 aircraft hardstand parking positions for a total of 15 positions for temporary parking, overnight parking, deicing and glycol recovery, swing space, or as a hold area during ground metering, SWAP days, IROPs, and other periods of airside congestion. Taxiways would be included to provide access from the Expansion of North Hardstand Area to the Airport's taxiway network. The Expansion of North Hardstand Area would include the placement of an administrative building to be used on a temporary basis during deicing activities. The purpose of the temporary building would be to house deice staff and office administrative functions for the coordination of deicing activities between Port Authority staff and airlines. This building would have utility connections for power and communications and would measure approximately 8 feet x 20 feet.

The proposed Expansion of North Hardstand Area would be part of the JFK airfield and subject to the same security requirements as the remainder of the airfield. The Expansion of North Hardstand Area is shown on **Exhibit 1-18, *Proposed North Hardstand Area and Expansion***. Construction staging would occur at the proposed North Hardstand Area site as well as at the proposed South Construction Staging Area as shown on **Exhibit 1-19, *Proposed South Construction Staging Area***.

As part of the proposed Expansion of North Hardstand Area, the existing roadways of Cargo Plaza, South Cargo Road, N Service Court, and S Service Court would be converted to aircraft hardstands. These roadways currently provide access to buildings that have already been demolished or are scheduled to be demolished as part of the Expansion of North Hardstand Area. Furthermore, transit accessibility via the MTA Q7 bus route to/from South Cargo Road/Cargo Plaza bus stop would be modified due to previous building demolition and proposed demolition of buildings. The Port Authority is coordinating with the MTA on minor modifications to the bus route. The MTA Q7 bus route would continue to service the area with a minor modification to the Cargo Plaza/N Service Court bus stop. The Cargo Plaza/N Service Ct bus stop may need to be relocated to an area in close proximity to the existing bus stop, for example, across the existing intersection.

Roadways to Support Terminal Development

The roadways servicing the existing terminals and parking facilities in the CTA would be reconfigured to support the Redevelopment Program, including parking facility layout. The existing roadway system serves each of the existing five terminal zones, providing access to arrivals, departures, and parking. The proposed reconfiguration would realign the roadways with the proposed North and South Terminal Developments as shown on **Exhibit 1-20, *Proposed Terminal Roadways – Arrivals*** and **Exhibit 1-21**, ***Proposed Terminal Roadways – Departures***.

The proposed new roadway system would reduce the number of terminal zones from five to three, providing individual roadways that serve the proposed South Terminal Development, proposed North Terminal Development, and T8. The proposed roadway reconfiguration would combine the existing Green Zone and Blue Zone roadways to create a new South Terminal zone roadway network to serve the proposed New T1 and T4. The proposed roadway reconfiguration would combine the existing Yellow Zone and Orange Zone roadways to create a new North Terminal zone roadway network to

serve T5 and the proposed Expanded T5. The existing T8 roadway loop would remain unchanged. Each zone has roadways serving separate levels for arrival and departure traffic.

The proposed roadway system for the South Terminal zone would separate arrival and departure activities for the New T1 and T4. A setback of 105 feet would be provided between the face of the terminal and the arrivals and departures frontages. The upper levels of the terminals would serve departing customers and those customers would have the ability to access either the T1 or T4 departure areas by using the proposed bypass roadways. The proposed departure level provides two double-sided drop off areas at each terminal. The ground floor of the proposed parking facility would serve arriving passengers in the new GTC/JFK Central. Arrivals frontages would be separated by mode and terminal, double sided loading areas and "sawtooth" positions would be used to maximize frontage length and loading efficiency.[54]

Areas and Operations Not Affected

The Proposed Action would not involve expansion of runways or expansion of airport property and is not expected to cause a change in runway use patterns or flight paths. Relocation of NAVAIDS is not required by the Proposed Action. Further, the Proposed Action would not cause an increase in aircraft operations. Forecast growth in operations and enplanements would occur regardless of the Proposed Action. With implementation of the Proposed Action, it is expected that every aircraft operation would be accommodated at a contact gate. Boarding at aircraft hardstand parking positions would not be needed.

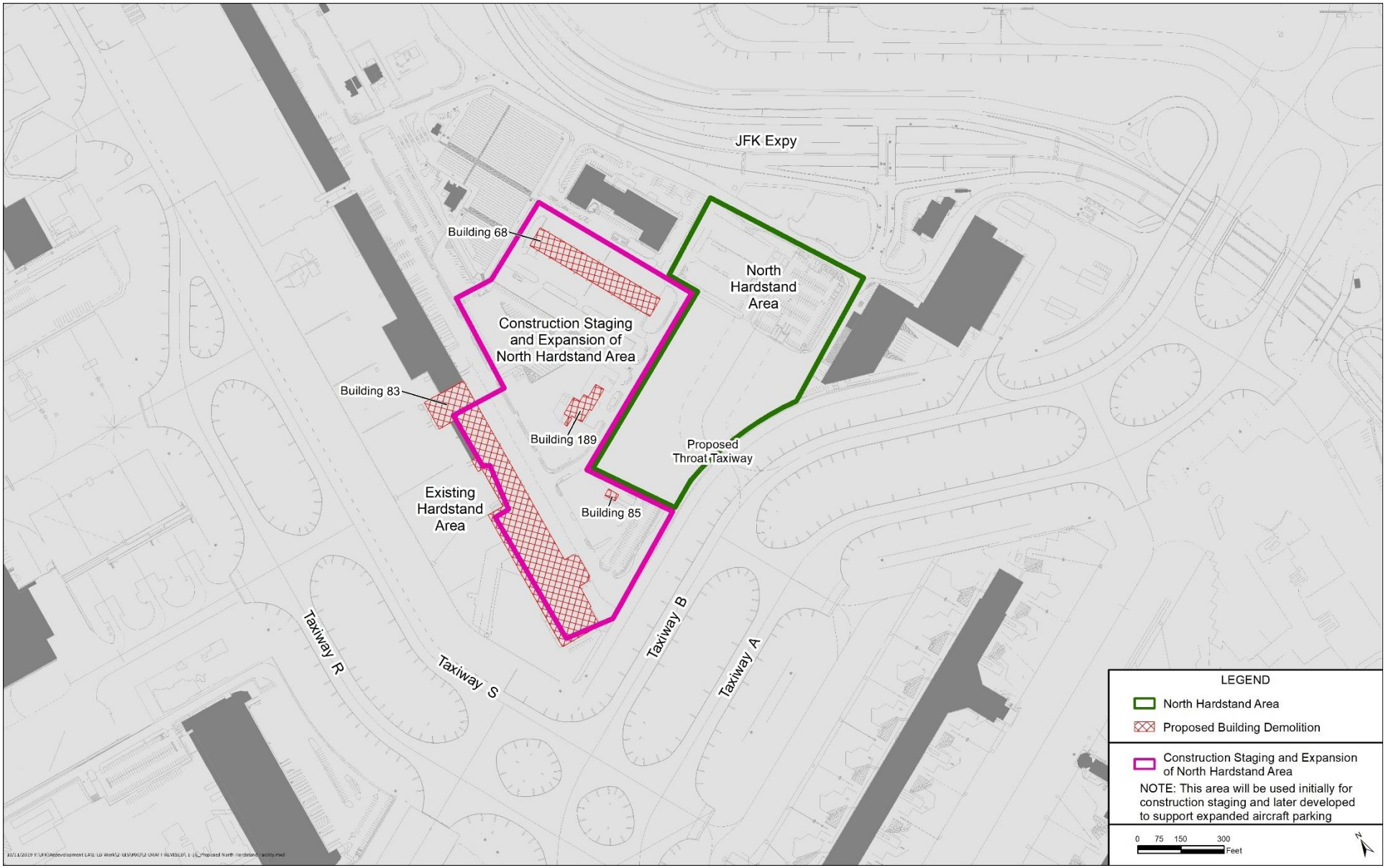
The passenger forecasts were developed by the Port Authority and approved by the FAA. As indicated in those forecasts, JFK is expected to handle increasing numbers of passengers over time. The passenger forecasts are a function of the attractiveness of the New York City Metropolitan area for business and tourism. See **Section 2.2.1, *The Need to Accommodate the Existing and Forecast Passenger Demand at an Acceptable LOS*** for more detail. The increase in passengers will take place with or without the Proposed Action.

All of the areas affected by the Proposed Action have been previously disturbed. The Proposed Action would construct an approximate total of less than six acres of new pavement. The Proposed Action would occur on previously disturbed ground, and thus, would not directly impact Jamaica Bay or other water resources.

[54] The GTC/JFK Central curbfronts would include "sawtooth" positions, which are shallow sawtooth-shaped vehicle parking positions for passenger pick-up and drop-off. The sawtooth shape allows vehicles to pull into the position and remain out of the way of traffic flow.

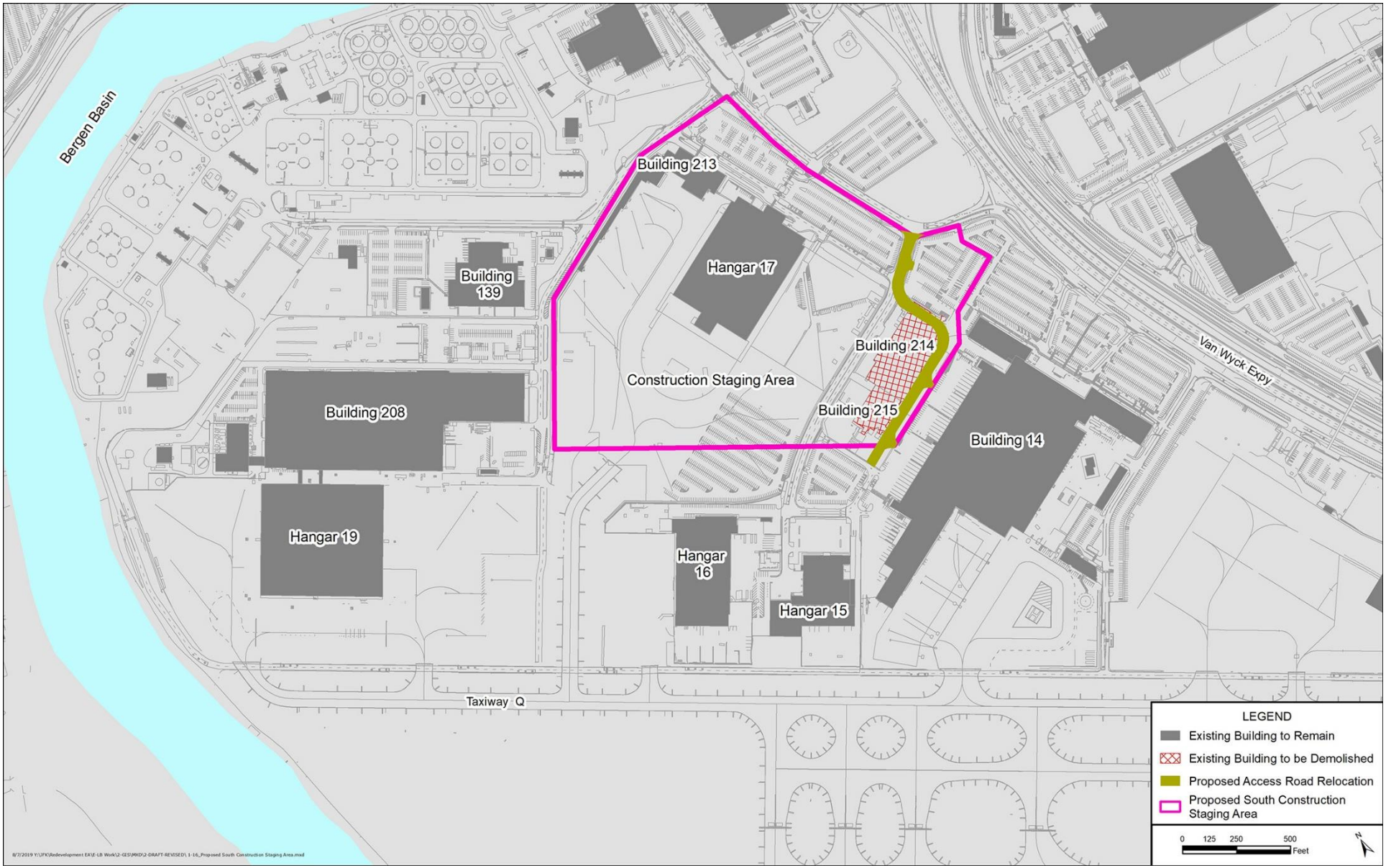
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EXHIBIT 1–18 PROPOSED NORTH HARDSTAND AREA AND EXPANSION



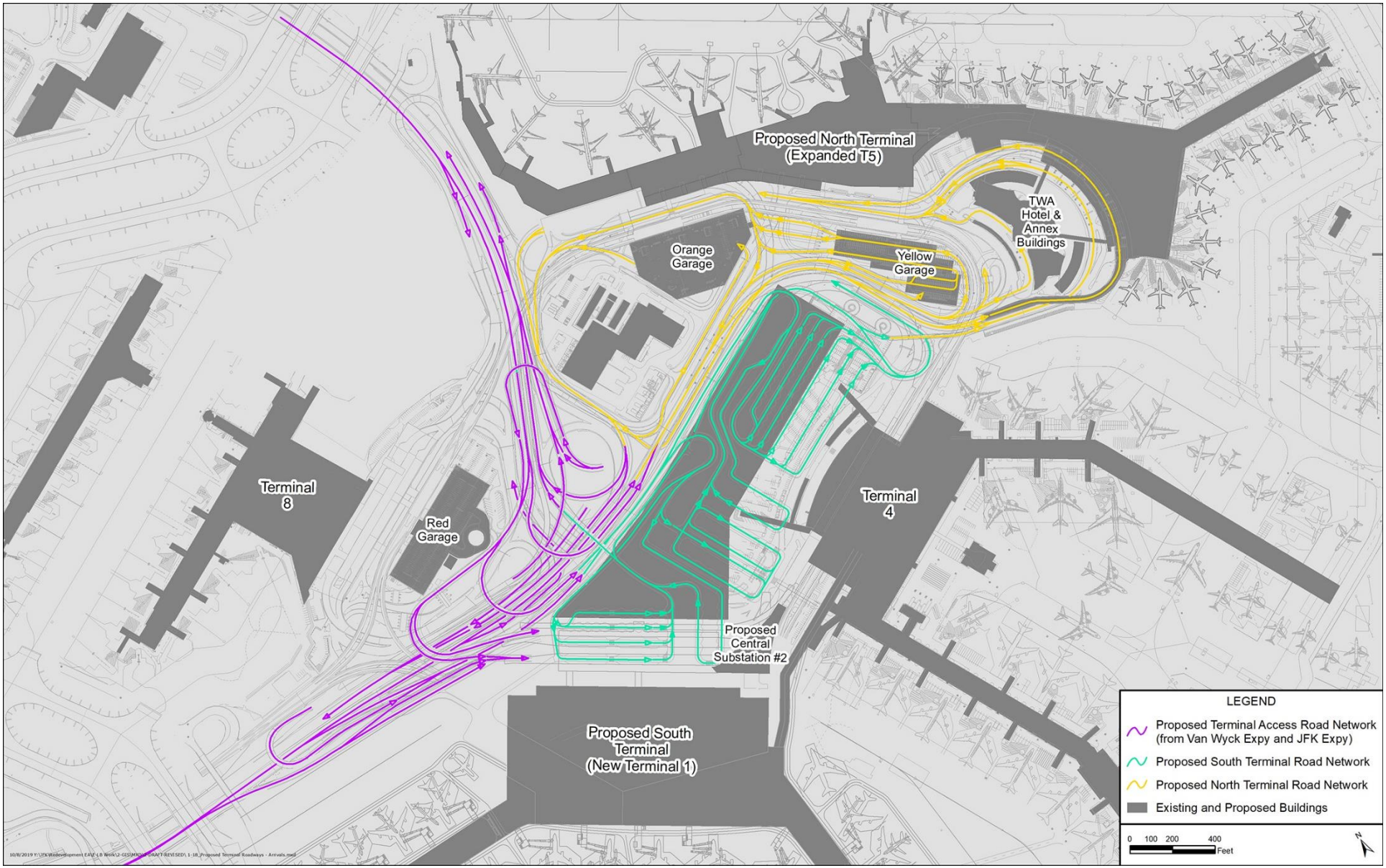
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EXHIBIT 1–19 PROPOSED SOUTH CONSTRUCTION STAGING AREA



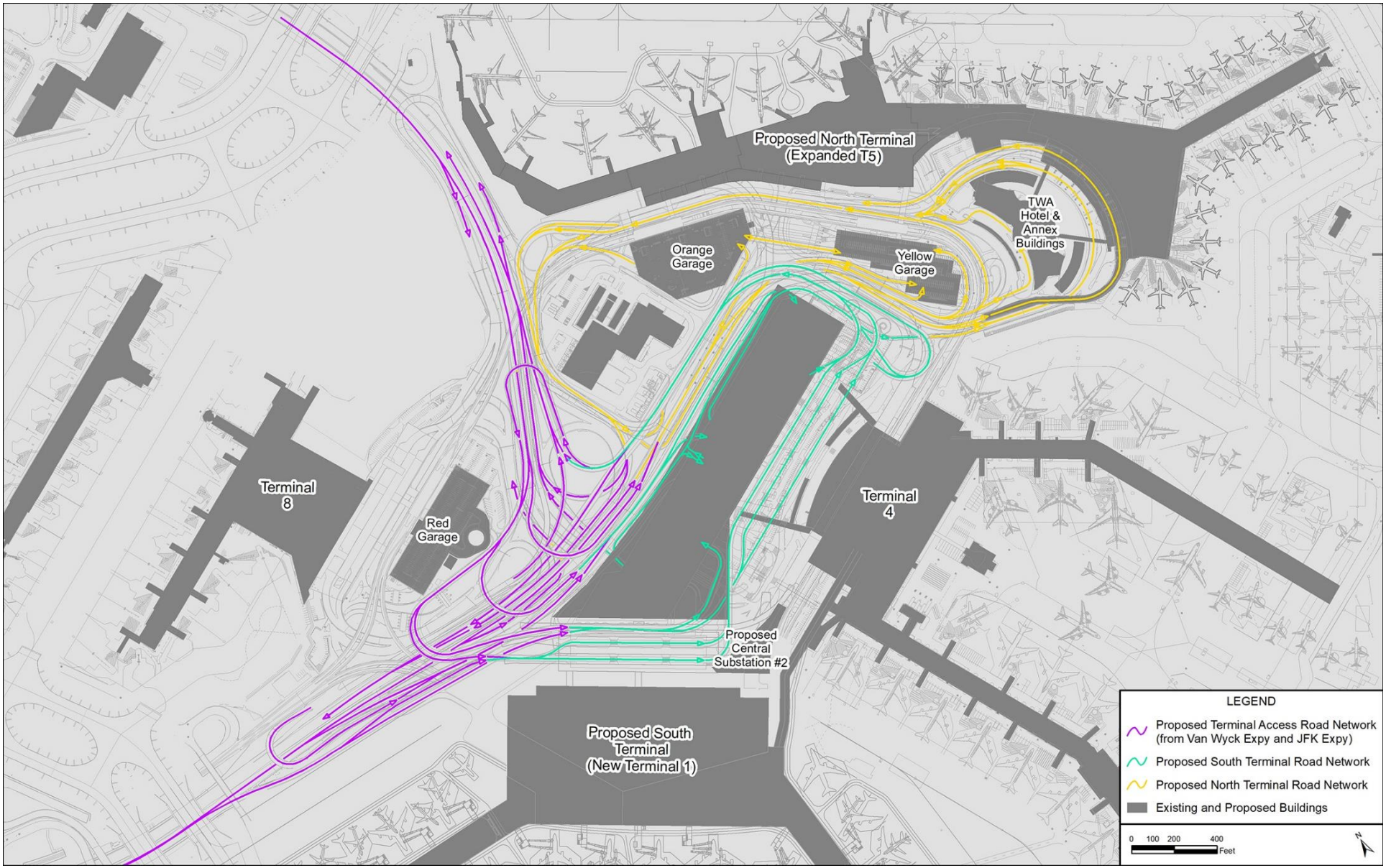
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EXHIBIT 1–20 PROPOSED TERMINAL ROADWAYS - ARRIVALS



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EXHIBIT 1–21 PROPOSED TERMINAL ROADWAYS - DEPARTURES

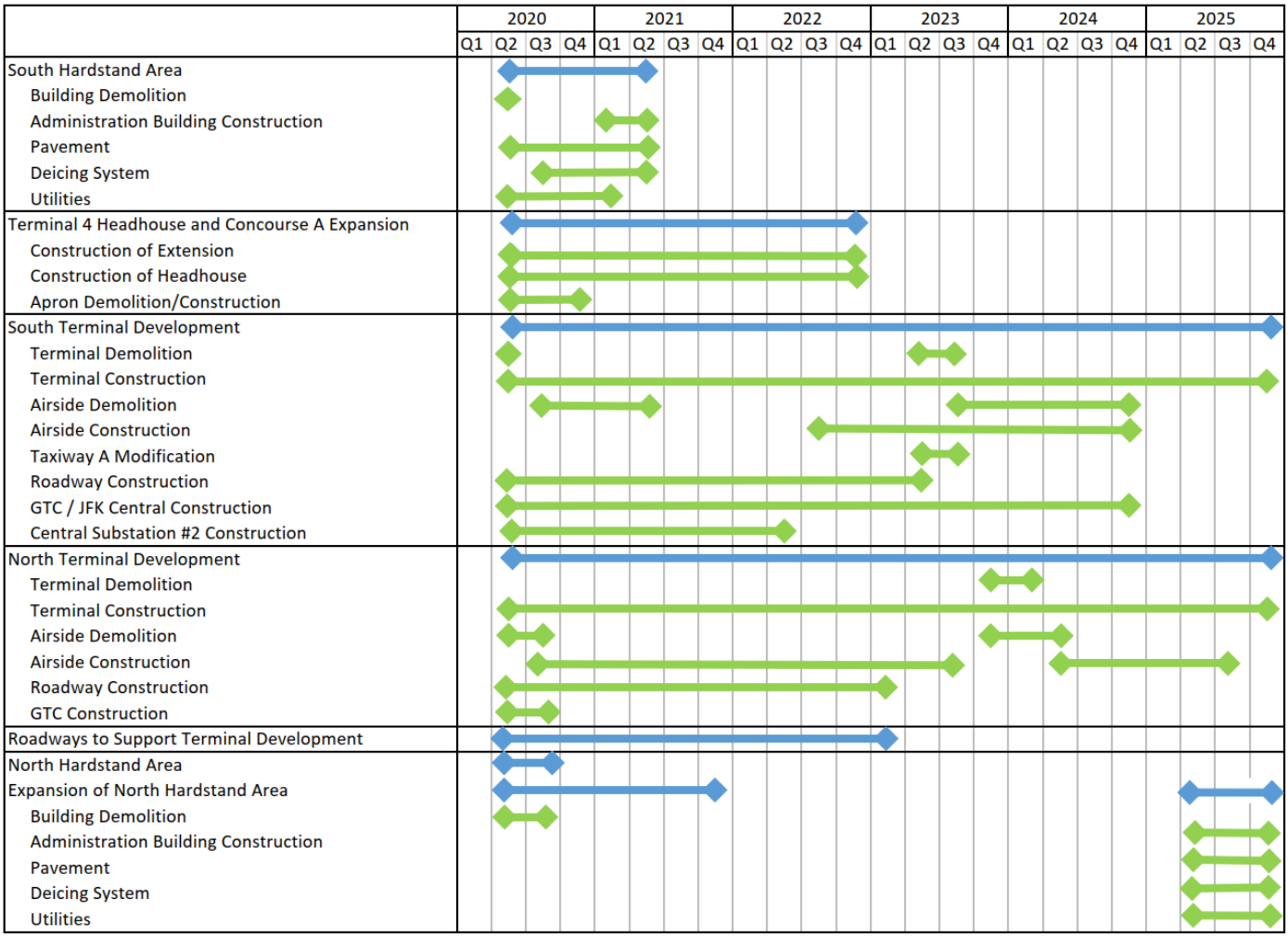


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1.2 IMPLEMENTATION PHASING

Construction of the Proposed Action is planned to begin in the second quarter of 2020 and be completed in 2025. **Exhibit 1-22, *Proposed Schedule***, reflects the overall Proposed Action duration and does not attempt to convey specific phases of construction. Exhibits that depict the construction phases are included in **Appendix A, *Implementation Phasing*.**

EXHIBIT 1-22 PROPOSED SCHEDULE



Note: Blue bars represent the main Proposed Action element (Terminals, GTC/JFK Central, etc.). Green bars represent the activity associated with each main Proposed Action element.
Design option for Line of Sight will be built as required by FAA. Should the FAA determine that taxiway construction modification is not needed, this construction element will not be built. However, the construction of this taxiway modification is assumed within this EA.
Source: Port Authority, 2019.

1.3 REQUIRED LAND USE / ENVIRONMENTAL PERMITS

Pursuant to FAA Order 1050.1F, Section 6-2.1, the following is a list of permits, licenses, other approvals, or reviews that apply to the Proposed Action.

1.3.1 FEDERAL

- FAA approval of the ALP (Airport Layout Plan)
- Federal environmental decision pursuant to NEPA
- FAA approval of a PFC application

1.3.2 STATE

- New York State Department of State (NYSDOS) Determination of Consistency with Coastal Zone Management Program
- Preparation of a New York State Department of Environmental Conservation (NYSDEC) Stormwater Pollution Prevention Plan (SPPP) for each Proposed Action area in accordance with the approved New York State Pollution Discharge Elimination System (SPDES) Program at JFK
- Consultation with the New York State Historic Preservation Office (SHPO) and consulting parties pursuant to Section 106 of the National Historic Preservation Act

1.3.3 LOCAL

- Preparation of a Construction Noise Control Plan as mandated in Chapter 28, Title 15 of the City of New York Administrative Code, Citywide Construction Noise Mitigation
- Concurrence with New York City Waterfront Revitalization Program Coastal Zone Consistency Assessment Forms
- Landmarks Preservation Commission and the Queens Borough President's Office consultation pursuant to Section 106 of the National Historic Preservation Act

1.4 DOCUMENT CONTENT AND ORGANIZATION

An EA is a disclosure document prepared for a Federal agency (in this case the FAA) responsible for approving a proposed Federal or Federally funded action, in compliance with the requirements set forth by the Council on Environmental Quality (CEQ) in its regulations for implementing NEPA. The Federal action required to implement the Proposed Action is the approval by the FAA of a revised JFK ALP showing the Proposed Action described in **Section 1.1, *Background and Description of the Proposed Action***. The purpose of this EA is to investigate, analyze, and disclose the potential impacts of the Proposed Action and its reasonable alternatives.

This document is organized as follows:

- Chapter 1 – Describes the introduction and background
- Chapter 2 – Describes the purpose and need for the Proposed Action
- Chapter 3 – Describes and analyzes alternatives to the Proposed Action
- Chapter 4 – Describes the affected environment
- Chapter 5 – Describes potential environmental impacts
- Chapter 6 – Summarizes the public involvement process
- Chapter 7 – Provides a list of preparers of this EA
- Chapter 8 – References
- Appendices

This EA was also prepared pursuant to other laws relating to the quality of the natural and human environments, as listed in the References section of this EA.

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2 PURPOSE AND NEED

The following sections discuss the purpose and need for the Proposed Action. As the operator of JFK, the Port Authority is the Project Sponsor. The purpose and need for the Proposed Action serve as the foundation for identifying reasonable alternatives to the Proposed Action and comparing the impacts of developing the various alternatives. In order for a potential alternative to be considered viable and carried forward for detailed evaluation in the NEPA process and this EA, that alternative must address the purpose and need. The following sections describe the Proposed Action purpose and need.

2.1 PURPOSE

The purpose of the Proposed Action is to accommodate current and projected passengers with an acceptable level of service (LOS) at JFK through the redevelopment of the CTA, associated landside (parking and roadways) infrastructure, and aircraft parking areas in a manner that efficiently utilizes the available space.

Acceptable LOS for terminal facilities is defined in this EA as providing:

1. Sufficient terminal gates sized to accommodate the current and projected aircraft fleet mix so that every aircraft operation will be accommodated at a contact gate and boarding at aircraft hardstand parking positions will not be needed.

2. Sufficient space in public areas within the terminal (i.e., check-in, security screening, passenger hold room areas, concessions, and restrooms) to avoid or minimize overcrowding.

3. Sufficient concourse corridor widths to provide area for movement assistance devices such as moving walkways, wheelchairs and baggage carts.

4. Sufficient space for loading and unloading vehicles in close proximity to the terminals to reduce vehicle wait times and improve pedestrian safety, while simultaneously meeting Transportation Security Administration (TSA) standards for the setback of ground transportation areas from passenger terminals.

5. More intuitive and direct roadway connections from the Van Wyck and JFK Expressways to improve wayfinding and minimize vehicle travel distance and congestion.

The purpose of the Proposed Action is to provide a world-class airport that has a consistently acceptable LOS in all of its facilities, rather than a series of disjointed terminals with varying LOS. Consolidating terminal groups and simplifying internal CTA roadways would enhance the efficiency in moving passengers from every ground transportation mode to their aircraft while improving the LOS at every stage of their journey through JFK. In addition, the proposed terminal passenger areas would have branding and experiences that provide a clearer sense of identity with New York for arriving, departing, and transferring passengers.

2.2 NEED

The needs for the Proposed Action at JFK are presented below and in greater detail in the following sections.

- The need to accommodate the existing and forecast passenger demand at an acceptable LOS that is consistent across all terminals and provides better connectivity between terminals.
- The need to provide efficient apron and taxilane space to reduce delays.
- The need to provide efficient terminal roadways and curb frontages at an acceptable LOS that comply with Port Authority and TSA recommendations.

2.2.1 THE NEED TO ACCOMMODATE THE EXISTING AND FORECAST PASSENGER DEMAND AT AN ACCEPTABLE LOS

The Proposed Action is needed to ensure JFK has sufficient terminal and landside facilities to accommodate existing and forecast passenger demand.

To determine the existing and forecast passenger demand, a review of JFK's passenger forecasts was conducted. The following sections present the review of passenger forecasts as well as the terminal LOS analysis used to define the acceptable LOS.

Airport Forecasts

Airport forecasts are a measure of passenger and aircraft operations (operations) demand that could be expected to occur in the future. This demand is a function of the socioeconomic factors of the region the Airport serves, including where passengers come from. Air passengers are attracted to the region due to business, personal or recreational interests. For a few large airports, passenger and operation forecasts can exceed the ability of the Airport to accommodate that expected level of demand. It is for this reason that some airports have two types of forecasts – unconstrained and constrained.

Unconstrained forecasts assume that all passengers and operations projected to occur could be accommodated by an airport. A constrained forecast assumes that there is some limitation that prevents the Airport from fully accommodating the unconstrained demand for operations, passengers or both. Limitations in the New York/New Jersey Metropolitan Region's (Region) have historically been the result of airspace constraints and airfield limitations (runways and taxiways).

Airport operators attempt to accommodate the unconstrained forecast for either passengers, operations or both, because this provides for an airport that is adequately sized for the passenger demand. Like other large hub airport operators, the Port Authority prepares its own forecasts for JFK in support of facility, logistic and financial planning. These forecasts are developed using commonly accepted methods as described in the Port Authority's forecast report.[55]

According to the unconstrained passenger forecasts prepared by the Port Authority and approved by the FAA in December 2017, the number of passengers using JFK in 2018 is expected to grow 17

[55] The Port Authority of New York and New Jersey Aviation Demand Forecasts, John F. Kennedy International Airport, June 2017. Approved by the FAA in December 2017.

percent by 2025 and 30 percent by 2030. This growth will further exacerbate terminal congestion. The Port Authority's unconstrained forecast for JFK includes the following considerations:

- Passenger and operations comparison with the FAA 2017 Terminal Area Forecasts (FAA TAF)[56] to ensure reasonability and consistency
- An analysis of fleet mix by airline, including the average age of airline fleets and aircraft orders
- The development of statistical models to identify historical causal factors
- The need for coordination with internal stakeholders at JFK

The Port Authority's unconstrained passenger forecasts and the FAA's TAFs passenger forecasts for the period 2017 through 2030 are shown in **Table 2-1, *Unconstrained Passenger Forecasts – Port Authority and FAA TAF Comparison 2017 through 2030***.

[56] Federal Aviation Administration, Terminal Area Forecast Summary – 2017-2045, April 2018, JFK Specific Tables downloaded from https://taf.faa.gov

TABLE 2-1 UNCONSTRAINED PASSENGER FORECASTS – PORT AUTHORITY AND FAA TAF COMPARISON 2017 THROUGH 2030
John F. Kennedy International Airport

YEAR	PORT AUTHORITY PASSENGER FORECAST (X1,000)			FAA 2017 TAF	% DIFFERENCE BETWEEN PORT AUTHORITY (TOTAL) AND FAA TAF
	DOMESTIC	INTERNATIONAL	TOTAL		
2017	28,772	31,786	60,558	58,874	2.86%
2018[57]	29,088	32,451	61,539	58,947	4.40%
2019	29,404	33,116	62,520	60,730	2.95%
2020	30,353	35,110	65,463	62,495	4.75%
2021	30,909	35,914	66,823	64,231	4.04%
2022	31,465	36,718	68,183	65,973	3.35%
2023	32,022	37,521	69,543	67,706	2.71%
2024	32,578	38,325	70,903	69,445	2.10%
2025	33,134	39,129	72,263	71,184	1.52%
2026	33,747	40,089	73,836	72,937	1.23%
2027	34,360	41,049	75,409	74,713	0.93%
2028	34,972	42,008	76,980	76,500	0.63%
2029	35,585	42,968	78,553	78,317	0.30%
2030	36,198	43,928	80,126	80,133	-0.01%

Note: The FAA's TAF reports total passenger enplanements defined as the total number of passengers that departed on an outbound flight at the origin airport. The Port Authority forecast reports total passengers in terms of total number of passengers that arrive on an inbound flight and depart on an outbound flight. FAA numbers were doubled to portray both arriving and departing passengers. These passenger projections are the same under the constrained and unconstrained condition.
Source: The Port Authority of New York and New Jersey Aviation Demand Forecasts, John F. Kennedy International Airport, June 2017; FAA 2017 TAF and L&B Analysis

The growth rates associated with the FAA TAF and Port Authority forecasts are not driven by the Proposed Action described in this EA. At JFK, the Region's large population and higher than average per capita income enables it to generate a high volume of local air travel demand.[58] A strong business, tourism,[59] and employment base, and other related factors also contribute to the Region's passenger demand. The Region is a major destination center for business and tourism for both domestic and

57 The passenger activity levels shown here are forecasts that were developed in 2017. The activity level stated in the following sections of this EA for year 2018 show actual passenger activity and will therefore differ slightly from the forecast passengers shown in Table 2-1.
58 The New York-New Jersey metropolitan region has an estimated 2017 population of nearly 20 million. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml and a 2017 per capita income of almost $71,000 versus a United States average of $52,000. https://apps.bea.gov/iTable/index_regional.cfm
59 Orlando and New York City are the United States' two largest tourism city destinations. World Travel and Tourism Council, "TRAVEL & TOURISM CITY TRAVEL & TOURISM IMPACT 2018", https://www.wttc.org/-/media/files/reports/economic-impact-research/cities-2018/city-travel--tourism-impact-2018final.pdf, Page 12

international travelers; therefore, demand for air travel to the Region is expected to maintain consistent growth whether the Proposed Action is implemented or not.

As described in this Chapter, the purpose of the Proposed Action is to accommodate existing and forecast passengers at an acceptable LOS. The purpose of the Proposed Action is not to induce additional aircraft operations over forecasted growth. Presently there are not enough gates at JFK to accommodate the level of activity occurring at the Airport; as a result, some passengers must deplane and board aircraft at remote aircraft parking areas ("live aircraft hardstand parking positions"). This is an inconvenience to passengers and a poor LOS for a modern airport. Although JFK is not currently able to accommodate all aircraft at the gates, this has not curtailed the growth in airline activity. Therefore, there is no correlation between the number of available gates and the level of aircraft operations.

JFK is currently slot-controlled and is limited to 81 aircraft operations per hour between 6:00 a.m. and 10:59 p.m. seven days a week. The slot controls are based on runway capacity limitations. The additional gates included in the Proposed Action are intended to accommodate existing and forecast aircraft operations and passengers at an acceptable LOS. The addition of new gates will not generate more air traffic at JFK than what has already been forecasted. The forecasted increase in passengers will take place with or without the new gates. The runway capacity limitations will not change as a result of the terminal gates added by the Proposed Action.

Unlike a project that would facilitate new operations (e.g., a new runway), the Proposed Action does not support increases in aircraft operations; rather, it only accommodates the currently forecasted growth at JFK at an acceptable level of service.

Comparison with FAA TAF

To utilize forecasts in a NEPA document, the FAA requires that an airport's forecasts be demonstrated as suitable for use, based on a comparison with FAA forecasts. According to guidance in FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS),[60] which references FAA's Advisory Circular (AC) for *Airport Master Plans* (AC 150/5070-6B, dated May 2007), and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*,[61] an airport's forecasts should not significantly vary from the TAF. The FAA defines "not significantly" as being within 10 percent of the FAA's TAF forecasts for the first 5-year period of the Airport forecast and within 15 percent for the next 10-year period of the Airport forecast. Therefore, as shown in **Table 2-1, *Unconstrained Passenger Forecasts – Port Authority and FAA TAF Comparison 2017 through 2030***, in accordance with FAA guidance, the Port Authority's passenger forecast does not vary significantly from the FAA's TAF and is appropriate for use in this EA.

Unconstrained versus Constrained Forecast

At JFK, in 2008, the FAA imposed Order Limiting Aircraft Operations, in an effort to relieve congestion. With an FAA Order imposing constraints on JFK, neither the FAA TAF nor the Port Authority's unconstrained growth projections for aircraft operations are achievable. Therefore, the analyses in this EA relies on a constrained operations forecast. The constrained operations forecast reflects

[60] Department of Transportation, Federal Aviation Administration. Order 5090.3C - Field Formulation of the National Plan of Integrated Airport Systems (NPIAS). Washington, DC. December 4, 2000.

[61] Department of Transportation, Federal Aviation Administration. Order 5050.4B (706)(b)(3) - National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. Washington, DC. April 28, 2006.

continuation of FAA policies to limit hourly aircraft operations to the capacity of the runways at JFK and the regional airspace to accommodate the air traffic flow without excessive congestion. [62]

Table 2-2, *Comparison of Constrained and Unconstrained Aircraft Operations Forecasts* presents a comparison of the unconstrained and constrained aircraft operations through 2030. **Table 2-2** highlights that the constrained annual aircraft operations forecast has three percent fewer operations in 2025 and 10 percent fewer operations in 2030. However, projected operations in the constrained case remain within the FAA's requirement for NEPA by being within 10 percent of the FAA's TAF forecasts for the first 5-year period of the Airport forecast and within 15 percent for the next 10-year period of the Airport forecast.[63]

TABLE 2-2 COMPARISON OF CONSTRAINED AND UNCONSTRAINED AIRCRAFT OPERATIONS FORECASTS

John F. Kennedy International Airport

Forecasts	2016	2020	2025	2030
Unconstrained Annual Aircraft Operations	452,415	489,947	534,883	577,094
Constrained Annual Aircraft Operations	452,415	482,000	521,000	521,000
Difference	0%	-2%	-3%	-10%

Source: Port Authority, 2019.

The Port Authority analyzed the constrained aircraft operations forecast to determine whether airlines have (or have on order) the larger aircraft needed to accommodate the unconstrained passenger growth using fewer aircraft operations. This assessment also evaluated airline aircraft orders and the recent actions of airlines to deploy their larger aircraft to the New York/New Jersey market. The airlines have begun deploying wide-body aircraft on major domestic markets such as transcontinental routes between JFK and Los Angeles and San Francisco. In addition, both JetBlue and Delta have placed orders for new Airbus 220 (A220) aircraft, a 100 to 130-seat aircraft that will be deployed on domestic routes out of JFK.[64,65] The A220 will replace existing 50 to 76-seat regional aircraft. Further, airlines have installed new "slim-line" seats in aircraft to fit more passengers into existing narrow-body aircraft, such as the B-737 series or the A319-A321 series. These findings confirmed that the passenger volumes shown in the unconstrained passenger forecast are achievable within the constrained aircraft operations forecast by using higher capacity aircraft and historical percentages of seats filled.

Therefore, despite the limits on aircraft operations imposed by the FAA at JFK, the unconstrained passenger forecast as shown in **Table 2-1** can be accommodated by airlines' reconfiguring their aircraft

62 The FAA periodically reassesses its capability to manage air traffic because of capital improvements made by the Port Authority and air traffic control procedure changes made by the FAA may change runway or airspace capacity. In addition, airline demand for flights changes as airlines discontinue historical flights or add new services. Twice a year, the FAA allocates the available capacity based on historical airline usage of capacity and demand for new flights.

63 Department of Transportation, Federal Aviation Administration. Order 5050.4B (706)(B3) - National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. Washington, DC. April 28, 2006.

64 JetBlue Selects Airbus A220-300 as Key Component of Its Next Generation Fleet", http://mediaroom.jetblue.com/investor-relations/press-releases/2018/07-10-2018-211604881 July 10, 2018.

65 Delta extends Airbus A220 order book to 90 total aircraft", https://news.delta.com/delta-extends-airbus-a220-order-book-90-total-aircraft, Jan. 9, 2019.

fleet to provide higher seating capacity per aircraft, which allows additional passengers per flight. This change in aircraft mix will allow the airlines to accommodate the anticipated unconstrained passenger demand with fewer overall flights. Although the unconstrained forecast of passengers can be accommodated in the existing facilities, passengers will experience a poor LOS (level of service) in the terminals. If the Proposed Action were not implemented, passenger inconvenience and delay would occur due to the insufficient number of passenger loading bridges, passengers being required to board aircraft from live aircraft hardstand parking positions, and inadequate terminal interior space for hold rooms, security processing, and baggage claim.

Terminal LOS Analysis

A demand/capacity and LOS analysis was conducted for T1, T2, and T7, to quantify terminal space needs and demonstrate deficiencies where they exist. The results of the LOS analysis are discussed in the following sections.

LOS standards have been developed by the International Air Transport Association (IATA)[66] in terms of space per passenger and wait times. LOS is reported on the following scale (from lowest to highest): Sub Optimum (Red LOS D or E), Optimum (Green LOS C), or Over Design (Yellow LOS A or B). Pursuant to the Port Authority's Planning Standards, "Optimum" (LOS C) is acceptable; however, arrivals and departures functions are preferred to be LOS "Over Design" where achievable.

LOS was analyzed for the following five terminal functional areas because these areas tend to create the most congestion and longest passenger wait times if not designed properly:

- **Public Departure Hall** – Facilities where passengers enter the terminal building; includes functions such as ticketing desk/kiosks and baggage check-in
- **Security Checkpoint** – Includes TSA security screening facilities and associated queue areas
- **Holdroom Space** – Areas for outbound passengers to wait for and board a departing flight
- **Federal Inspection Services (FIS)** – Includes screening areas for inbound international passengers (i.e., customs services, health screening, and U.S. Department of Agriculture inspections)
- **International Baggage Claim** – Includes the space required for passengers, baggage carts, and baggage reclaim devices

Table 2-3, *IATA Level of Service Guidelines for Terminal Functional Areas* shows the IATA LOS guidelines for terminal functional areas in terms of square feet per passenger.

66 IATA, Airport Development Reference Manual, 10th Edition, March 2014.

TABLE 2-3 IATA LEVEL OF SERVICE GUIDELINES FOR TERMINAL FUNCTIONAL AREAS
John F. Kennedy International Airport

Passenger Terminal Area	Space Standards (square feet per passenger)				
	A	B	C	D	E
	Over Design		Optimum	Sub Optimum	
Public Departure Hall / Ticketing Space	>24.8		24.8	<24.8	
Security Checkpoint	>12.9		<12.9 to >10.8	<10.8	
Immigration (FIS) Primary Space	>12.10		<12.9 to >10.9	<10.9	
International Baggage Claim	>18.3		<18.3 to >16.1	<16.1	
Boarding Lounge / Holdroom Space	>18.3		<18.3 to >16.1	<16.1	

Source: IATA, Airport Development Reference Manual, 10th Edition, March 2014.

The LOS analysis evaluates the ability of a terminal to provide an efficient flow of passengers from the curb front to the gate. Areas that do not provide adequate capacity impede passenger flow and restrict a terminal's ability to efficiently process passengers.

Sub Optimum LOS at one of the four functional areas can result in overall inefficient passenger flow. For example, a terminal could have Optimum public departure hall space, but have inefficient passenger flow if there is Sub Optimum security space that restricts passenger processing through security. This bottleneck could result in departing passengers being delayed through security, causing passenger back-up into the departures and ticketing areas, resulting in a degradation of the terminal's overall efficiency.

Given the complexity of terminal development, a long lead time is required between identifying the need for more terminal space relative to passenger demand and the actual terminal construction, and eventual opening. The time required for the JFK terminal redevelopment is approximately eight years. This timeline includes planning, environmental review, engineering, demolition/construction, and opening. As previously noted, appropriate terminal planning requires the consideration of annual passenger projections and how that level of activity is accommodated in the terminal. The terminal development process needs to begin when LOS is C or D (Optimum to Sub Optimum) so an airport avoids congested terminals and poor LOS for a prolonged period rather than waiting until LOS degrades to LOS E (Sub Optimum) to initiate an expansion program.

The following sections present the results of a demand/capacity analysis that was conducted for each of the terminal functional areas presented in **Table 2-3**. The demand levels were derived from the "No-Build Alternative" Design-Day Flight Schedules (DDFS) for 2025 and 2030. Peak passenger demand was calculated based on arrival and departure operations and typical load factors, and an average annual number of passengers connecting through JFK or starting and ending their air travel at JFK (originating/destination). Peak level passenger totals were determined for the following modes:

- **Originating Passengers** – The number of passengers beginning their air travel at JFK represents demand on the departure hall/ticketing space within the terminal
- **Passengers at the Security Checkpoint** – In general, the number of passengers at the security checkpoint is the same as the number of originating passengers. However, there is an undetermined number of connecting passengers that connect from an inbound flight that arrives

at another terminal, who must pass through security in the outbound terminal to connect to a different flight

- **Passengers Boarding** – The number of passengers boarding represents the demand on the hold room space within a terminal
- **Arriving Passengers** – This is the number of passengers (including international connecting passengers) ending their air travel at JFK who must pass through the baggage claim area and, in the case of the international terminals, pass through the FIS facilities

If annual passenger growth occurs as anticipated based on the FAA approved forecast, and if terminal space is not added, thus increasing the need for live aircraft hardstand parking positions, the LOS for each terminal will continue to decline, as increasingly greater numbers of passengers use the terminals and put greater strain on security, FIS space, holdroom areas, and other terminal facilities.
As described in **Chapter 1, *Introduction and Background***, this situation is currently occurring at JFK in all terminals to varying degrees, but most acutely in T2 and T7, which are currently substantially over capacity as described in **Table 1-1**. The results of the LOS analysis are shown in the sections that follow.

Terminal 1 Deficiencies

T1 was opened in 1998 to accommodate the operation of four airlines, Lufthansa, Air France, Korean Air, and Japan Airlines. The terminal was designed to accommodate 3.6 million annual passengers. As originally conceived, this terminal was designed for operations by two European and two Asian carriers. European carriers tend to have arrivals in the afternoon and departures in the early evening, while Asian carriers tend to have arrivals in the mid-morning and departures in the early afternoon. By April 2019, a far more diverse fleet of carriers operated from T1, including 10 European, six Asian, one Middle Eastern, and three carriers serving Central and South America.[67] As a result, T1 operates at its capacity for a greater portion of the day than when the terminal first opened.

As shown in **Table 2-4, *Terminal 1 – Facility Demand/Capacity and LOS***, the terminal accommodated more than 7.6 million annual passengers in 2018, far more than its current capacity of 3.6 million passengers.[68] This demand is forecast to grow to 8.1 million annual passengers by 2030. **Table 2-4** also shows that the most serious capacity deficiencies in T1 are the security area and FIS area. There is insufficient space for the TSA checkpoint and Customs & Border Protection operations because these areas were built before the current stringent security screenings were put in place by the Transportation Safety Commission following the 9/11 terrorist attacks. The lack of space at a checkpoint hampers the efficiency of the checkpoint lanes themselves. The lack of queuing space means that the checkpoint queue has the potential to block passenger circulation in the ticketing lobby. The lack of FIS capacity results in longer wait times for international arriving passengers to collect their luggage and be processed through customs and immigration. Longer-term, holdroom capacity and international primary facilities would be expected to reach their capacities at some time after 2030. Due to the layout of the terminal, there is limited ability to reconfigure the interior to reallocate space to the functional areas that are undersized. The constraints described here are space related; this limitation also restricts the ability of TSA/CBP to provide additional staffing to serve the increased

[67] https://www.jfkairport.com/flight/airlines provides the current distribution of airlines by terminal. This distribution varies over time as carriers that do not operate their own terminals end their agreements to operate from one terminal and choose to have a new agreement at a different terminal.

[68] Port Authority of New York and New Jersey, Airport Traffic Report, 2018 from http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf

number of passengers. With appropriately sized space for security screening, TSA would have the ability to increase screening operations over existing levels, thereby reducing passenger wait times.

T1 also lacks connectivity to other terminals. There is no physical connection that enables passengers to access other terminals without exiting the building and taking the AirTrain to another terminal.

TABLE 2-4 TERMINAL 1 – FACILITY DEMAND/CAPACITY AND LOS

John F. Kennedy International Airport

Existing and Unconstrained Forecast Demand (Passenger Levels)					
	2018 Actual		2025 Forecast		2030 Forecast
Annual Passengers	7,605,053		7,786,000		8,110,000
Peak Hour Originating	1,000		1,000		1,100
Peak Hour at Checkpoint	1,000		1,000		1,100
Peak Hour Boarding	1,500		1,500		1,600
Peak Hour Arriving (FIS)	1,800		1,800		1,900
Existing (2018) Demand and Level of Service					
Functional Area	**Existing Capacity**		**Existing (2018) Conditions**		
			Square Footage Requirement	**Surplus (Deficiency)**	**Square Feet per Passenger**	**Level-of-Service (LOS)**
Common Use Ticketing Space	43,000	square feet	24,800	18,200	43.0	A / B
Security Space	6,600	square feet	12,900	(6,300)	4.4	D / E
Holdroom Space	45,900	square feet	27,450	18,450	30.6	A / B
FIS Primary Space	19,900	square feet	23,220	(3,320)	11.1	C
International Bag Claim Space	45,600	square feet	32,940	12,660	25.3	A / B
Unconstrained Forecast (2025) Passenger Demand and Level of Service					
Functional Area	**Existing Capacity**		**Future (2025) Conditions**		
			Square Footage Requirement	**Surplus (Deficiency)**	**Square Feet per Passenger**	**Level-of-Service (LOS)**
Common Use Ticketing Space	43,000	square feet	24,800	18,200	43.0	A / B
Security Space	6,600	square feet	12,900	(6,300)	4.4	D / E
Holdroom Space	45,900	square feet	27,450	18,450	30.6	A / B
FIS Primary Space	19,900	square feet	23,220	(3,320)	11.1	C
International Bag Claim Space	45,600	square feet	32,940	12,660	25.3	A / B
Unconstrained Forecast (2030) Passenger Demand and Level of Service					
Functional Area	**Existing Capacity**		**Future (2030) Conditions**		
			Square Footage Requirement	**Surplus (Deficiency)**	**Square Feet per Passenger**	**Level-of-Service (LOS)**
Common Use Ticketing Space	43,000	square feet	27,280	15,720	39.1	A / B
Security Space	6,600	square feet	14,190	(7,590)	4.1	D / E
Holdroom Space	45,900	square feet	29,280	16,620	28.7	A / B
FIS Primary Space	19,900	square feet	24,510	(4,610)	10.5	D / E
International Bag Claim Space	45,600	square feet	34,770	10,830	24.0	A / B

Notes:

= Level-of-Service A / B ("Overdesign")

= Level-of-Service C ("Optimum")

= Level-of-Service D / E ("Sub Optimum")

Sources: International Air Transport Association, Airport Development Reference Manual, 10th Edition
Port Authority, JFK Master Plan Forecast and Design Day Flight Schedules
Landrum & Brown Analysis, 2019.

Terminal 2 Deficiencies

T2 was opened in 1962 as the home of Northeast Airlines, Braniff, and Northwest Airlines, and is now exclusively used and operated by Delta. It is the oldest terminal at JFK and has reached the end of its useful life. T2 has not been expanded since its original construction, and capital investment in the terminal has been limited to safety, security, and maintenance. T2 was designed to accommodate approximately 1.5 million annual passengers and currently serves over 4 million annual passengers. Due to the facility's age and condition, further improvements to the terminal are not cost-effective. The issues described in this section are a function of the obsolete design of the terminal and reflect terminal design standards of the late 1950s.

As shown in **Table 2-5, *Terminal 2 – Facility Demand/Capacity and LOS***, T2 served more than 4.2 million annual passengers in 2018.[69] **Table 2-5** also shows that the terminal has insufficient capacity in many key functional areas, notably the departure hall / ticketing, security area, and baggage claim area. In addition, T2 has no facilities to accommodate international arrivals unless the flight originates from an airport with approved pre-clearance. T2 offers the lowest current and forecast LOS of the terminals analyzed.

As mentioned, T2 is now exclusively used by Delta for domestic arrivals and departures along with a few international departures. The bulk of Delta's operations are located in T4. However, there is no physical connection between T2 and T4. Due to the split operation between these two terminals, Delta operates a shuttle bus to transfer passengers, adding complexity to passenger travel. Having check-in facilities in two terminals confuses originating passengers who may be uncertain about the correct terminal for their departing flight. For example, a passenger on a flight departing from T2 may proceed directly to T4 if they do not know or are confused about which terminal they are departing from. After checking in at the T4 headhouse and passing through security, the passenger would then have to walk to one of the two bus stations operating from the northern and southern ends of T4 Concourse B to board a bus to T2. Checking in at the wrong terminal and then taking a bus to the correct terminal is an inconvenience to passengers that could be avoided if all of Delta's operations were consolidated at a single terminal.

[69] Port Authority of New York and New Jersey, Airport Traffic Report, 2017 from http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf

TABLE 2-5 TERMINAL 2 – FACILITY DEMAND/CAPACITY AND LOS

John F. Kennedy International Airport

Existing and Unconstrained Forecast Demand (Passenger Levels)					
	2018 Actual		2025 Forecast		2030 Forecast
Annual Passengers	4,251,822		4,942,000		5,454,000
Peak Hour Originating	700		800		900
Peak Hour at Checkpoint	700		800		900
Peak Hour Boarding	1,300		1,500		1,700
Peak Hour Arriving (Domestic)	1,300		1,500		1,700

Existing (2018) Demand and Level of Service						
Functional Area	Existing Capacity		Existing (2018) Conditions			
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)
Common Use Ticketing Space	10,000	square feet	17,360	(7,360)	12.5	D / E
Security Space	4,600	square feet	9,030	(4,430)	3.5	D / E
Holdroom Space	35,200	square feet	23,790	11,410	27.1	A / B
FIS Primary Space*	n/a					
Domestic Bag Claim Space	12,600	square feet	23,790	(11,190)	9.7	D / E

Unconstrained Forecast (2025) Passenger Demand and Level of Service						
Functional Area	Existing Capacity		Future (2025) Conditions			
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)
Common Use Ticketing Space	10,000	square feet	19,840	(9,840)	12.5	D / E
Security Space	4,600	square feet	10,320	(5,720)	3.1	D / E
Holdroom Space	35,200	square feet	27,450	7,750	23.5	A / B
FIS Primary Space*	n/a					
International Bag Claim Space	12,600	square feet	27,450	(14,850)	8.4	D / E

Unconstrained Forecast (2030) Passenger Demand and Level of Service						
Functional Area	Existing Capacity		Future (2030) Conditions			
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)
Common Use Ticketing Space	10,000	square feet	22,320	(12,320)	11.1	D / E
Security Space	4,600	square feet	11,610	(7,010)	2.7	D / E
Holdroom Space	35,200	square feet	31,110	4,090	20.7	A / B
FIS Primary Space*	n/a					
International Bag Claim Space	12,600	square feet	31,110	(18,510)	7.4	D / E

Notes: Terminal 2 does not have international processing (FIS) facilities.

= Level-of-Service A / B ("Overdesign")

= Level-of-Service D / E ("Sub Optimum")

Sources: International Air Transport Association, Airport Development Reference Manual, 10th Edition
Port Authority, JFK Master Plan Forecast and Design Day Flight Schedules
Landrum & Brown Analysis, 2019.

Terminal 7 Deficiencies

T7 opened in 1972 and is at the end of its useful life. The terminal was designed for approximately 1.5 million annual passengers and two tenant carriers, United Airlines and British Airways, each taking approximately one half of the space in the terminal. While United stopped operating at JFK in 2014, the terminal continues to serve a mix of domestic and international flights. Since United ceased operations at T7, eight international and one domestic airline have relocated their operations from other terminals to T7 and now operate in the space formally occupied by United.

Although designed to serve 1.5 million annual passengers, T7 served over 4.6 million annual passengers in 2018.[70]. As shown in **Table 2-6, *Terminal 7 – Facility Demand/Capacity and LOS***, demand is forecast to grow to over 5.8 million annual passengers by 2025, with the majority of this growth coming from international service. However, some domestic demand will continue to be served from this terminal (Note: Two gates in T7 do not have access to the FIS). International flights place a higher demand on terminals because passengers flying internationally tend to have more luggage as they will be traveling for longer periods. The increased volume of luggage associated with international flights requires more robust baggage claim devices and security screening than for domestic flights. Also, since international flights usually use larger aircraft than domestic flights, terminals serving international flights need more space for ticketing check in and security screening to handle the associated higher passenger volumes.

Currently, T7 has insufficient space to serve current and future passenger demand at a LOS that meets the Port Authority's terminal design requirements. As shown in **Table 2-6**, the most serious capacity deficiencies in T7 are the security screening checkpoints and FIS areas. The lack of space at a checkpoint hampers the efficiency of the checkpoint lanes themselves, further reducing their capacity. The lack of queuing space means that the checkpoint queue has the potential to block passenger circulation in the ticketing lobby. In addition, there is no physical connection that enables passengers to access other terminals without exiting the building and taking the AirTrain to another terminal. Although the AirTrain provides connections from T7 to other terminals, this adds some complication to a connecting passenger's ability to make their next flight since the passenger would have to exit T7, take the AirTrain, and reprocess through security within the other terminal for the connecting flight.

[70] Port Authority of New York and New Jersey, Airport Traffic Report, 2017 from http://www.panynj.gov/airports/pdf-traffic/ATR2018

TABLE 2-6 TERMINAL 7 – FACILITY DEMAND/CAPACITY AND LOS

John F. Kennedy International Airport

Existing and Unconstrained Forecast Demand (Passenger Levels)			
	2018 Actual	2025 Forecast	2030 Forecast
Annual Passengers	4,637,733	5,862,000	6,176,000
Peak Hour Originating	700	900	900
Peak Hour at Checkpoint	700	900	900
Peak Hour Boarding	900	1,100	1,200
Peak Hour Arriving (FIS)	800	1,000	1,100

Existing (2018) Demand and Level of Service							
Functional Area	Existing Capacity		Existing (2016) Conditions				
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)	
Common Use Ticketing Space	36,600	square feet	17,360	19,240	40.7	A / B	
Security Space	4,900	square feet	9,030	(4,130)	5.4	D / E	
Holdroom Space	27,200	square feet	16,470	10,730	30.2	A / B	
FIS Primary Space	9,800	square feet	10,320	(520)	9.8	D / E	
International Bag Claim Space	18,200	square feet	14,640	3,560	22.8	A / B	

Unconstrained Forecast (2025) Passenger Demand and Level of Service							
Functional Area	Existing Capacity		Future (2025) Conditions				
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)	
Common Use Ticketing Space	36,600	square feet	22,320	14,280	40.7	A / B	
Security Space	4,900	square feet	11,610	(6,710)	4.5	D / E	
Holdroom Space	27,200	square feet	20,130	7,070	24.7	A / B	
FIS Primary Space	9,800	square feet	12,900	(3,100)	9.8	D / E	
International Bag Claim Space	18,200	square feet	18,300	(100)	18.2	C	

Unconstrained Forecast (2030) Passenger Demand and Level of Service							
Functional Area	Existing Capacity		Future (2030) Conditions				
			Square Footage Requirement	Surplus (Deficiency)	Square Feet per Passenger	Level-of-Service (LOS)	
Common Use Ticketing Space	36,600	square feet	22,320	14,280	40.7	A / B	
Security Space	4,900	square feet	11,610	(6,710)	4.1	D / E	
Holdroom Space	27,200	square feet	21,960	5,240	22.7	A / B	
FIS Primary Space	9,800	square feet	14,190	(4,390)	8.9	D / E	
International Bag Claim Space	18,200	square feet	20,130	(1,930)	16.5	C	

Notes:

= Level-of-Service A / B ("Overdesign")

= Level-of-Service C ("Optimum")

= Level-of-Service D / E ("Sub Optimum")

Sources: International Air Transport Association, Airport Development Reference Manual, 10th Edition
Port Authority, JFK Master Plan Forecast and Design Day Flight Schedules
Landrum & Brown Analysis, 2019.

2.2.2 THE NEED TO PROVIDE EFFICIENT APRON AND TAXILANE SPACE

The following sections present the identified terminal apron area and taxilane deficiencies at JFK.

Terminals 1 and 2 Apron and Taxilane Deficiencies

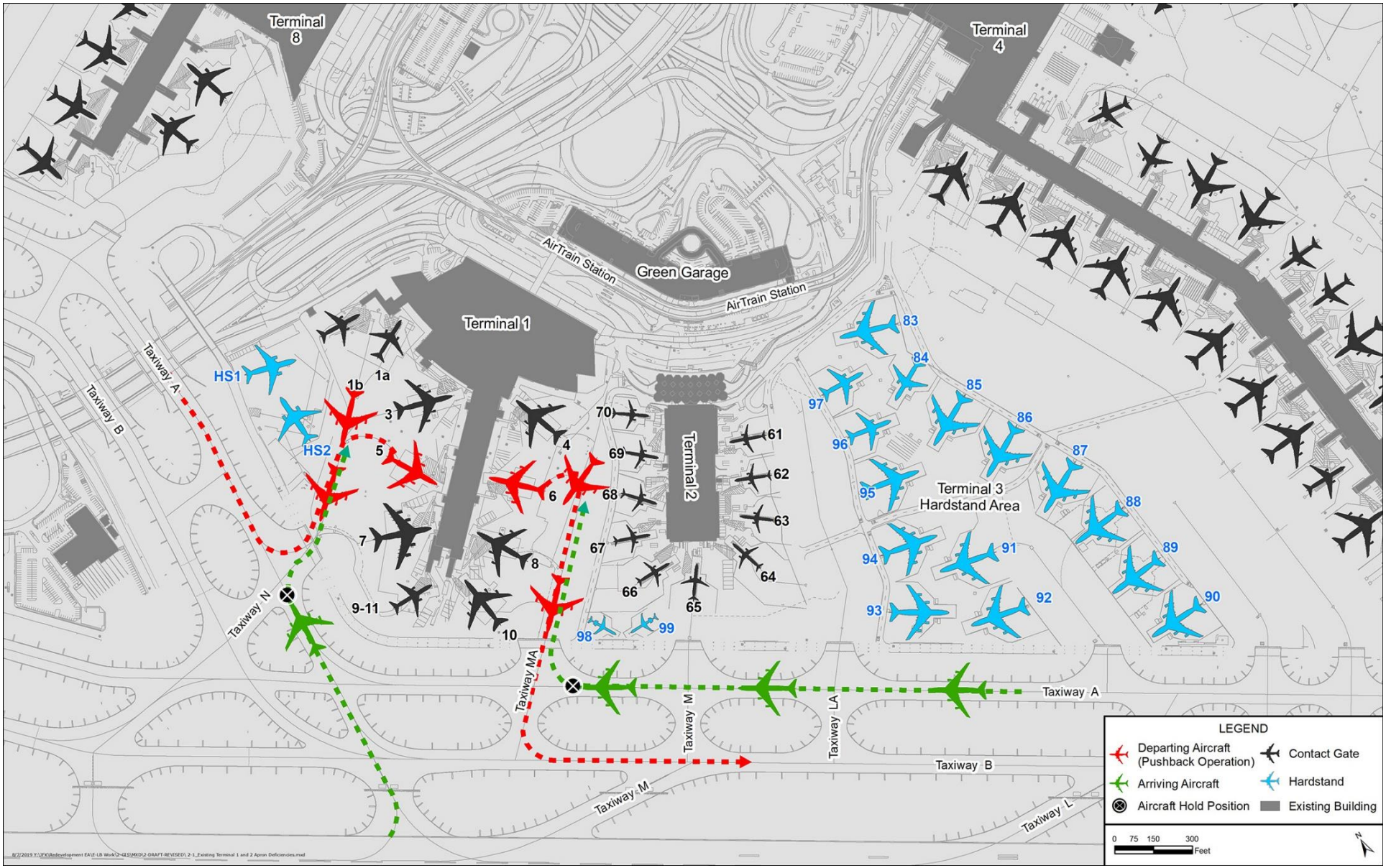
Due to the configuration of the T1 and T2 apron and terminal piers, airfield congestion can occur during peak periods. The congestion is a result of the width of the apron and the position of the terminal piers and adjacent aircraft hardstand parking positions combined with the wingspan of the wide-body aircraft that operate at T1 resulting in a single taxilane in the apron area between T1 and T2. As shown in **Exhibit 2-1, *Existing Terminal 1 and 2 Apron Deficiencies***, a departing aircraft on a single taxilane blocks an arriving aircraft, causing it to wait on Taxiways A and/or B, thus affecting other operations on the taxiways. In addition, Taxiways MA and N are single (one-way) taxiways that prevent the efficient movement of aircraft between Taxiways A and B and the apron due to the inability for two aircraft to taxi in opposite directions without waiting for the other aircraft to pass. South of T1, at the intersection of Taxiways A and B with Taxiway MA, aircraft waiting to enter the apron can cause congestion, affecting operations on multiple taxiways. Similar congestion can occur at the southwest of T1 at the intersection of Taxiway N and Taxiway A. Towing aircraft for repositioning to or from an aircraft hardstand parking position exacerbates congestion issues within the terminal apron areas.

Terminal 7 Apron and Taxilane Deficiencies

The configuration of the aircraft parking apron surrounding T7 causes congestion during peak times. The gates on the east and west sides of the terminal are supported by a single taxilane. As shown on **Exhibit 2-2, *Existing Terminal 7 Apron Deficiencies***, during pushback operations from these gates, an arriving aircraft must wait on the active taxiway while waiting for the departing aircraft to clear the taxilane, thus causing delays. Furthermore, due to limited apron depth, the three gates on the north end of T7 push back directly onto Taxiway A or onto the taxilane in front of the adjacent gate, thus delaying other operations on the taxiways.

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EXHIBIT 2-1 EXISTING TERMINAL 1 AND 2 APRON DEFICIENCIES



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EXHIBIT 2-2 EXISTING TERMINAL 7 APRON DEFICIENCIES



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2.2.3 THE NEED TO PROVIDE EFFICIENT TERMINAL ROADWAYS AND CURB FRONTAGES AT AN ACCEPTABLE LOS THAT COMPLY WITH PORT AUTHORITY AND TSA RECOMMENDATIONS

The following sections present the identified terminal roadway and curb frontage deficiencies at JFK.[71]

Terminal Roadway and Curb Frontage Deficiencies

While the existing roadway system adequately serves the airport, analysis of the 2025 and 2030 No-Build Alternative indicates that increasing levels of traffic will degrade the performance of the terminal curb frontages and roadways. In addition, existing terminal curb frontage areas do not meet current Port Authority and TSA setback distance standards.

Terminal Curb Frontage Evaluation for 2025 and 2030 No-Build Alternative

The curb frontage analyses in this section assign a LOS of A to F to each of the segments, with A being the best LOS and F the worst. At LOS A, B, and C, frontage capacity is sufficient to handle the demand at a good level of service with minimal or no delays. LOS D is considered marginally acceptable with some congestion delay during certain hours of the day. At LOS E, the demand is greater than the frontage capacity resulting in considerable congestion delay. LOS F is considered unacceptable with excessive congestion delay.[72]

As shown in **Table 2-7, *Terminal Frontage Peak Hours (2025 & 2030 No-Build Alternative)***, the performance of terminal curbside frontages varies by time of day in relation to the flight schedules at each terminal for arriving and departure flights in the No-Build Alternative for years 2025 and 2030.

The calculated average No-Build Alternative LOS for years 2025 and 2030 is shown in **Table 2-8**, ***Terminal Frontage LOS Conditions (2025 & 2030 No-Build Alternative).*** The proposed LOS for each terminal is based on the required frontage length to accommodate demand versus the available frontage length during the frontage peak hour when the frontage demand is at its highest. The required frontage length considers the number of vehicles in the peak hour and the average dwell times by vehicle type along with other curbside regulations (permitting of double parking). The LOS is calculated separately for each of the four vehicle types - Privately Owned Vehicles (POV), For Hire Vehicles (FHV), Taxis, and High Occupancy Vehicles (HOV), which are buses and vans.

71 This analysis uses the 2025 and 2030 Design Day Flight Schedules (DDFS) to model the future condition.

72 **Appendix G, *Traffic Report*** provides additional detail on the LOS thresholds used to evaluate the performance of terminal curbside roadways in accordance with the Airport Cooperative Research Program (ACRP) Report 40, Airport Curbside and Terminal Area Roadway Operations.

TABLE 2-7 TERMINAL FRONTAGE PEAK HOURS (2025 & 2030 NO-BUILD ALTERNATIVE)

John F. Kennedy International Airport

Frontage			2025 No-Build Alternative	2030 No-Build Alternative
Terminal - 1	Departures	POV	15:15	15:15
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	11:00	11:00
		FHV		
		HOV		
Terminal - 2	Departures	POV	5:45	5:45
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	15:45	15:45
		FHV		
		HOV		
Terminal - 4	Departures	POV	18:45	5:45
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	12:45	23:15
		FHV		
		HOV		
Terminal - 5	Departures	POV	7:15	7:00
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	15:00	14:45
		FHV		
		HOV		
Terminal - 6/7	Departures	POV	17:45	17:45
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	19:30	19:30
		FHV		
		HOV		

Legend:

POV = Private Operated Vehicles

FHV = For Hire Vehicles

HOV = High Occupancy Vehicles

Source: Port Authority 2019.

TABLE 2-8 TERMINAL FRONTAGE LOS CONDITIONS (2025 & 2030 NO-BUILD ALTERNATIVE)

John F. Kennedy International Airport

Frontage			2025 No-Build Alternative	2030 No-Build Alternative
Terminal - 1	Departures	POV	B	B
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	F	F
		FHV		
		HOV	F	F
Terminal - 2	Departures	POV	F	F
		FHV		
		TAXI		
		HOV	A	A
	Arrivals	POV	D	D
		FHV		
		HOV	D	D
Terminal - 4	Departures	POV	C	D
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	C	D
		FHV		
		HOV	C	D
Terminal - 5	Departures	POV	D	E
		FHV		
		TAXI		
		HOV		
	Arrivals	POV	E	F
		FHV		
		HOV		
Terminal - 6/7	Departures	POV	C	C
		FHV		
		TAXI		
		HOV	A	A
	Arrivals	POV	B	B
		FHV		
		HOV	D	D

Legend:

POV = Private Operated Vehicles

FHV = For Hire Vehicles

HOV = High Occupancy Vehicles

Legend:

A	-->	LOS A
B	-->	LOS B
C	-->	LOS C
D	-->	LOS D
E	-->	LOS E
F	-->	LOS F

Source: Port Authority 2019.

Under the No-Build Alternative for years 2025 and 2030, additional traffic operations improvements that are not all represented in the traffic modeling could be implemented to improve capacity.[73] These include enforcement of new routes and shorter dwell times, redistributing or reallocating vehicles to various frontages, promoting increased parking in garages and lots, and redistributing parking between long-term and short-term spaces. A summary of the No-Build Alternative curb frontage performance for years 2025 and 2030 per terminal is provided below.

2025 and 2030 Terminal 1 Curb Frontage Performance

Congestion at T1 is expected to routinely occur along arrival access roads and frontage. The arrivals curb is estimated at LOS F in the 2025 and 2030 No-Build Alternative. A LOS of F indicates an inadequate frontage length that results in situations where cars are backed up while waiting for curb space to become available (i.e. spill back) which limits frontage throughput. The traffic modeling reflects traffic signal optimization and lane restriping to increase capacity along with active curb management actions. The T1 departure roadway is expected to perform adequately at a LOS B in the 2025 and 2030 No-Build Alternative.

2025 and 2030 Terminal 2 Curb Frontage Performance

T2 is expected to struggle with a LOS F on its departure curb in 2025 and 2030 for POVs, FHVs and taxis. The HOV curb performs much better at a LOS A for both 2025 and 2030 No-Build Alternative. The existing problem of passengers not knowing whether their flight will leave from T4 or T2 is expected to continue. Therefore, passengers are expected to continue to default to T4 since most of Delta's flights arrive and depart from there. The T2 arrivals curb is expected to perform at a LOS D by 2025 during its busiest hour because arrivals tend to use the curb where they arrive. Delta has an incentive to minimize the use of T2 since passenger connections between T2 and T4 requires the use of apron buses, which are more costly and time consuming than a walking connection.

2025 and 2030 Terminal 4 Curb Frontage Performance

T4 curbs are forecast to worsen from the 2025 to 2030 No-Build Alternative. Both the arrival and departure frontage decline from an acceptable LOS C to a marginal LOS D. This indicates that additional measures might be needed to mitigate the impact of demand on the performance of the T4 roadways.

2025 and 2030 Terminal 5 Curb Frontage Performance

Of all the existing terminals, T5 is anticipated to experience greatest congestion during the 2025 and 2030 No-Build Alternative. As shown in **Table 2-8**, its LOS for both arrivals and departures frontages will degrade between both 2025 and 2030 No-Build Alternative. By 2030, the departures frontage will be LOS E and arrivals will be LOS F. The terminal will struggle to serve demand during its peak period and will require the Port Authority to deploy active traffic management measures.

2025 and 2030 Terminal 7 Curb Frontage Performance

The T7 curbs will continue to perform adequately during the frontage peak hours except for the HOV frontage at arrivals, which will operate at a LOS D in the 2025 and 2030 No-Build Alternative.

[73] CEQ regulations codified at 40 CFR 1502.14

2025 and 2030 Taxi Arrivals Frontage Performance (All Terminals)

The taxi arrivals frontages were analyzed in a different manner than the taxi departures frontages because the taxi arrivals frontages are managed by a dispatcher (i.e., arrival taxis are dispatched from a holding area), and, therefore, would not be above capacity. A key measure of taxi frontage performance is passenger wait time at the curb. If the taxi arrivals frontage length is inadequate, there may not be enough taxis at the curb to meet passenger demand. This may cause undue passenger delays. A ratio of less than or equal to one indicates that there is sufficient capacity to accommodate 100 percent of the passenger demand with minimal wait times at the curb.

As shown in **Table 2-9, *Taxi Arrival Frontage Demand to Capacity Ratio (2025 & 2030 No-Build Alternative)***, the taxi arrivals frontage length in the 2025 No-Build Alternative would be inadequate to serve the demand at T2. Under the 2030 No-Build Alternative, the taxi arrivals frontage length at T2 and T5 would be inadequate.

TABLE 2-9 TAXI ARRIVAL FRONTAGE DEMAND TO CAPACITY RATIO (2025 & 2030 NO-BUILD ALTERNATIVE)
John F. Kennedy International Airport

Terminal	2025 No-Build Alternative	2030 No-Build Alternative
T1	< 1.0	< 1.0
T2	**> 1.0**	**> 1.0**
T4	< 1.0	< 1.0
T5	< 1.0	**> 1.0**
T6/7	< 1.0	< 1.0
T8	< 1.0	< 1.0

Source: See **Appendix G, *Traffic Report***, On-Airport Traffic Study, Port Authority, 2019.

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3 ALTERNATIVES

This Chapter describes the Proposed Action and alternatives to the Proposed Action (including the No-Build Alternative) and evaluates the ability of each to meet the purpose and need as described in **Chapter 2, Purpose and Need**. NEPA requires the identification and evaluation of all prudent, feasible, reasonable, and practicable alternatives that might accomplish the objectives of a project. Federal agencies may consider the applicant's purpose and need, and common-sense realities of a given situation in the development of alternatives.[74]

3.1 INITIAL ALTERNATIVES

As part of this EA, the Port Authority conducted a review of potential alternatives in this document. The following initial alternatives were considered in this EA.

- **No-Build Alternative** – This alternative represents the option where no construction would occur.
- **Off-Airport Alternatives** – These alternatives include options and locations beyond JFK property, including other modes of transportation.
- **On-Airport Alternatives** – These alternatives include development of new facilities outside the CTA to address the need for terminal and apron space.
- **South Terminal Alternatives** – These alternatives include modifications to the South Terminal areas (Green and Blue Zones) –T1, T2, and T4 – to address the need for terminal and apron space.
- **North Terminal Alternatives** – These alternatives include modifications to the North Terminal areas (Yellow and Orange Zones) –T5 and T7 – to address the need for terminal and apron space.

Each of the identified initial alternatives were evaluated to determine if they meet the purpose of the Proposed Action, as well as the following needs as discussed in **Chapter 2, *Purpose and Need***.

- The need to accommodate the existing and forecast passenger demand at an acceptable LOS that is consistent across all terminals and provides better connectivity between terminals, including passenger walking distances, space requirements, number of gates, and IATA LOS standards.
- The need to provide efficient apron and taxilane space.
- The need to provide efficient terminal roadways and curb frontages at an acceptable LOS that comply with TSA/Port Authority recommendations.

If an alternative considered in this analysis met each of these criteria, then it was retained for a more detailed environmental evaluation. If the alternative did not meet these criteria, then it was eliminated from a more detailed environmental evaluation in this EA.

[74] Guidance Regarding NEPA Regulations, CEQ, 48 *Federal Register* 34263 (July 28, 1983).

In evaluating the South Terminal Alternatives and the North Terminal Alternatives, the following categories of alternatives were considered:

- **Terminal Expansion / Replacement** – This category of alternatives includes expansion of terminals or construction of new terminals along with renovation of existing terminals. Alternatives that included expansion of T2 and T7 were not considered due to the age and condition of these buildings, and because there was no developer identified that was willing to expend resources on retaining these structures.
- **Full Replacement In-Place** – This category of alternatives includes full replacement of one or more of the existing terminals within the CTA.
- **Interior Renovation** – This category of alternatives includes modernizing and upgrading the terminal interior spaces without expanding the existing terminals.

The evaluation of terminal alternatives is provided in **Section 3.5, *South Terminal Alternatives***, and **Section 3.6, *North Terminal Alternatives***. The evaluation of terminal roadway alternatives can be found in **Section 3.7, *Terminal Roadway Alternatives***.

3.2 NO-BUILD ALTERNATIVE

The No-Build Alternative would result in no new construction or redevelopment of facilities within the CTA. The existing passenger terminals would remain unchanged and would continue to operate at their existing sites within the CTA. This would cause landside congestion and terminal congestion to worsen given the increase in passenger activity that is forecast to occur at the Airport (JFK).

Potential improvements could be made to the interior spaces. However, based on the Port Authority's unsuccessful efforts in the 1990s of trying to meet passenger demand at LaGuardia Airport (LGA) through interior renovations, this approach likely would not be successful at JFK.

Further contributing to the challenges faced by terminals that are too small to serve current and future passenger demand at an acceptable LOS, some aircraft at JFK currently load and unload passengers at live aircraft hardstand parking positions rather than terminal gates.[75] The No-Build Alternative would continue the live aircraft hardstand parking operations and would lead to more operations of this type as terminal gates become increasingly crowded. Using live aircraft hardstand parking positions does not reduce the need for adequate terminal space. While the No-Build Alternative does not meet the purpose and need, pursuant to CEQ requirements, the No-Build Alternative must be carried forward in the assessment of environmental impacts. The No-Build Alternative serves as a basis of comparison for the assessment of future conditions and impacts of the other alternatives.

This alternative would result in no changes to the existing terminals and the CTA and no alternation to existing terminals, aprons, and roadways. The No-Build Alternative would involve

[75] A live aircraft hardstand parking position refers to aircraft boarding at an aircraft hardstand parking position rather than a contact gate through a passenger boarding bridge (jetway) connected to the terminal. In a live aircraft hardstand parking operation after security processing, passengers board a bus (or mobile lounge) and are transported to the aircraft. Passengers then board and deplane using the aircraft stairs, mobile stairs, or a mobile lounge which elevates vertically to the boarding door of the aircraft.

using the existing terminals, aircraft hardstand parking positions, roads, and aprons to meet the projected passenger demand. This would result in the following:

- This would force the increased use of live aircraft hardstand parking positions for passenger loading of wide-body aircraft, requiring passengers to use apron buses and outdoor stairways to access aircraft. In addition, this would lead to longer baggage delivery times to bag claim and less time in the terminal for passengers trying to reach connecting flights. Use of live aircraft hardstand parking positions increases operating costs while reducing LOS.
- This would not improve the connectivity between existing terminals and the LOS would remain inconsistent between newer and older terminals, notably T1, T2, and T7 which are older than T4, T5, and T8.
- Airlines' additional use of non-contiguous gates located in separate terminals, would require a shuffling of staff, and airline operations. Delta runs buses between T2 and T4 to accommodate the needs of connecting passengers. While running this bus service makes passenger connections possible, it increases connection times and operating costs.
- An increase in the number of passengers using the existing, already constrained security, FIS, hold rooms, and other terminal support facilities, would result in increased congestion and crowding, a decrease in LOS and poor passenger experience.
- An increase in the number of vehicles using the existing roadway network, would result in increased congestion and delays. The Port Authority would increase implementation of traffic management activities, such as re-directing traffic to less congested areas and directing arriving passengers to Federal Circle and Lefferts Avenue to be picked up by for-hire vehicles. While these actions may help accommodate some additional growth in traffic volumes, they would not completely reduce congestion and would lead to longer commutes for passengers who must travel additional distances on the AirTrain and adds additional stress to the AirTrain system.
- This would not solve the inefficiencies related to single taxilane access at T1, T2 and T7.

In summary, the number of aircraft served at JFK are expected to be the same under the No-Build Alternative and the Proposed Action. However, under the No-Build Alternative, the forecast increase in aircraft seats, provided by an increased proportion of wide-body aircraft, would be served by the existing facilities that already have insufficient capacity and would require the increasing use of live aircraft hardstand parking positions (see **Chapter 2, P*urpose and Need***). This would result in less efficient operations, decreased efficiency from an airline staffing perspective, diminished passenger LOS, increased operating costs and an overall poor passenger travel experience at JFK.

The No-Build Alternative does not address the space constraints within the existing terminals that result in a low LOS. As stated in **Chapter 2, *Purpose and Need***, T1 has insufficient capacity at the security area and FIS area and T2 has insufficient capacity at the departure hall ticketing, security area, and baggage claim area. Therefore, the No-Build Alternative does not meet the purpose and need. However, because the CEQ regulations require consideration of the No-Build Alternative as a baseline, it is carried forward for evaluation in this EA.

3.3 OFF-AIRPORT ALTERNATIVES

Constructing a new airport, expanding a different airport in the New York/New Jersey Metropolitan Region (Region), and utilizing other modes of transportation were considered as alternatives in this EA.

3.3.1 CONSTRUCTION OF A NEW AIRPORT

This alternative involves the construction of a new airport to accommodate JFK's existing and future demand at an acceptable LOS. In 2011, the Regional Plan Association (RPA), an independent not-for-profit regional planning organization dedicated to the quality of life and economic competitiveness of the Region, studied the feasibility of siting a new airport in the Region and determined that there is no appropriate site within 40 miles of Manhattan to locate a new airport.[76] The RPA study identified potential sites of at least 2,000 acres, the minimum size for a major airport, within 40 miles of the region's core, the center of Manhattan. These sites were evaluated based on (1) proximity to other airports, (2) site constraints, (3) the ability to provide two 11,000-foot runways in optimal alignment, (4) land use, (5) topography, and (6) obstructions. Based on the results of this analysis, the RPA found that the construction of an airport on a new site within 40 miles of Manhattan is not practicable. The Port Authority participated in the RPA's study and concurs with their conclusion.

In addition, development of a new airport would have a significant cost and likely would have significant environmental impacts (e.g., noise, air quality). The planning required for the development of a new airport likely would take 10 years or more because of the complexity of a new airport project. Therefore, a new airport could not be constructed in the timeframe needed to meet existing and near-term projected demand.

For these reasons, construction of a new airport alternative was not carried forward for further evaluation in this EA.

3.3.2 USE OF OTHER EXISTING AIRPORTS

This alternative involves expanding one or more existing airports in the region other than JFK to accommodate the demand that is forecast for JFK.

LGA and Newark Liberty International Airport (EWR) are currently among the most congested and delayed airports in the United States, and both are already undergoing major redevelopment programs to meet their own projected passenger demands.[77] Further, LGA has operating limitations imposed by the FAA, meaning the number of aircraft operations is restricted through regulation.

In its 2011 study, the RPA evaluated the ability to expand other smaller airports in the region to create a new large hub airport. Of the 59 commercial and general aviation airports evaluated by the RPA, four airports in the region were identified as potential candidates for expansion into a new major airport: Atlantic City International Airport (ACY) in Atlantic City, NJ; Calverton

[76] Regional Plan Association (RPA), Upgrading to World Class – the Future of the New York Region's Airports, January 2011.

[77] In 2017, EWR served more than 43.3 million passengers and LGA served 29.5 million passengers. The Port Authority Airport Traffic Report for 2017.

Executive Airport (CTO) in Riverhead, NY; New York Stewart International Airport (SWF) in Newburgh, NY; and Lehigh Valley International Airport (ABE) in Allentown, PA. The RPA concluded that physical site and community constraints of these airports and/or airspace conflicts would limit the ability of these airports to expand enough to accommodate tens of millions of passengers annually. Further, the RPA concluded that some of these airports were too far from Manhattan to be a viable alternative to JFK.

For these reasons, the use of other airports alternative was not carried forward for further evaluation in this EA.

3.3.3 UTILIZE OTHER MODES OF TRANSPORTATION

The Region can be accessed by rail, bus, car, and ship. Other modes of travel, such as commuter rail and high-speed rail, were evaluated as alternatives to decrease demand for air travel to and from the Region.

Local rail transportation includes New Jersey Transit (NJT), Metropolitan Transportation Authority (MTA) Metro-North Railroad (MNR), and MTA Long Island Rail Road (LIRR) commuter rail networks; the Shore Line East commuter rail service; MTA New York City Transit's subway network; the Port Authority's PATH rail rapid transit service; and New Jersey Transit's Hudson-Bergen Light Rail and Newark Light Rail systems. Intercity rail services between Washington, D.C. and Boston are provided by Amtrak. Amtrak also carries travelers from locations throughout the U.S. However, rail is only competitive with air travel for distances of 250 miles or less. More than 92 percent of passengers using JFK travel more than 250 miles for their journey.

Road access to the Region includes several interstate highways: Interstate highways I-78, I-80 and I-280, which extend from New York City west into Pennsylvania; I-87, which becomes the New York State Thruway between New York City and Albany; I-95, a north-south highway of which a portion is the New Jersey Turnpike; and I-495, known as the Long Island Expressway.

Rail, bus, and car transportation options largely serve persons traveling within a limited geographic area. Therefore, these alternate modes of transportation are not viable alternatives for air travel. In addition, the majority of travelers to JFK originate from international locations that can only be accessed cost-effectively by air travel. Therefore, other transportation modes have limited potential to serve passengers traveling internationally. Thus, these modes of transportation cannot replace air travel for persons that need to travel great distances in short time periods.

For these reasons, the utilize other modes of transportation alternative was not carried forward for further evaluation in this EA.

3.4 ON-AIRPORT ALTERNATIVES

The Port Authority considered several additional terminal development options as alternatives in this EA. Three overriding concerns affected the evaluation of the on-airport alternatives: (1) re-routing the AirTrain, (2) relocating Taxiways A and B, and (3) relocating the CoGen plant, as detailed below:

- The Port Authority did not consider alternatives to re-route the AirTrain because this would be prohibitively expensive and would not release significant space for new development. Also, given the reliance by passengers on the AirTrain to access terminals from both on- and off-airport locations, uninterrupted service of the AirTrain is vital to the safe and efficient operation of the Airport.
- The Port Authority did not consider alternatives that included the relocation of the CoGen plant because it would be prohibitively expensive and disruptive to existing Airport operations and would not free up significant space for development.
- Avoided the relocation of Taxiways A and B, which would result in closure of the taxiways and unacceptable levels of delay.

The Port Authority considered three locations outside of the CTA to construct one or more additional terminals. Potential locations for a terminal outside of the CTA were evaluated based on the ability to have both airside and landside access and whether the locations were large enough to accommodate a terminal capable of serving forecast demand along with the existing CTA terminals. As shown in **Exhibit 3-1, *Terminal Sites Located Outside the CTA***, the three potential sites that were evaluated by the Port Authority are:

- Between the parallel 4/22 runways,
- North of Runway 13L/31R, and
- The Hangar 12 site.

All other sites at JFK are already developed with buildings and facilities that are used for other functions. These other sites would require significant relocation of existing facilities to make room for a site large enough to support a terminal, associated aprons and roadway/parking facilities.

The land between Runways 4L/22R and 4R/22L lacks roadway access to support terminal development and operations. Because approximately 22 percent of passengers at JFK are transfer passengers, new infrastructure would be required to transport passengers from a terminal in this area to the CTA. A tunnel would need to be constructed under the existing airfield for passengers to be able to access the CTA to/from a terminal between Runway 4L/22R and Runway 4R/22L, which would be a very time consuming, costly and complex endeavor due to the high-water table at JFK. In addition, the Runway Object Free Area (ROFA) further limits development potential of this site.

The land north of Runway 13L/31R is dedicated for air cargo uses and is so far from the CTA that establishing connectivity with other terminals would require expansion of the AirTrain and roadway network that would impact critical air cargo infrastructure. The 2013 JFK Air Cargo Study recommended redevelopment of the area north of Runway 13L/31R, known as Cargo Zone D, for consolidation of large-scale cargo operations at JFK to improve efficiency and provide economies of scale.[78] An alternative that includes a new terminal in this area would

[78] New York City Economic Development Corporation and the Port Authority of New York and New Jersey, JFK Air Cargo Study, January 2013, Available online at: https://www.nycedc.com/resource/jfk-air-cargo-study.

conflict with these plans to consolidate cargo operations at JFK. This site also does not provide good connectivity to the CTA because it is separated by Runway 13L/31R.

The Hangar 12 site could potentially support a terminal building of the size that is needed to meet a portion of forecast demand. It has both airfield and landside access and it would not require significant relocation of other facilities. The Hangar 12 site is approximately 45 acres and is bound by the South Service Road to the northeast, Taxiway Q to the southwest, Building 14 to the northwest, and the fuel farm area to the southeast. The Hangar 12 site area could be expected to accommodate a terminal of approximately 5 gates. However, a terminal building to support an apron of this size would be too small to deliver the required passenger LOS. To make a terminal building fit into the limited space, there would be little area left for aircraft parking, passenger processing space, and vehicle parking.

Approximately 22 percent of passengers at JFK are transfer passengers, which would require connectivity between these potential sites and other terminals to support an improved LOS, such as tunneling under runways and providing a taxiway system to access these sites. This could impact existing airfield infrastructure by requiring the closure of runways and taxiways to facilitate construction activities. Even with this extensive effort, the resulting terminal areas would be far removed from the CTA and other airlines, making for poor connectivity between airlines and other terminals for passengers.

For these reasons, the above described on-airport alternative was not carried forward for further evaluation in this EA.

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EXHIBIT 3-1 TERMINAL SITES LOCATED OUTSIDE THE CTA



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3.5 SOUTH TERMINAL ALTERNATIVES

Four south terminal alternatives were considered in this EA. These alternatives were evaluated based on the following criteria; passenger walking distance, space requirements, LOS standards, and number of gates. The following sections provide an evaluation of each of the four south terminal alternatives.

3.5.1 ALTERNATIVE A-1: EXPANSION OF EXISTING TERMINAL 1

This alternative retains T1 and expands it by constructing a new pier concourse as shown on **Exhibit 3-2, *Terminal Alternative A-1 – Expansion of Terminal 1***. The expansion is limited to the north and west due to the location of the Van Wyck Expressway and to the south parallel Taxiways A and B. Therefore, the only area that can accommodate a new concourse is to the east, onto the footprint of T2 and partially onto the former site of T3. The existing T1 building envelope is retained in this alternative. The T1 headhouse and infrastructure is assumed to be rehabilitated and modernized to alleviate some of the congestion in the security and FIS processing space. This alternative would replace the deteriorated and outdated T2 building and would expand the T1 central processor. Landside access to T1 could be improved by the modification of Green Zone roadways to create a single consolidated arrivals and departures curb of sufficient size to accommodate the expanded terminal. The existing Green Garage would be maintained. This alternative assumes Delta operations currently at T2 are relocated to an expanded T4.

This alternative would maintain existing facilities, including the existing T1 and the Green Garage, which would reduce the need for demolition and reconstruction compared to other alternatives. However, Alternative A-1 is not able to provide additional space where it is needed the most – security and FIS – without sacrificing space in the headhouse or the terminal concourses and ramp area.[79] Reducing space in the headhouse to allow more room for security and FIS would reduce space at the check-in area, thereby resulting in congestion at the curb. This deficiency would be replicated in the expanded terminal area due to the site constraints. Therefore, this alternative does not provide the space needed to meet modern security requirements or reduce terminal overcrowding.

This alternative would provide only minimal improvements to LOS as T1 lacks the space to improve the deficiencies within the security and FIS areas. Therefore, it would not provide a consistent LOS within T1 compared to T4, T5, and T7. Furthermore, it would only provide minimal improvements to connectivity within the CTA. The alternative would provide greater connectivity within T1 by creating a connection from the existing T1 to an expanded terminal pier that would replace the unconnected T2. A physical connection on the landside or the airside could be constructed to connect to T4; however, this would sacrifice space that would otherwise be dedicated to other terminal functional areas. Therefore, the ability to improve LOS would be further reduced.

In addition, the site is already constrained due to the location of parallel Taxiways A and B relative to the concourses. This restricts the depth of the apron and combined with the limitations of the single taxilane, under this alternative, the apron limitations currently present on T1 would continue. Further, this alternative provides only single taxilanes for aircraft to access the existing concourse, the proposed new concourse and the T3 aircraft hardstand parking area. Single taxilanes complicate taxi and pushback operations because aircraft could be required to wait for other aircraft to clear the taxilane.

[79] The Port Authority has established headhouse depth of 450 to 600 feet to provide efficient and flexible organization of terminal space.

This would contribute to airfield delay. For these reasons, Alternative A-1 was not carried forward for further evaluation in this EA.

3.5.2 ALTERNATIVE A-2: EXPANSION OF EXISTING TERMINAL 4

This alternative expands the existing T4 building onto the footprint of T1 and T2 and the former T3 site as shown on **Exhibit 3-3, *Terminal Alternative A-2 – Expansion of Terminal 4***. T1 and T2 would be demolished and the existing T4 headhouse expanded. Two new concourse piers (designated Concourse C and Concourse D) would be constructed with 21 total wide-body gates. An extension to the existing Concourse A pier would be constructed to provide 7 additional wide-body gates. In addition to terminal expansion, this alternative would include reconfiguration of auto parking and extension of the curb frontage to accommodate the additional passenger volumes that would be expected to access the expanded terminal.

The additional 28 wide-body gates proposed in Alternative A-2 would not be sufficient enough to both replace the deficit of 10 aircraft hardstand parking positions, due to the partial removal of the T3 site for the expansion of T4 and provide the desired additional capacity of 23 wide-body gates. Thus, this alternative would not achieve the capacity required to meet forecast passenger demand.

Under Alternative A-2, the apron limitations currently present at T1 would continue onto the expanded T1 site because the apron space around the new Concourse C and Concourse D piers is restricted due to the proximity of Taxiway A. Further, the single taxilanes around Concourses B, C, and D would complicate taxiing operations because aircraft could be required to wait for other aircraft to clear the taxilane. The potential for apron congestion is exacerbated by the presence of aircraft hardstand parking areas next to Concourses B, C, and D in that these aircraft hardstand parking areas contribute even more potential aircraft movements in apron areas that are already space-constrained by the single taxilane. These apron limitations would contribute to airfield delay.

This alternative would provide on-site aircraft hardstand parking positions accessible by two taxilanes, contributing to operational flexibility. However, the availability of on-site aircraft hardstand parking positions does not outweigh the fact that there would not be enough gates at the terminal. With an insufficient number of gates under this alternative, the airlines may have to convert available aircraft hardstand parking positions into live positions.

This alternative would provide a more consistent LOS as an expanded T4 facility would be developed to the same LOS standards as the current facility. Connectivity within the CTA would also be improved by developing one terminal on the site. However, due to the extended concourses that would be required for Alternative A-2, some passengers departing from T4 would have to walk over 2,200 feet to get to their gates from the headhouse, a distance that exceeds the 2,000-foot walking limit based on best practices from world-class airports. This is a longer walk than current conditions within existing T1, T2, and T4, and would be a degradation in LOS over existing conditions. For these reasons, Alternative A-2 was not carried forward for further evaluation in this EA.

3.5.3 ALTERNATIVE A-3: FULL REPLACEMENT OF TERMINALS 1 AND 2 WITH A NEW SOUTH TERMINAL DEVELOPMENT (PROPOSED ACTION)

This alternative includes construction of a new terminal on the site of existing T1 and T2 and the reconfiguration of the apron area as shown on **Exhibit 3-4, *Terminal Alternative A-3 – Full Replacement of Terminals 1 and 2 with a New South Terminal Development***. To provide a site that meets the Port Authority's terminal space and LOS requirements, a new headhouse would be constructed in a footprint that encompasses the area of the Green Garage and T2 AirTrain Station. Removal of the Green Garage and T2 AirTrain Station would provide additional space to construct a terminal that accommodates existing and future demand at an acceptable LOS, including providing suitable space for security checkpoints and baggage claim. New concourses would be developed on the site of existing T1 and T2. The headhouse and concourses would be connected while preserving the current alignment of the AirTrain and the T1 AirTrain Station.

The proposed terminal would meet the purpose and need to accommodate demand and provide an acceptable LOS. The proposed terminal has been designed to meet the Port Authority planning standards in regard to functional terminal space area (security, ticketing, holdrooms, and baggage claim) and walking distances. The proposed terminal design incorporates the T1 AirTrain station within the building on a level located between the departure hall and the arrival hall, similar to the configuration within existing T4. This configuration of the AirTrain station minimizes walking distances between the AirTrain and all terminal functions. This alternative also maximizes the number of new gates in the T1-3 area because locating the headhouse over the roadway and well into the landside area of the CTA would free up airside space. This would allow the construction of 23 gates.

This alternative would improve connectivity and provide a more consistent LOS across all terminals. The alternative would include a physical connection to T4 to reduce the need for passengers to exit either terminal and take the AirTrain to the other terminal.

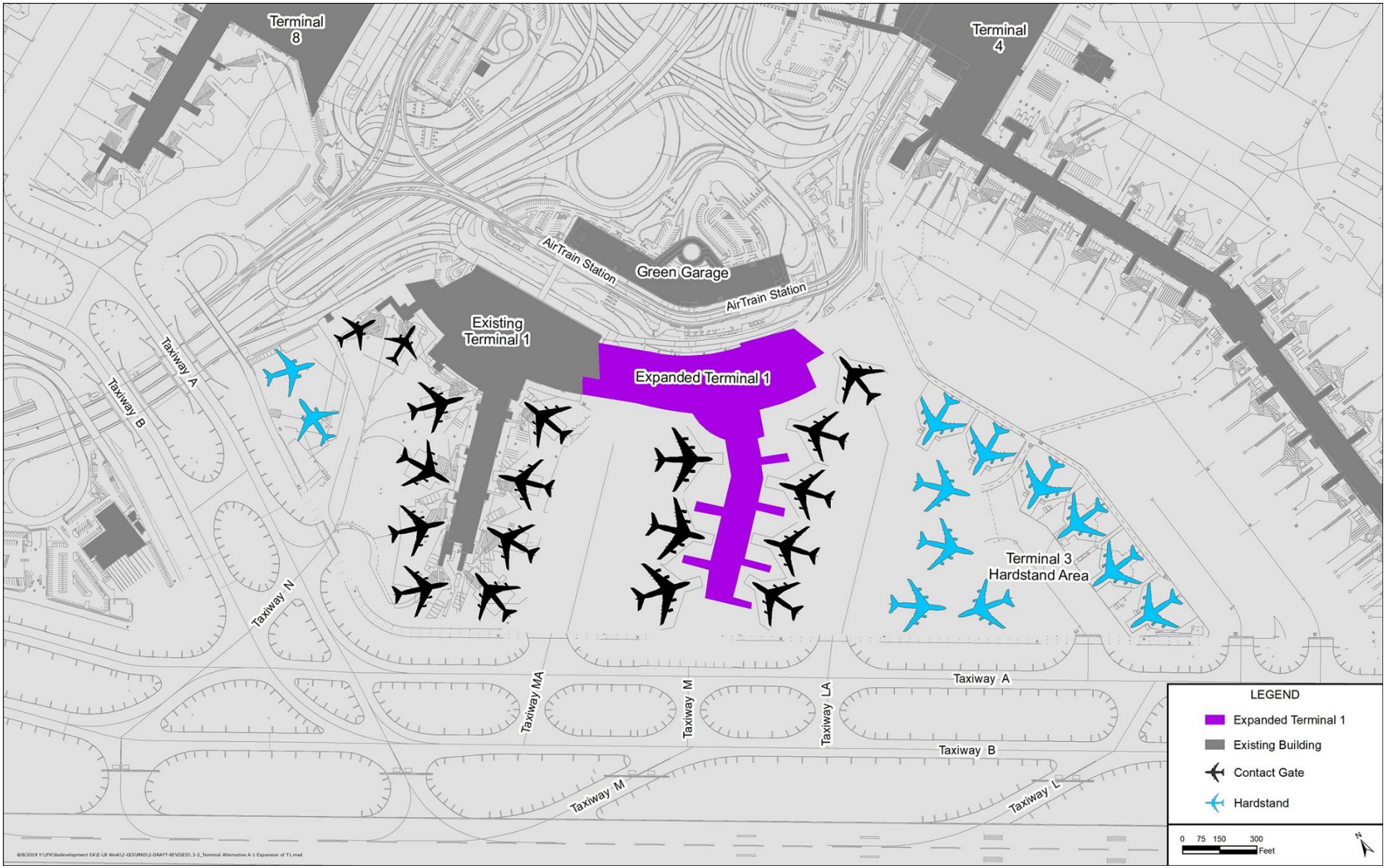
This alternative would accommodate existing and forecast aviation demand at an acceptable LOS because the terminal is designed to meet modern terminal design standards and would achieve optimum or better LOS as defined by the International Air Transport Association (IATA) and identified in **Chapter 2, *Purpose and Need*, Table 2-4 and Table 2-5**. In addition, this alternative would meet the Port Authority space requirements for all functional areas within the terminal (check-in areas, security screening, passenger hold rooms, concessions, restrooms, and circulation areas).

Furthermore, this alternative would maximize the terminal land envelope to provide for the greatest efficiency for aircraft movement on the apron. It enhances passenger connectivity by providing a connecting corridor between T1 and T4. On the apron, this alternative limits the number of gates that can only be accessed by a bi-directional single taxilane, thereby minimizing delays due to congestion on the apron. The apron configuration under this alternative would avoid blocking Taxiway A by aircraft pushing back from gates. This alternative provides multiple taxilane options for aircraft entering and exiting the terminal apron area, preventing congestion from arriving and departing aircraft accessing the same taxilane in opposite directions. There is one bi-directional taxilane under this alternative – located on the north side of the new west concourse. However, this single taxilane has adequate width to allow aircraft to be pushed back from the gates without impacting other parked aircraft.

For these reasons, Alternative A-3 was carried forward for further evaluation in this EA.

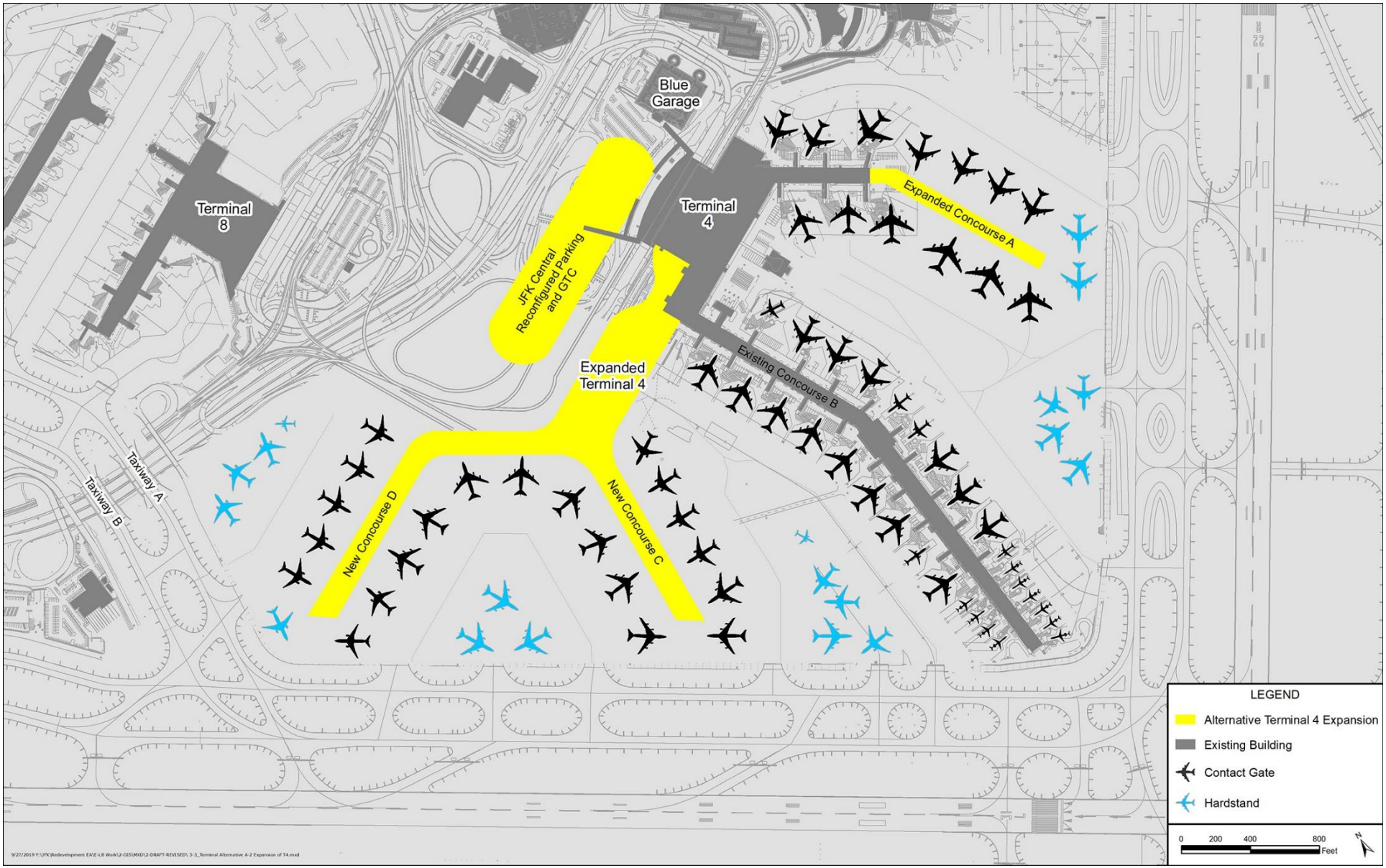
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EXHIBIT 3-2 TERMINAL ALTERNATIVE A-1 – EXPANSION OF TERMINAL 1



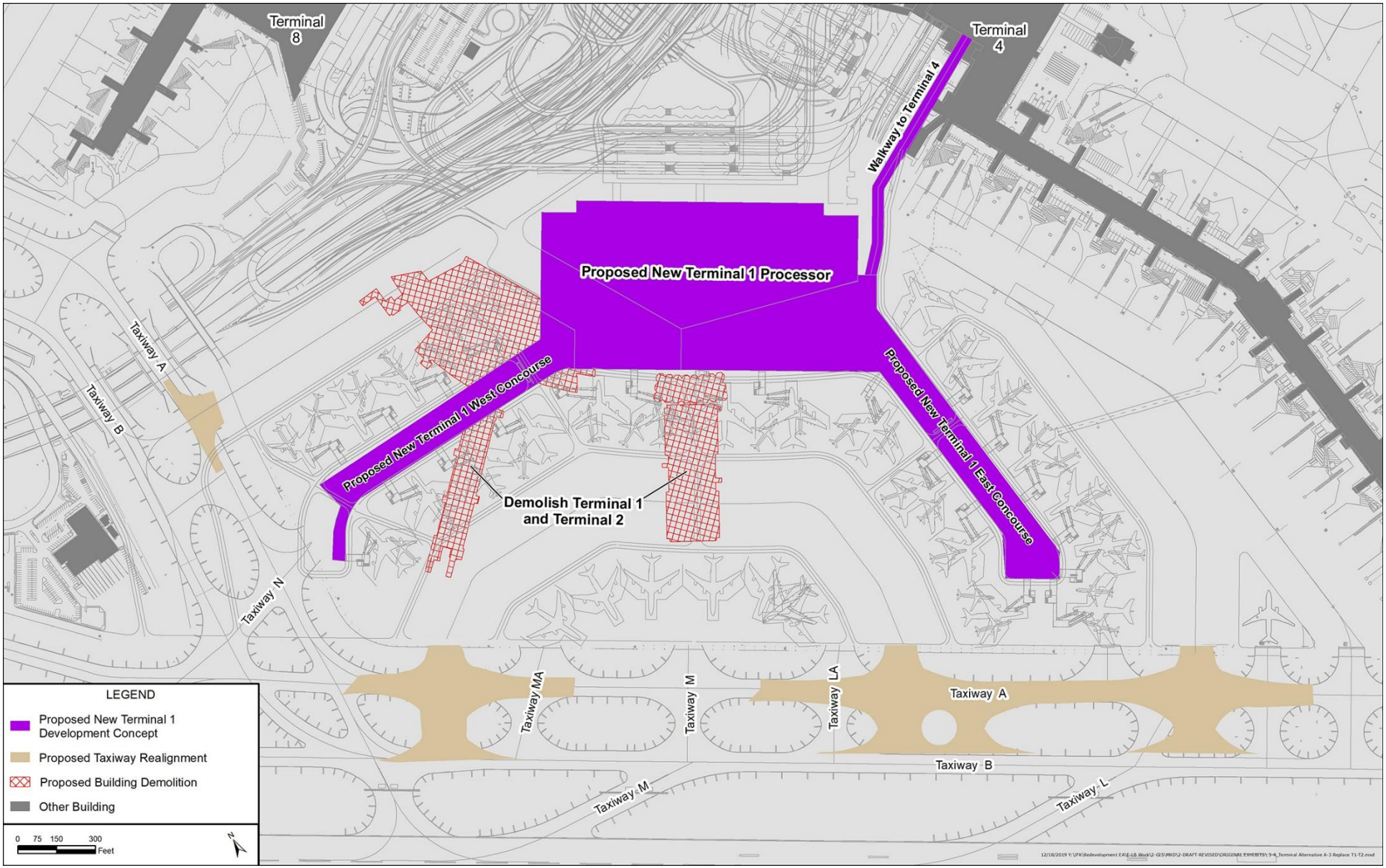
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EXHIBIT 3-3 TERMINAL ALTERNATIVE A-2 – EXPANSION OF TERMINAL 4



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EXHIBIT 3-4 TERMINAL ALTERNATIVE A-3 - FULL REPLACEMENT OF TERMINALS 1 AND 2 WITH A NEW SOUTH TERMINAL DEVELOPMENT



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3.5.4 ALTERNATIVE A-4: INTERIOR RENOVATION OF TERMINALS 1 AND 2

This alternative considers the interior renovation of T1 and T2. It is possible to renovate T1; however, T2 has exceeded its useful life and is therefore not a good candidate for renovation. In order to renovate the Terminal, extensive interior work would be required that would impact passengers.[80] For example, the heating, mechanical, and electrical systems would need to be taken off-line for extended periods to allow for new distribution systems to be installed. This would require large sections of the Terminal to be unusable by passengers. Also, airlines would have to adjust schedules and relocate passengers to other terminals that are presently over capacity further degrading LOS. Thus, Alternative A-4 assumes interior renovation to T1 with no changes to T2. This alternative would not require the demolition of the Green Garage or the T2 AirTrain Station and would not require reconfiguration of the terminal roadway.

The footprint of T1 allows for the potential expansion of terminal functional areas. However, renovating the interior of this terminal would not solve its primary deficiency – lack of space to meet the appropriate LOS required by the Port Authority in all functional areas of a terminal as identified in **Chapter 2, *Purpose and Need*, Table 2-4 and Table 2-5**. T1 could be renovated to provide space where it is needed most (security) but doing so would require incorporation of space currently used for processing passengers in the headhouse or for aircraft maneuvering on the apron, both of which would degrade LOS and, for the apron, potentially create safety problems and gate delays. Further, its design is incompatible with modern terminal design standards particularly with safety and security processing as it was constructed prior to September 11, 2001; thus, lacking the space needed to accommodate modern security facilities.

This alternative would not improve connectivity between the terminals as no physical connection would exist to connect T1 or T2 to T4. In addition, this alternative would not result in a consistent passenger experience primarily due to bottlenecks caused by insufficient security processing capability, and crowded check in areas. For these reasons, Alternative A-4 was not carried forward for further evaluation in this EA.

3.6 NORTH TERMINAL ALTERNATIVES

Three north terminal alternatives were considered in this EA. These alternatives were evaluated based on several criteria including passenger walking distance, space requirements, LOS standards, and number of gates. The following sections provide an evaluation of each of the three north terminal alternatives.

3.6.1 ALTERNATIVE B-1: REPLACEMENT OF TERMINAL 7 WITH NEW STAND-ALONE TERMINAL BUILDING

Under this alternative, the existing T7, which opened in 1972, would be replaced with a new, modern terminal structure comprising a single headhouse and two concourse piers as shown in **Exhibit 3-5, *Terminal Alternative B-1 – Replacement of Terminal 7 with New Stand-Alone Terminal Building***. The new T7 would be of similar size and gate capacity as the existing T7.

[80] Passenger inconvenience was not explored for the other alternatives because each of those alternatives was eliminated from further consideration because they did not meet one or more of the other factors (number of gates, passenger processing space, etc.).

This alternative would allow improvements in passenger LOS because it would optimize the space allocated for ticketing, security checkpoints, holdrooms, and baggage claim. However, overall LOS improvements would be nominal because the terminal would neither increase the number of gates nor offer the amount of space needed to accommodate current and future passenger demand. The distance between the terminal concourse and Taxiway A in this part of the Airport is approximately 200 feet. This narrow area would necessarily limit aircraft movement between the ends of the concourses and Taxiway A.

The proposed replacement of T7 under this alternative would not improve the apron congestion issues currently affecting the existing T7. The design is reliant on single taxilanes and the wishbone layout of the concourses would result in aircraft being pushed back toward aircraft parked at gates at the opposite concourse which causes ramp congestion and contributes to airfield delay. This alternative would provide a modern terminal facility; however, this alternative would not meet the need to provide better connectivity within the CTA as there would be no physical connection to T5 or other terminals.

For these reasons, Alternative B-1 was not carried forward for further evaluation in this EA.

3.6.2 ALTERNATIVE B-2: REPLACEMENT OF TERMINAL 7 BY EXPANDING TERMINAL 5 (PROPOSED ACTION)

This alternative includes construction of a new terminal facility and apron on the site of T7 and former T6 and expansion of T5 through concourses on the secure and non-secure side as shown in **Exhibit 3-6, *Terminal Alternative B-2 – Replacement of Terminal 7 By Expanding Terminal 5***. To provide a site that meets the terminal space requirements, Alternative B-2 includes a new headhouse along with reconfigured roadways and a passenger/pedestrian connection to the existing AirTrain station. This alternative would meet the purpose and need to accommodate existing and forecast operations and improve LOS by optimizing the terminal space and would minimize delays by providing sufficient apron depth to eliminate potential conflict with active taxiways.

This alternative would replace the existing T7, which occupies a large amount of space within the apron envelop, with a larger terminal facility that is a better fit within the available space. The linear shape of the proposed terminal expansion would maximize the available space and increase the depth of the apron compared to the existing T7 and enhance the apron efficiency. It would eliminate the existing single taxilane corridors on either side of the existing T7 building. The maximum walking distance is approximately 1,500 feet. As shown on **Exhibit 2-2**, the single taxilane configurations cause situations in which a departing aircraft on pushback blocks gate access for an arriving aircraft, thus causing delay while one aircraft waits for the other aircraft to exit the single taxilane corridor.

In addition, Alternative B-2 would modernize the facilities within the CTA and optimize space to provide additional areas for check-in areas, security screening, passenger hold rooms, concessions, restrooms, and circulation areas; and would provide consistent LOS for users of the Expanded T5. The Expanded T5 would provide connectivity and consistency of LOS for passengers. The expanded facility would include a physical connection between the existing T5 and the expanded terminal facilities. The ability to phase the terminal construction would also provide a location to relocate operations from the existing T7 to the first phase of the Expanded T5. For these reasons, Alternative B-2 was carried forward for further evaluation in this EA.

3.6.3 ALTERNATIVE B-3: INTERIOR RENOVATION OF TERMINAL 7

This alternative would include renovating the interior of the existing T7 building. Alternative B-3 would not eliminate terminal deficiencies and therefore would not accommodate passenger demand at an acceptable LOS. This alternative would maintain the existing T7 building and roadways, reducing the need for demolition and reconstruction compared to other alternatives that include full replacement of existing facilities. In addition, this alternative would not improve connectivity within the CTA as this renovation of the T7 facility would not include a physical connection to other terminals.

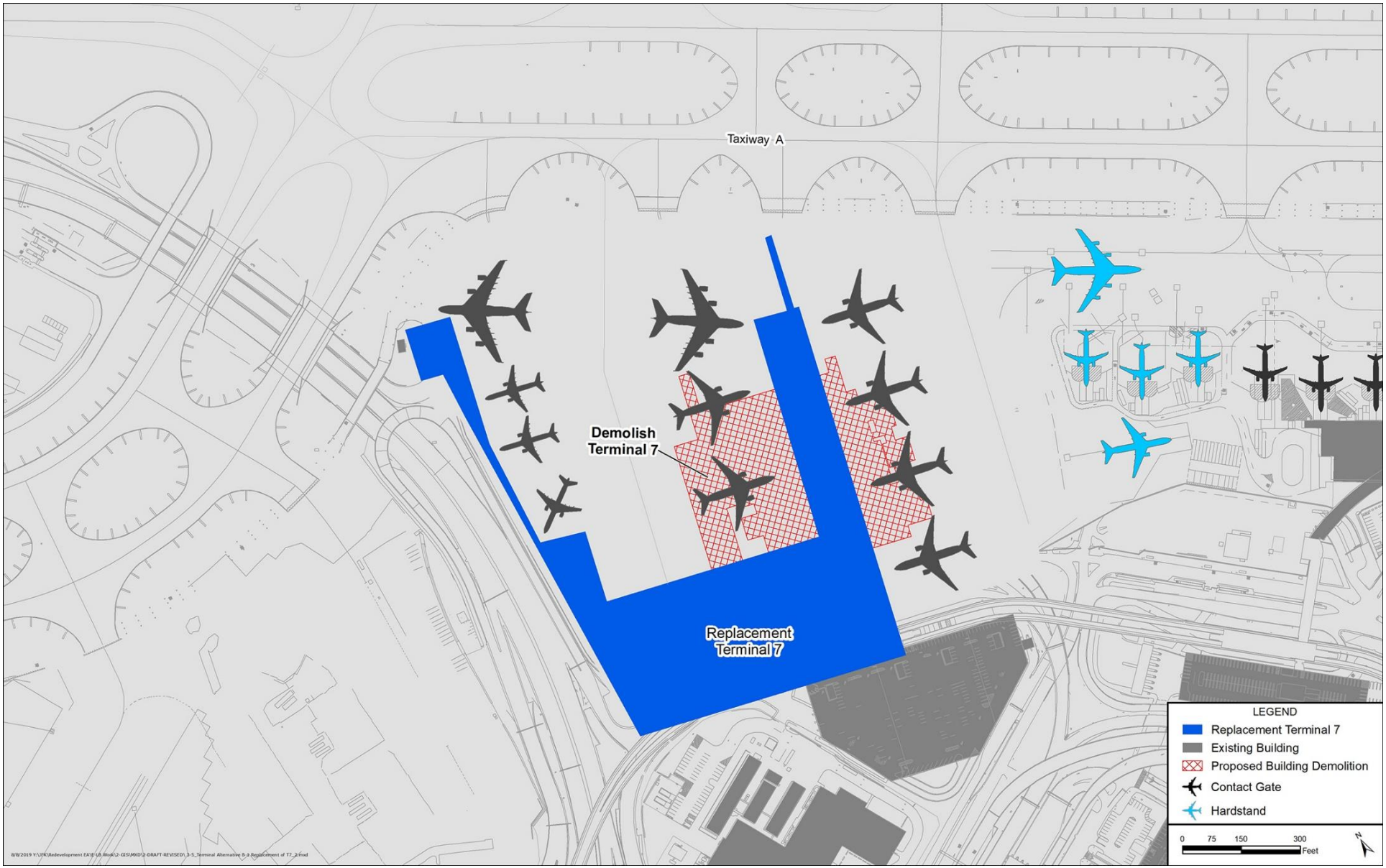
As noted in **Chapter 2, *Purpose and Need***, T7 does not have a traffic congestion problem during peak hours for private operated vehicles and for hire vehicles. However, its roadways do not fully comply with Port Authority and TSA recommended setback distances to terminal facilities. These deficiencies would not be improved. Further, as noted in **Chapter 2, *Purpose and Need***, T7 has insufficient space within the security screening checkpoints and baggage claim areas. The lack of space at a checkpoint hampers the efficiency of the checkpoint lanes themselves, further reducing their capacity. The lack of queuing space means that the checkpoint queue has the potential to block passenger circulation in the ticketing lobby.

Additionally, this alternative does not solve the apron inefficiencies related to single taxilane access to gates on either side of the terminal building. This causes aircraft on pushback to obstruct the taxilane thus blocking other aircraft from pushing back from adjacent gates or arrival aircraft from accessing the taxilane.

This terminal is outdated and, as it was constructed prior to September 11, 2001, it lacks the space needed to accommodate modern security facilities. Interior renovation would not solve the terminal's fundamental deficiency: insufficient space for all the terminal functions, thereby leading to poor LOS. The identified terminal deficiencies could not be resolved without negatively impacting other areas of the terminal. For example, if the renovation added space for security processing, this would occur at the expense of space in passenger check in areas or hold room areas. Alternative B-3 would not resolve the issues identified in **Chapter 2, *Purpose and Need*, Table 2-6.** For these reasons, Alternative B-3 was not carried forward for further evaluation in this EA.

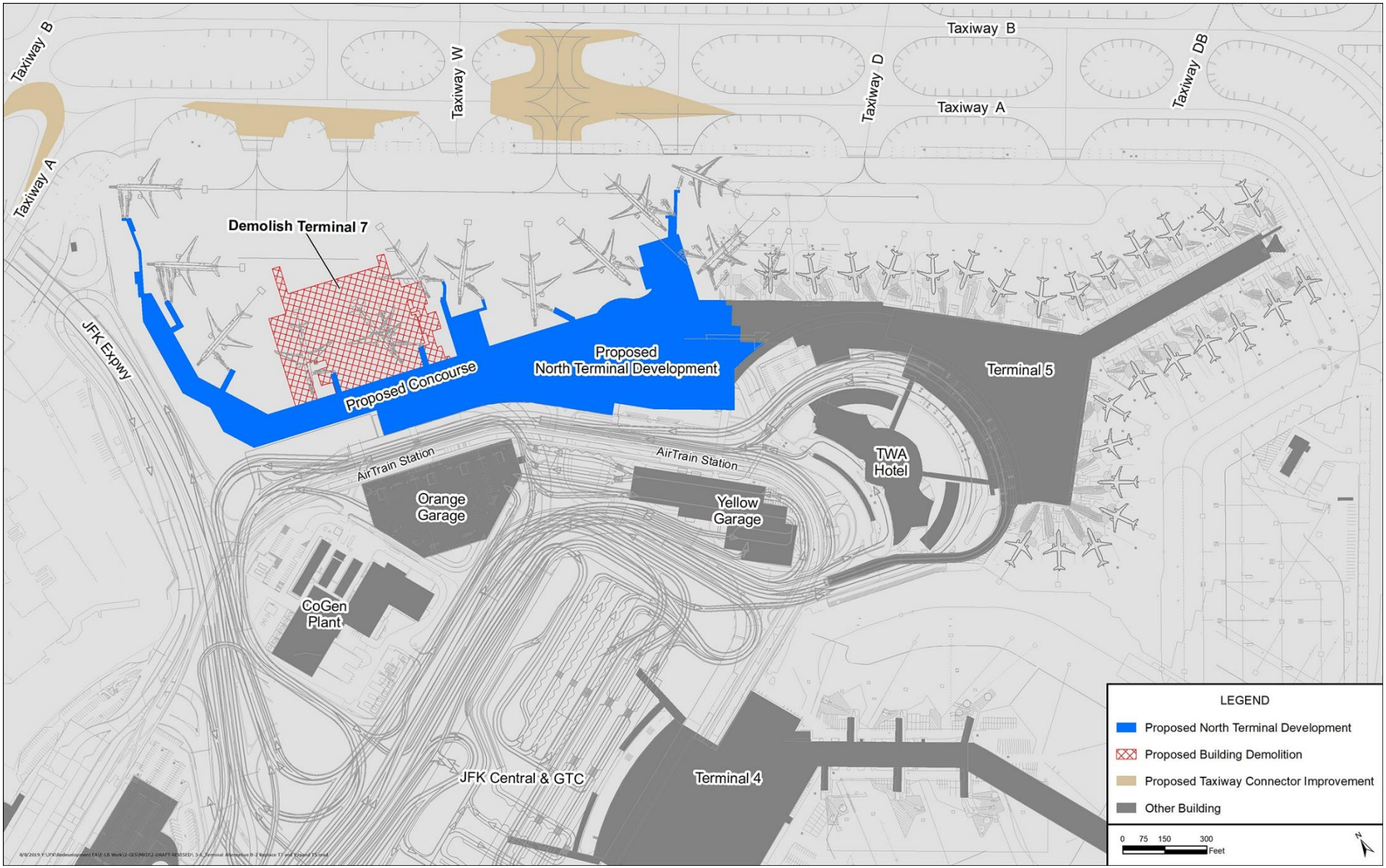
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EXHIBIT 3-5 TERMINAL ALTERNATIVE B-1 – REPLACEMENT OF TERMINAL 7 WITH NEW STAND-ALONE TERMINAL BUILDING



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EXHIBIT 3-6 TERMINAL ALTERNATIVE B-2 – REPLACEMENT OF TERMINAL 7 BY EXPANDING TERMINAL 5



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3.7 TERMINAL ROADWAY ALTERNATIVES

One of the needs identified in **Section 2, *Purpose and Need*** is to maintain an efficient terminal roadway system that provides sufficient short-term vehicle parking and unloading areas while complying with TSA/Port Authority recommendations. A simplification of the road network by reducing the number of loops would reduce the amount of weaving and signals, providing increased capacity from less road space. Elimination of five acres of toll plazas would free up significant space for a GTC/JFK Central with associated passenger and staff facilities that are currently lacking at JFK.

Two feasible roadway alternatives were considered in this EA: maintain current roadways at the current terminal locations (No-Build Alternative) or reconfigure the terminal roadways to serve new terminals and meet TSA/Port Authority recommendations (Proposed Action). The roadway configuration is a function of the locations of the terminals. The roadway configuration under Alternatives A-3 and B-2 is an efficient layout that improves traffic flows within the CTA. Roadway alternatives were limited by the confined space in the CTA, and the presence of structures in the CTA (i.e. AirTrain and CoGen Plant) that cannot be moved for the reasons stated in **Section 3.4, *On-Airport Alternatives***. Considering where the roads need to be placed relative to the terminals, the volume of traffic that the roads need to accommodate, and the CTA space constraints, there is no alternative that would be materially different than the alignment shown in the Proposed Action. The following sections provide an evaluation of each of the terminal roadway alternatives.

3.7.1 MAINTAIN CURRENT ROADWAYS (NO-BUILD ALTERNATIVE)

The current terminal roadways do not fully comply with TSA/Port Authority recommended setback distances to terminal facilities.[81] This No-Build Alternative would maintain the roadway system, as currently configured, which does not meet setback recommendations. There is limited space between the CoGen Plant and T7 and the Red Garage and T8. The CoGen Plant and Red Garage would be impacted because the roads would have to be shifted onto the footprint of the Red Garage and CoGen Plant sites to provide space to meet TSA terminal separation recommendations. This would require a reduction of the available automobile parking area, relocation of the CoGen plant, and relocation of the AirTrain. Therefore, this No-Build Alternative does not meet the purpose and need to improve the current roadways and bring the setback into compliance with Port Authority standards. However, in accordance with the requirements of NEPA, this No-Build Alternative was carried forward for further evaluation in this EA.

3.7.2 CONSTRUCT TSA/PORT AUTHORITY COMPLIANT ROADWAYS (PROPOSED ACTION)

The current roadways are inefficient and congested and do not fully comply with TSA/Port Authority recommendations setback distances to terminal facilities. As noted by the Panel (Airport Advisory Panel), the on-airport roadway system is confusing with multiple bottlenecks at terminal -entrances.[82] The roadways servicing the existing terminals and parking facilities in the CTA are proposed to be reconfigured to support the new terminal and parking facility layout. The existing roadway system serves each of the existing five terminal zones, providing access to arrivals, departures, and parking.

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81 The location of the curbs close to the terminal façades is not fully compliant with current TSA recommendations and Port Authority standards. The TSA Recommended Security Guidelines for Airport Planning, Design and Construction, Section C(2)(b), June 2006 recommends that terminal roadways be setback as far away from the terminal as practical to minimize the blast effects of a vehicle bomb. The Port Authority standard for terminal roadway setback is 105 feet between the inner curb and terminal façade.

82 A Vision Plan for John F. Kennedy International Airport January 4, 2017.

The proposed reconfiguration realigns the roadways with the proposed North and South Terminal Developments as shown in **Chapter 1**, **Exhibit 1-17**.

This proposed roadway reconfiguration alternative would reconstruct and realign the roadway system to accommodate the proposed South and North Terminal Facilities and the GTC/JFK Central, reducing the number of zones from five to three. This alternative would achieve compliance with TSA/Port Authority setback recommendations and would fully meet the stated need. For these reasons, the Construct TSA/Port Authority Compliant Roadways Alternative was carried forward for further evaluation in this EA.

Terminal Curb Frontage Evaluation

The performance of existing and proposed curbside terminal frontages varies by time of day in relation to flight arrivals and departures at each terminal**. Table 3-1, *Terminal Frontage Peak Hours*** shows the variation in proposed terminal frontage peak hour among POVs, FHV, Taxis, and HOVs (buses and vans).

The No-Build Alternative and Proposed Action LOS conditions for each terminal frontage in 2025 and 2030 is provided in **Table 3-2**, ***Terminal Frontage LOS Conditions*** for comparison purposes. The proposed LOS for both the No-Build Alternative and Proposed Action is based on the required frontage length to accommodate demand versus the available frontage length during the frontage peak hour when the frontage demand is at its highest. The required frontage length considers the number of vehicles in the peak hour and the average dwell times by vehicle type along with other curbside regulations (permitting of double parking). The LOS is calculated separately for each of the four vehicle types - POV, FHV, Taxis, and HOV.

TABLE 3-1 TERMINAL FRONTAGE PEAK HOURS

John F. Kennedy International Airport

Frontage			2025 No-Build Alternative	2030 No-Build Alternative	2025 Proposed Action	2030 Proposed Action
Terminal - 1	Departures	POV	15:15	15:15	15:00	15:00
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	11:00	11:00	11:30	11:30
		FHV				
		HOV			-	-
Terminal - 2	Departures	POV	5:45	5:45	-	-
		FHV			-	-
		TAXI			-	-
		HOV			-	-
	Arrivals	POV	15:45	15:45	-	-
		FHV			-	-
		HOV			-	-
Terminal - 4	Departures	POV	18:45	5:45	5:45	5:45
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	12:45	23:15	16:15	16:15
		FHV				
		HOV[1]				
Terminal - 5	Departures	POV	7:15	7:00	7:15	4:45
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	15:00	14:45	8:45	9:00
		FHV				
		HOV[2]			22:15	6:00
Terminal - 6/7	Departures	POV	17:45	17:45	7:30	5:00
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	19:30	19:30	19:45	6:15
		FHV				
		HOV			-	-

Source: Port Authority 2019

Legend:

POV = Private Operated Vehicles

FHV = For-Hire Vehicles

HOV = High-Occupancy Vehicles

Notes:

1. For the Proposed Action, T1 and T4 HOV operations are consolidated to a proposed GTC/JFK Central located at the ground level of a projected new garage serving T1 and T4. ***Operational results for the new combined HOV facility for T1 and T4 are documented under T4 Arrivals frontage.***

2. For the Proposed Action, T5 and T6/7 HOV operations are consolidated to the proposed frontage extension from end of the T5's existing arrivals frontage. ***Operational results are documented under T5 Arrivals frontage.***

TABLE 3-2 TERMINAL FRONTAGE LOS CONDITIONS

John F. Kennedy International Airport

Frontage			2025 No-Build Alternative	2030 No-Build Alternative	2025 Proposed Action	2030 Proposed Action
Terminal - 1	Departures	POV	B	B	A	A
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	F	F	A	A
		FHV			A	A
		HOV	F	F	-	-
Terminal - 2	Departures	POV	F	F	-	-
		FHV			-	-
		TAXI			-	-
		HOV	A	A	-	-
	Arrivals	POV	D	D	-	-
		FHV			-	-
		HOV	D	D	-	-
Terminal - 4	Departures	POV	C	D	A	A
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	C	D	A	A
		FHV			A	A
		HOV[1]	C	D	B	B
Terminal - 5	Departures	POV	D	E	D	D
		FHV				
		TAXI				
		HOV			-	-
	Arrivals	POV	E	F	D	D
		FHV				
		HOV[2]			C	D
Terminal - 6/7	Departures	POV	C	C	A	A
		FHV				
		TAXI				
		HOV	A	A	-	-
	Arrivals	POV	B	B	A	B
		FHV			B	B
		HOV	D	D	-	-

Source: Port Authority 2019.

Legend:

POV = Private Operated Vehicles

FHV = For-Hire Vehicles

HOV = High-Occupancy Vehicles

Legend:

A	-->	LOS A
B	-->	LOS B
C	-->	LOS C
D	-->	LOS D
E	-->	LOS E
F	-->	LOS F

Notes:

1. For the Proposed Action, T1 and T4 HOV operations are consolidated to a proposed GTC/JFK Central located at the ground level of a projected new garage serving T1 and T4. ***Operational results for the new combined HOV facility for T1 and T4 are documented under T4 Arrivals frontage.***

2. For the Proposed Action, T5 and T6/7 HOV operations are consolidated to the proposed frontage extension from end of the T5's existing arrivals frontage. ***Operational results are documented under T5 Arrivals frontage.***

2025 and 2030 Terminal 1 Curb Frontage Performance

Under the Proposed Action, the departures and arrivals frontages would operate at an acceptable LOS A in 2025 and 2030 for POV/FHV vehicles and at LOS B for HOVs using the shared T1/T4 HOV frontage. This is improved from the No-Build Alternative where the T1 departures frontage would operate at LOS B in 2025 and 2030 and the arrivals frontage would operate at LOS F in 2025 and 2030.

2025 and 2030 Terminal 2 Curb Frontage Performance

Under the Proposed Action, T2 would be demolished, and the site would be utilized for an expanded T1. Flights from T2 would be shifted to the improved T4 with higher frontage capacity and improved LOS under the Proposed Action.

2025 and 2030 Terminal 4 Curb Frontage Performance

Under the Proposed Action, the departures and arrivals frontages would operate at acceptable LOS A in 2025 and 2030 for POV/FHV vehicles and at LOS B for HOVs using the shared T1/T4 HOV frontage. This is improved from the No-Build Alternative where T4 departures and arrivals frontages would operate at LOS C in 2025 and LOS D in 2030.

2025 and 2030 Terminal 5 Curb Frontage Performance

Although there are no major changes planned for the T5 frontage, the expansion of T5 would shift international passenger demand to the new T6/T7 frontage and extend HOV across the combined T5/T6/T7 frontage. While this would not result in dramatic improvement in the LOS of the T5 frontage in the Proposed Action, it would enable it to operate more efficiently and to better accommodate anticipated growth.

Under the Proposed Action, the departures and arrivals frontages would operate at LOS D in 2025 and 2030. This is improved from the No-Build Alternative where T5 departures frontage would operate at LOS D in 2025 and LOS E in 2030 and the arrivals frontage would operate at LOS E in 2025 and LOS F in 2030.

Under the Proposed Action, the T5 Arrivals frontage would be extended and utilized as a shared T5, T6 and T7 Bus/HOV frontage resulting in a general improvement in frontage operations at T5. HOVs would use the shared T5, T6 and T7 Bus/HOV frontage under the Proposed Action and operate at LOS C in 2025 and at LOS D in 2030.

2025 and 2030 Terminal 6/7 Curb Frontage Performance

Under the Proposed Action, the T6/T7 departures frontage would operate at LOS A in 2025 and LOS B in 2030. This is improved from the No-Build Alternative where T6/T7 departures frontage would operate at LOS C in 2025 and 2030 and the arrivals frontage would operate at LOS B in 2025 and 2030.

Under the Proposed Action, on-airport and off-airport Buses and HOVs dropping off and picking up passengers, from new T6 and T7, would be directed to the designated bus area. HOVs would use the shared T5, T6 and T7 Bus/HOV frontage operating at LOS C in 2025 and at LOS D in 2030.

2025 and 2030 Taxi Arrivals Frontage Analysis (All Terminals)

The taxi arrivals frontages were analyzed in a different manner than the taxi departures frontages because the taxi arrivals frontages are managed by a dispatcher (i.e., arrival taxis are dispatched from a holding area), and, therefore, would not be above capacity. A key measure of taxi frontage performance is passenger wait time at the curb. If the taxi arrivals frontage length is inadequate, there may not be enough taxis at the curb to meet passenger demand. This may cause undue passenger delays. A ratio of less than or equal to one indicates that there is sufficient capacity to accommodate 100 percent of the passenger demand with minimal wait times at the curb.

Under the Proposed Action, T2 would no longer exist, resolving the taxi arrivals frontage deficiencies at this Terminal. The redevelopment of T6/T7 would increase the taxi arrivals frontage capacity at T5. Therefore, as shown in **Table 3-3, *Demand to Capacity Ratio of Taxi Arrival Frontages***, the arrivals taxi frontages are projected to operate satisfactorily at all terminals under the 2025 and 2030 Proposed Action.

TABLE 3-3 DEMAND TO CAPACITY RATIO OF TAXI ARRIVAL FRONTAGES
John F. Kennedy International Airport

Terminal	2025 No-Build Alternative	2030 No-Build Alternative	2025 Proposed Action	2030 Proposed Action
T1	< 1.0	< 1.0	< 1.0	< 1.0
T2	**> 1.0**	**> 1.0**	-	-
T4	< 1.0	< 1.0	< 1.0	< 1.0
T5	< 1.0	**> 1.0**	< 1.0	< 1.0
T6/7	< 1.0	< 1.0		
T8	< 1.0	< 1.0	< 1.0	< 1.0

Source: Port Authority 2019.

3.8 ALTERNATIVES SELECTED FOR FURTHER EVALUATION IN THIS EA

As a result of the evaluations described in the previous sections and as shown on **Table 3-4, *Summary of Terminal Alternatives***, the only development alternative carried forward for further evaluation in this EA is the Proposed Action as described in Chapter 1. As discussed previously, the No-Build Alternative will also be carried forward as required by FAA Orders 1050.1F, 5050.4B, and the CEQ.

3.8.1 PROPOSED ACTION ALTERNATIVE

The following describes the elements of the Proposed Action.

South Terminal Development Alternative A-3

- Construction of a new South Terminal Development, which includes the construction of a New Terminal 1 (New T1) and the following connected actions:
    - Demolition of T1 and T2
    - Expansion of the existing T4 headhouse and extension of T4 Concourse A to replace gates and terminal space lost from the demolition of T2
    - Construction of South Hardstand Area
    - Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes
    - Construction of a new GTC/JFK Central and parking facility within the CTA;
    - Demolition of the existing Green and Blue Garages and relocation of parking to the newly constructed GTC/JFK Central
    - Demolition of Building 95
    - Demolition of Buildings 121 and 122 and the construction of an auto parking lot on the site to facilitate the relocation of employee parking from the proposed South Hardstand Area to the site of Buildings 121 and 122
    - Demolition of Buildings 214 and 215 for use as a construction staging area
    - Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates
    - Construction of a new 40 MVA substation measuring approximately 8,500 square feet between T2 and T4 (Central Substation #2)

North Terminal Development Alternative B-2

- Construction of a new North Terminal Development, which includes construction of an expansion to T5. In addition, the North Terminal Development would consist of the following connected actions:
    - Demolition of T7
    - Realignment of taxiway exits to align with the proposed new terminal piers and associated taxilanes

- Reconfiguration of the first level of the Yellow Garage to accommodate buses, taxis and other commercial vehicles
- Construction of North Hardstand Area
- Demolition of Buildings 68, 83, 85, and 189, and the expansion of the North Hardstand Area
- Reconfiguration of the hydrant fueling system to serve aircraft at the new terminal gates

Terminal Roadway Reconfiguration

- Reconfiguration of the existing terminal roadway system in support of the proposed terminal development

3.8.2 NO-BUILD ALTERNATIVE

The No-Build Alternative would result in no new construction or redevelopment of facilities in the CTA. The existing passenger terminals would remain unchanged and would continue to operate at their existing sites within the CTA. This would cause landside congestion and aircraft delays to worsen given the increase in passenger activity that is forecast to occur at JFK. While the No-Build Alternative does not meet the purpose and need, as stated previously, the No-Build Alternative must be carried forward in the assessment of environmental impacts. The No-Build Alternative serves as a basis of comparison for the assessment of future conditions and impacts of the other alternatives.

TABLE 3-4 SUMMARY OF TERMINAL ALTERNATIVES

John F. Kennedy International Airport

ALTERNATIVE		PROPOSED ACTION NEEDS			CARRIED FORWARD FOR FURTHER ENVIRONMENTAL REVIEW?
		WOULD THE ALTERNATIVE ACCOMMODATE THE EXISTING AND FORECAST PASSENGER DEMAND AT AN ACCEPTABLE LOS?	WOULD THE ALTERNATIVE PROVIDE EFFICIENT APRON AND TAXILANE SPACE?	WOULD THE ALTERNATIVE PROVIDE EFFICIENT TERMINAL ROADWAYS AND CURB FRONTAGES AT AN ACCEPTABLE LOS THAT COMPLY WITH PORT AUTHORITY AND TSA RECOMMENDATIONS?	
No-Build Alternative		N	N	N	**Y**
South Terminal Alternatives	Alternative A-1: Expansion of Existing Terminal 1	N	N	N	N
	Alternative A-2: Expansion of Existing Terminal 4	N	N	N	N
	Alternative A-3: Full Replacement of Terminals 1 and 2 with a New South Terminal Development (Proposed Action)	**Y**	**Y**	**Y**	**Y**
	Alternative A-4: Interior Renovation of Terminal 1 and 2	N	N	N	N

ALTERNATIVE		PROPOSED ACTION NEEDS			CARRIED FORWARD FOR FURTHER ENVIRONMENTAL REVIEW?
		WOULD THE ALTERNATIVE ACCOMMODATE THE EXISTING AND FORECAST PASSENGER DEMAND AT AN ACCEPTABLE LOS?	WOULD THE ALTERNATIVE PROVIDE EFFICIENT APRON AND TAXILANE SPACE?	WOULD THE ALTERNATIVE PROVIDE EFFICIENT TERMINAL ROADWAYS AND CURB FRONTAGES AT AN ACCEPTABLE LOS THAT COMPLY WITH PORT AUTHORITY AND TSA RECOMMENDATIONS?	
North Terminal Alternatives	Alternative B-1: Replacement of Terminal 7 with Stand-Alone Terminal Building	N	N	N	N
	Alternative B-2: Replacement of Terminal 7 by Expanding Terminal 5 (Proposed Action)	**Y**	**Y**	**Y**	**Y**
	Alternative B-3: Interior Renovation of Terminal 7	N	N	N	N

Source: Avion Solutions Group and Landrum & Brown, 2019
Note: N=No, Y = Yes

4 AFFECTED ENVIRONMENT

Pursuant to FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*,[83] the affected environment section of an EA should succinctly describe only those environmental resources that the Proposed Action, and its reasonable alternatives, are likely to affect. The amount of information on a potentially affected resource should be based on the extent of the expected impact and be commensurate with the impact's importance.

4.1 RESOURCES POTENTIALLY AFFECTED

The following environmental resources are not present within the Proposed Action Site as shown in **Chapter 1, *Introduction and Background***, on **Exhibit 1-1, *Proposed Action Site***, and would not be affected by the Proposed Action or No-Build Alternative:

- **Farmlands** - The Proposed Action does not include the conversion of any farmlands to non-agricultural use.
- **Wild and Scenic Rivers** - A review of the Wild and Scenic Rivers System list indicated that there are no designated State or National Scenic Rivers within the Proposed Action Site or Queens County.[84]
- **Section 6** - Section 6 of the federal Land and Water Conservation Fund Act of 1965 (LWCFA) Act created the LWCF as a funding source to implement the outdoor recreation goals in the law. Section 6(f) of the Act requires all funded lands to be retained and used solely for outdoor recreation in perpetuity. No properties funded under the Act are present within the Proposed Action Site; therefore, the Proposed Action would not result in a use of Section 6(f) protected resources.

The remaining portion of this chapter is focused on those environmental resources that may potentially be affected by the Proposed Action or No-Build Alternative. Several of the exhibits in this Chapter identify six general geographic locations (Area #1 – Area #6) of the Proposed Action Site (e.g., Area #1 Dual Ring Taxiway and Central Terminal (CTA)) to assist the reader with descriptions of certain environmental resources. This chapter of the EA is organized to address the following topics:

- Section 4.2 – Air Quality
- Section 4.3 – Biological Resources
- Section 4.4 – Climate
- Section 4.5 – Coastal Resources
- Section 4.6 – Department of Transportation (DOT) Act: Section 4(f) Resources
- Section 4.7 – Hazardous Materials, Solid Waste, and Pollution Prevention
- Section 4.8 – Historical, Architectural, Archaeological, and Cultural Resources
- Section 4.9 – Land Use

[83] Department of Transportation, Federal Aviation Administration. Order 5050.4B - National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. Washington, DC. April 28, 2006.

[84] Department of the Interior, National Wild and Scenic Rivers System. Available online: https://www.rivers.gov/new-york.php. Accessed March 2019.

- Section 4.10 – Natural Resources and Energy Supply
- Section 4.11 – Noise and Noise-Compatible Land Use
- Section 4.12 – Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- Section 4.13 – Visual Effects
- Section 4.14 – Water Resources

4.2 AIR QUALITY

4.2.1 REGULATORY SETTING

In accordance with the Federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) sets standards and policies to achieve and maintain acceptable air quality conditions nationwide. Called the National Ambient Air Quality Standards (NAAQS), these standards apply to seven air pollutants (known as "criteria air pollutants") that represent outdoor concentrations that are considered safe for the human and natural environments.[85] The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}), sulfur dioxide (SO_2) and lead (Pb). The NAAQS are provided in **Table 4-4, *Air Quality Monitoring Station Data*.**

4.2.2 AFFECTED ENVIRONMENT

Under the CAA, areas that meet the NAAQS are designated Attainment, those that do not meet the standards are Nonattainment and those that were previously in Nonattainment but that have met the standard are designated Maintenance. USEPA classifies the degree to which an area is in Nonattainment (in increasing order of seriousness): Marginal, Moderate, Serious, Severe, and Extreme. The current Attainment/Nonattainment statuses of the New York City area (including JFK and Queens County) are shown in **Table 4-1, *Attainment/Nonattainment Status***.

TABLE 4-1 ATTAINMENT/NONATTAINMENT STATUS
John F. Kennedy International Airport

POLLUTANT	STATUS
Carbon Monoxide (CO)	Maintenance
Lead (Pb)	Attainment
Nitrogen Dioxide (NO_2)	Attainment
Ozone (O_3), 8-Hour (2008)	Serious Nonattainment
Ozone (O_3), 8-Hour (2015)	Moderate Nonattainment
Particulate Matter (PM_{10})	Attainment
Particulate Matter ($PM_{2.5}$)	Maintenance
Sulfur Dioxide (SO_2)	Attainment

Sources: Nonattainment Areas for Criteria Pollutants (Green Book), U.S. EPA, 2019.

[85] USEPA, 40 C.F.R. § 50, National Primary and Secondary Ambient Air Quality Standards (NAAQS).

F.R. No. 84, No. 164 (August 23, 2019)

Based on these Attainment/Nonattainment designations and classifications, the pollutants of greatest importance in reviewing potential impacts associated with the Proposed Action are CO, $PM_{2.5}$, and O_3.

Sources of CO and $PM_{2.5}$ emissions include industrial (e.g., petroleum production), energy (e.g., power plants) and transportation (e.g., motor vehicles); sectors with open burning (e.g., forest fires) are another contributor. Within the aviation sector, combustion of fossil fuel by aircraft and ground support equipment (GSE) is the primary source of CO and to a lesser extent $PM_{2.5}$. Construction activities for airport improvements are also a source of these emissions.

Ozone is a secondary pollutant; it is formed from the chemical reactions in the atmosphere of other pollutants, primarily nitrogen oxides (NO_x) and volatile organic compounds (VOCs). NO_x and VOCs are referred to as ozone precursor pollutants. Sources of VOCs and NO_x include energy production and transportation. At an airport, the combustion of fossil fuel by aircraft and GSE is the primary source of NO_x and VOCs. Exceedances of ozone in the NYC metropolitan area are due to both regional emissions of NO_x and VOCs and to the transport of ozone from upwind states. The NYC metropolitan area has for years been subject to significant levels of O_3 pollution that has been transported to the area from upwind states.[86]

The State of New York has developed implementation plans (known as State Implementation Plans) pursuant to the Federal CAA that set forth its strategies to attain and maintain ambient air quality standards for CO, $PM_{2.5}$ and O_3.[87] Pursuant to Section 176(c) of the Federal CAA (42 U.S.C. 7506), Federal agencies are prohibited from actions that do not "conform" to a state's air quality implementation plans. The procedures for demonstrating that an activity "conforms" with a state implementation plan are set forth in Part 93, Subpart B of Title 40 of USEPA's regulations (the "General Conformity Rule"). According to the General Conformity Rule, "no federal agency (including the FAA) can approve, permit or fund any project or activity that does not conform to an approved State Implementation Plan (SIP)".

As noted in **Appendix B, *Air Quality Technical Report***, there are four "paths" to meeting this requirement. The most direct approach to meeting the General Conformity requirement is to show that a project's emissions are below *de minimis* levels. These *de minimis* levels for the New York metropolitan area are provided in **Table 4-2, *General Conformity Rule De Minimis Levels***.

86 New York State Implementation Plan for the 2008 Ozone National Ambient Air Quality Standards, Final Proposed Revision (Nov. 2017) (USEPA action pending).

87 See website for the New York State Department of Environmental Conservation at http://www.dec.ny.gov/chemical/8403.html.

TABLE 4-2 GENERAL CONFORMITY RULE *DE MINIMIS* LEVELS
John F. Kennedy International Airport

POLLUTANT	DE MINIMIS LEVELS (TONS/YEAR)
Carbon Monoxide (CO)	100
NOx (as O_3 precursor)	50
VOCs (as O_3 precursor)	50
Particulate Matter ($PM_{2.5}$)	100

Source: General Conformity Rule (40 C.F.R. Part 93, Subpart B)
[a] Pre-cursor pollutants nitrogen oxides (NO_s) and volatile organic compounds (VOCs) lead to the formation of O_3.

Given the New York City metropolitan area (including Queens) Serious Nonattainment classification for the 2008 ozone standard,[88] the O_3-precursors of NO_x and VOCs threshold of 50 tons is used for the air quality analysis in this EA. For CO and $PM_{2.5}$, the 100 tons *de minimis* level for Maintenance areas is used.

Air Quality Monitoring

The NYSDEC maintains a network of air quality monitoring stations throughout the New York City area and Queens County. **Table 4-3, *Air Quality Monitoring Stations***, provides a summary of these monitoring stations including the site location, pollutants measured and distance from JFK. As shown, the closest stations to JFK are approximately 2 to 6.5 miles away.

TABLE 4-3 AIR QUALITY MONITORING STATIONS
John F. Kennedy International Airport

MONITOR	COUNTY	DISTANCE AND DIRECTION FROM JFK[1]	MONITORING YEAR	CO	NO_2	O_3	PM_{10}	$PM_{2.5}$
Queens College Near Road	Queens	6.5 N	2018	✓	✓			✓
Queens College 2	Queens	6.5 N	2018	✓	✓	✓	✓	✓
Hempstead	Nassau	2.0 E	2011					✓
PS 314	Kings	4.0 W	2018					✓
Maspeth Library	Queens	6.3 NW	2018					✓

Distance and Direction = Distance from JFK in miles / Direction relative to JFK
Notes: CO = carbon monoxide, NO_2 = nitrogen dioxide, O_3 = ozone, PM_{10} and $PM_{2.5}$ = particulate matter with diameters of 10 and 2.5 microns
A ✓ denotes the pollutant is recorded by the monitor.

[88] 84 Fed. Reg., 44238 (Aug. 23, 2019) (Determinations of Attainment by the Attainment Date, Extensions of the Attainment Date, and Reclassification of Several Areas Classified as Moderate for the 2008 Ozone National Ambient Air Quality Standard).

Table 4-4, *Air Quality Monitoring Station Data*, summarizes the most recent data from these monitoring stations. O_3 is the only pollutant that exceeds the NAAQS. Over the entire year, there are three occurrences when the O_3 concentrations are above the applicable 2008 O_3 NAAQS standard and eight occurrences when O_3 exceeds the 2015 standard. There are other stations that report pollutant concentrations in the New York City metropolitan area, however these are 10 or more miles from JFK and are not likely to be impacted by the Airport's activities. Exceedances of CO and particulates at other monitor locations are more likely a result of activities occurring close to their locations that have a direct impact (e.g., close proximity of industrial facilities). As noted previously, O_3 is a regional issue.

TABLE 4-4 AIR QUALITY MONITORING STATION DATA[89]

John F. Kennedy International Airport

POLLUTANT[a]	AVERAGING PERIOD	NAAQS	MONITORS[b]					EXCEEDS NAAQS
			QUEENS COLLEGE NR	QUEENS COLLEGE 2	HEMP.	PS 314	MASPETH LIBRARY	
CO (ppm)	8-hour[1]	9	1.7	1.0	-	-	-	no
	1-hour[1]	35	3.5	1.1	-	-	-	no
NO_2 (ppb)	1-hour[2]	100	68.6	68.9	-	-	-	no
	Annual[3]	53	29.7	27.8	-	-	-	no
O_3 (ppb)	8-hour[4] (2008)	75	-[c]	82.0	-	-	-	yes
	8-hour[4] (2015)	70						
$PM_{2.5}$ ($\mu g/m^3$)	Annual[1]	12	8.25	7.78	8.9	8.1	8.4	no
	24-hour[2]	35	20.3	23.0	28.7	23.7	25.1	no
PM_{10} ($\mu g/m^3$)	24-hour[5]	150	-	29.0	-	-	-	no

[a] CO = carbon monoxide, NO_2 = nitrogen dioxide, O_3 = ozone, PM_{10} and $PM_{2.5}$ = particulate matter with diameters of 10 and 2.5 microns
[b] Queens College NR = Queens College Near Road, Hemp = Hempstead. All data is for 2018 except Hempstead where the most recent available data is from 2011.
[c] "-" = no measurement available, ppb = parts per billion, ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter.
[1] Annual mean, averaged over 3 years
[2] 98th Percentile, averaged over 3 years
[3] Annual mean
[4] Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
[5] Not to be exceeded more than once per year on average over 3 years

Source: New York Department of Environmental Conservation (NY DEC) Air Quality Monitoring: New York's Program to Track Air Quality (2019). http://www.dec.ny.gov/chemical/8406.html.

[89] New York Department of Environmental Conservation (NY DEC) Air Quality Monitoring: New York's Program to Track Air Quality (2019). http://www.dec.ny.gov/chemical/8406.html

4.3 BIOLOGICAL RESOURCES

4.3.1 REGULATORY SETTING

The United States Congress passed the Endangered Species Act of 1973, as Amended (ESA) 16 U.S.C. §1531 et seq., to conserve those species that are endangered or threatened with extinction (Federally listed species). The ESA also provides for the protection of designated critical habitats on which endangered or threatened species depend for survival. Under Section 7 of the ESA, the FAA is required to consult, at a minimum, with the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS), as applicable, to ensure that any action the FAA authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In addition to the ESA, the following statutes provide Federal protection for certain bird species:

- Pursuant to the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§703-712) it is unlawful, illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid Federal permit.
- The Bald and Golden Eagle Protection Act (16 U.S.C. §668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald or golden eagles, including their parts, nests, or eggs.

Under provisions of the ESA, all states were granted authority to create their own endangered species protection policies. The State of New York has laws for the protection of plant and animal species of state importance (i.e., state-listed “endangered” and “threatened” species):

- New York State Environmental Conservation Law (NYSECL) Article 11, Title 5, and its implementing regulations protect the state-listed endangered and/or threatened plants and animals and their occupied habitat.
- NYSECL Article 9, Title 15, and its implementing regulations protect state-listed endangered/threatened plants from being destroyed without the consent of the landowner.

4.3.2 AFFECTED ENVIRONMENT

Ecological Communities and Vegetation

As observed during a site inspection on January 25, 2019, the Proposed Action Site is previously-disturbed developed/industrial land currently used for airport operations. The portions of the Proposed Action Site not developed with buildings or other infrastructure are mostly paved. Small areas of regularly maintained grass are present between the existing taxiways and adjacent to existing support buildings. Landscaped areas, including maintained lawn, ornamental shrubs and small trees, are also present in parts of the Proposed Action Site, particularly around the existing Green Garage where the South Terminal Development is proposed. Landscaping is maintained for aesthetic reasons, while minimizing any potential wildlife habitat. There are no naturally vegetated areas or other habitats, such as wetlands, present in the Proposed Action Site.

Wildlife

Wildlife occurring in the Proposed Action Site are species that are highly tolerant of human disturbance typically found in urban settings such as birds, mammals, amphibians, reptiles, and insects. Wildlife populations at JFK are monitored and managed by JFK operations and maintenance staff to prevent or reduce aircraft wildlife strikes. The Port Authority has certified Wildlife Biologists on staff along with USDA contractors to assist with wildlife management on the Airport. The Airport's strategy to minimize hazards associated with wildlife is set forth in the JFK Wildlife Hazard Management Plan (WHMP). The WHMP is intended to discourage breeding and other usage of the Airport by wildlife through both passive and active means. In addition to deterring birds and mammals from utilizing the Airport, diamondback terrapins (*Malaclemys terrapin*) are discouraged from entering the Airport from Jamaica Bay in search of nesting areas by using exclusionary fences and active monitoring.

Federally Threatened and Endangered Species

The potential occurrence of Federally-listed threatened and endangered species within the Proposed Action Site was evaluated using the USFWS Information for Planning and Conservation (IPaC) online system. The results of the USFWs IPaC query indicate that three species of birds and one plant species potentially occur on the Proposed Action Site (see **Table 4-5, *Federally Threatened and Endangered Species***). The USFWs IPaC report also states that there is no designated critical habitat in the Proposed Action Site.

TABLE 4-5 FEDERALLY THREATENED AND ENDANGERED SPECIES
John F. Kennedy International Airport

TAXONOMIC GROUP	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS
Birds	Piping Plover	*Charadrius melodus*	Threatened
Birds	Red Knot	*Calidris canutus rufa*	Threatened
Birds	Roseate Tern	*Sterna dougallii*	Endangered
Flowering Plants	Seabeach Amaranth	*Amaranthus pumilus*	Threatened

Source: IPaC U.S. Fish & Wildlife Service, Accessed November 13, 2019.

Piping plovers nest on open, sparsely-vegetated beaches and sandflats between the primary dune and high tide line.[90] In New York, roseate terns nest almost exclusively on islands where predation pressure may be lower than on mainland sites.[91] Red knots breed in elevated and sparsely vegetated ridges and slopes that are often adjacent to wetlands and lake edges for feeding.[92] Seabeach amaranth occurs on barrier island beaches between the foredune (i.e., dune closest to the water) and the wrack line (i.e., detritus washed up on beach) and also on open overwash areas behind the foredune.[93] Because the Proposed Action Site is fully developed with the few non-paved areas consisting of maintained grass and landscaped areas, it does not provide potential breeding habitat for the three bird species or

90 NYNHP animal guides: accessed April 19, 2019.
91 NYNHP animal guides: accessed April 19, 2019.
92 NatureServe Explorer: accessed April 19, 2019.
93 NYNHP plant guides: accessed on April 19, 2019.

for the seabeach amaranth. Based on the habitat requirements of these species, it is highly unlikely they would be found in the Proposed Action Site.

State Designated Threatened, Endangered, or Special Status Species

To screen for state-listed species that may occur on or near the Proposed Action Site, the NYSDEC online Environmental Resource Mapper (ERM) was accessed and a database search request was made to the New York Natural Heritage Program (NYNHP) on April 18, 2019. The NYNHP maintains the database used in the ERM that includes the status and location of known records of rare species and natural communities.

According to a review of the NYSDEC ERM, there are records of state-listed or rare animals and plants on or near the Proposed Action Site. A response letter from the NYNHP dated May 16, 2019 (see **Appendix C, Coastal & *Biological Resources***) indicates that the peregrine falcon (*Falco pergrinsus*, state endangered) and upland sandpiper (*Bartramia longicauda*, state threatened) have been documented in the Proposed Action Site. Additionally, the response letter indicates that the piping plover (Federal endangered, state threatened) and fringed boneset (*Eupatorium torreyanum*, state threatened) have been documented in the vicinity of the Proposed Action Site.

According to wildlife biologists on staff at the Port Authority, peregrine falcons occur on the Airport and periodically nests in hangars but there are active efforts to deter nesting. Peregrine falcons are also occasionally trapped at the Airport and relocated. The grassed portions of the Proposed Action Site are potential foraging habitat for upland sandpipers but this species would be deterred from nesting on the Airport due to the mowing regime of the grass areas. Piping plovers are a Federally-listed species and their potential occurrence in the Proposed Action Site was discussed above. Fringed boneset was documented within 900 feet to the south of the Proposed Action Site in the dry grassy airport margin. The non-paved areas in the Proposed Action Site are actively mowed and would not be conducive to this species

Birds Protected Under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

According to the USFWs IPaC report, there are 30 migratory birds protected under the MBTA and the Bald and Golden Eagle Protection Act that may occur near the Proposed Action Site. South of the Proposed Action Site is the Jamaica Bay estuarine complex which consists of extensive marine open water habitats, with numerous islands, tidal creeks, marshes, brackish ponds, and upland field and wooded habitats for migratory birds and other species. The IPaC query provides data for the Proposed Action Site as well as surrounding areas. It is likely that the 30 migratory bird species identified by the USFWs IPaC report mostly occur in more suitable nearby natural habitats and not the Proposed Action Site. The nature and extent of the development and groomed grassy areas at the Proposed Action Site are not suitable habitats for the identified migratory bird species. Additionally, implementation of JFK's WHMP discourages birds of all types from using the Airport in support of flight safety.

NYSDEC Critical Environmental Areas (CEAs)

NYSDEC Critical Environmental Areas (CEAs) are areas designated by local or state agencies as having an exceptional or unique character with respect to one or more of the following:

- A benefit or threat to human health;
- A natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality);
- Agricultural, social, cultural, historic, archaeological, recreational, or educational values; or,
- An inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change.

Jamaica Bay tributaries, tidal wetlands and regulated adjacent areas were designated as a CEA by Queens County, Kings County and Nassau County in 1990. The Jamaica Bay CEA in relation to the Airport is depicted on **Exhibit 4-1, *Jamaica Bay Critical Environmental Areas (CEA)***. While JFK is not in the Jamaica Bay CEA, it abuts the boundary of the Jamaica Bay CEA. Also, the Proposed Action Site is not within the Jamaica Bay CEA. The location of the Proposed Action Site is at least 500 feet from the Jamaica Bay CEA.

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EXHIBIT 4-1 JAMAICA BAY CRITICAL ENVIRONMENTAL AREAS



Source: NYS Department of Environmental Conservation, Critical Environmental Areas in Queens County, Accessed Online September 2019.

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4.4 CLIMATE

4.4.1 REGULATORY SETTING

Greenhouse gases (GHGs) trap heat in the earth's atmosphere. The main GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (e.g. hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride). In 2009, the USEPA found that current and projected concentrations of the six main GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6[94] — in the atmosphere threaten the public health and welfare of current and future generations, and that emissions of GHGs contribute to the greenhouse gas pollution, which threatens public health and welfare.[95]

CO_2 is the most prevalent greenhouse gas, followed by CH_4 and N_2O. These GHGs are analyzed based on their impact on the climate called Global Warming Potential (GWP). Based on their GWP, all GHGs can be analyzed as CO_2 equivalents (CO_2e). As the most prevalent GHG, CO_2 has a GWP of 1. CH_4 and N_2O have GWPs of 28 and 265 respectively.[96] CO_2 is emitted in far higher quantities and therefore has the most significant impact on climate.

4.4.2 AFFECTED ENVIRONMENT

Combustion of fossil fuel is a common source of CO_2. Vehicles and equipment that run on fossil fuels and produce CO_2 emissions at airports include aircraft, GSE, buses, trucks, and emergency generators. According to most international studies, aviation emissions comprise a small but potentially important percentage of human-made GHGs and other emissions that contribute to global warming. According to the U.S. General Accountability Office (GAO), aviation accounts "for about 3 percent of total U.S. greenhouse gas emissions from human sources" compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent).[97] There are no Federal or state standards for GHGs in ambient air.

4.5 COASTAL RESOURCES

4.5.1 REGULATORY SETTING

Applicable FAA regulations that address coastal resources are detailed in FAA Order 5050.4B and FAA Order 1050.1F, and guidance is provided in the 1050.1F Desk Reference.

The Coastal Zone Management Act of 1972 (CZMA) established the Federal Coastal Zone Management Program to encourage and assist states in preparing and implementing management programs to "preserve, protect, develop, and, where possible, to restore or enhance the resources of

94 Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also GHGs, but they are, for the most part, solely a product of industrial activities. For example, chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are halocarbons that contain chlorine, while halocarbons that contain bromine are referred to as bromofluorocarbons (i.e. halons) or sulfur (SF_6).

95 Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act, 74 Fed Reg. 66495 et seq. (2009).

96 International Panel on Climate Change (IPCC) 5th Assessment Report (AR5), 2014.

97 Ibid, p. 14; GAO cities available USEPA data from 1997.

the nation's coastal zones."[98] Pursuant to the CZMA, New York State adopted its Waterfront Revitalization and Coastal Resources Act (WRCRA, 1981). The WRCRA created the New York State Coastal Management Program (CMP) under direction of the New York State Department of the State (NYSDOS). New York's CMP encourages coordination among all levels of government to promote sound waterfront planning and requires government agencies to consider the goals of the program in making land use decisions.

At a local level, New York City adopted a Waterfront Revitalization Program (WRP) in 1982 to provide a framework for evaluating the consistency of activities within the coastal zone to meet 10 WRP policies for coastal protection. A local, state, or Federal proposed action located within the WRP-designated coastal zone or that is likely to affect WRP policies must receive from the New York City Department of City Planning (NYCDCP) a determination that the Proposed Action is consistent with WRP policies.[99]

The Coastal Barrier Resources Act of 1982 (CBRA) restricts Federal financial assistance for development within coastal areas that contain undeveloped coastal barriers along the Atlantic and Gulf coasts and Great Lakes. The CBRA was amended and reauthorized by the Coastal Barriers Improvement Act (CBIA) of 1990. The CBIA included the designation of otherwise protected areas, which applies to the national, state and local areas that include coastal barriers held for conservation or recreation.

4.5.2 AFFECTED ENVIRONMENT

Coastal resources are natural resources occurring within coastal waters and their adjacent shore lands (i.e., tidal wetlands as well as nearby uplands), including islands, transitional and intertidal areas, salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as fish and wildlife and their respective coastal habitats. Apart from the offsite construction parking area at the Aqueduct Racetrack/Resort's World Casino, the Proposed Action Site is entirely within the NYSDOS and NYCDCP-designated coastal zone (**Exhibit 4-2, *Coastal Zone Boundary***). However, the Proposed Action Site consists solely of developed uplands. Jamaica Bay is south/southwest of the Airport, approximately 900 feet south of the Proposed Action Site. This estuary is the westernmost of the coastal lagoons on the south shore of Long Island and connects with Lower New York Bay to the west through Rockaway Inlet. Jamaica Bay contains several low-lying islands with salt marsh, intertidal flats, brackish and freshwater ponds, and uplands. The Jamaica Bay wildlife refuge is in the center of Jamaica Bay and is one of the most important bird sanctuaries in the northeast. There are inlets from Jamaica Bay that wrap around both the western and eastern border of the JFK airport property. The western inlet, Bergen Basin is approximately 1,600 feet northwest of the South Construction Staging Area at its nearest point. On the east, the Airport is bordered by Head of Bay and Thurston Bay, approximately 4,000 feet from the eastern side of the CTA.

The Airport is adjacent to the Jamaica Bay Significant Coastal Fish and Wildlife Habitat (**Exhibit 4-3, *Jamaica Bay Significant Coastal Fish and Wildlife Habitat***), New York City WRP designated Special Natural Waterfront Area in Jamaica Bay and Recognized Ecological Complex in Bergen Bay (**Exhibit 4-4, *Special Natural Waterfront Areas and Recognized Ecological Complexes***), state-designated tidal wetlands (**Exhibit 4-5, *State-Designated Tidal Wetlands***), and floodplains (**Exhibit 4-6, *Preliminary Flood Insurance Rate Map 2015***) associated with Jamaica Bay and Bergen Basin.

[98] Coastal Zone Management Act of 1972, as amended through Pub. L. No. 109-58, the Energy Policy Act of 2005, Codified at 16 U.S.C. § 1452.

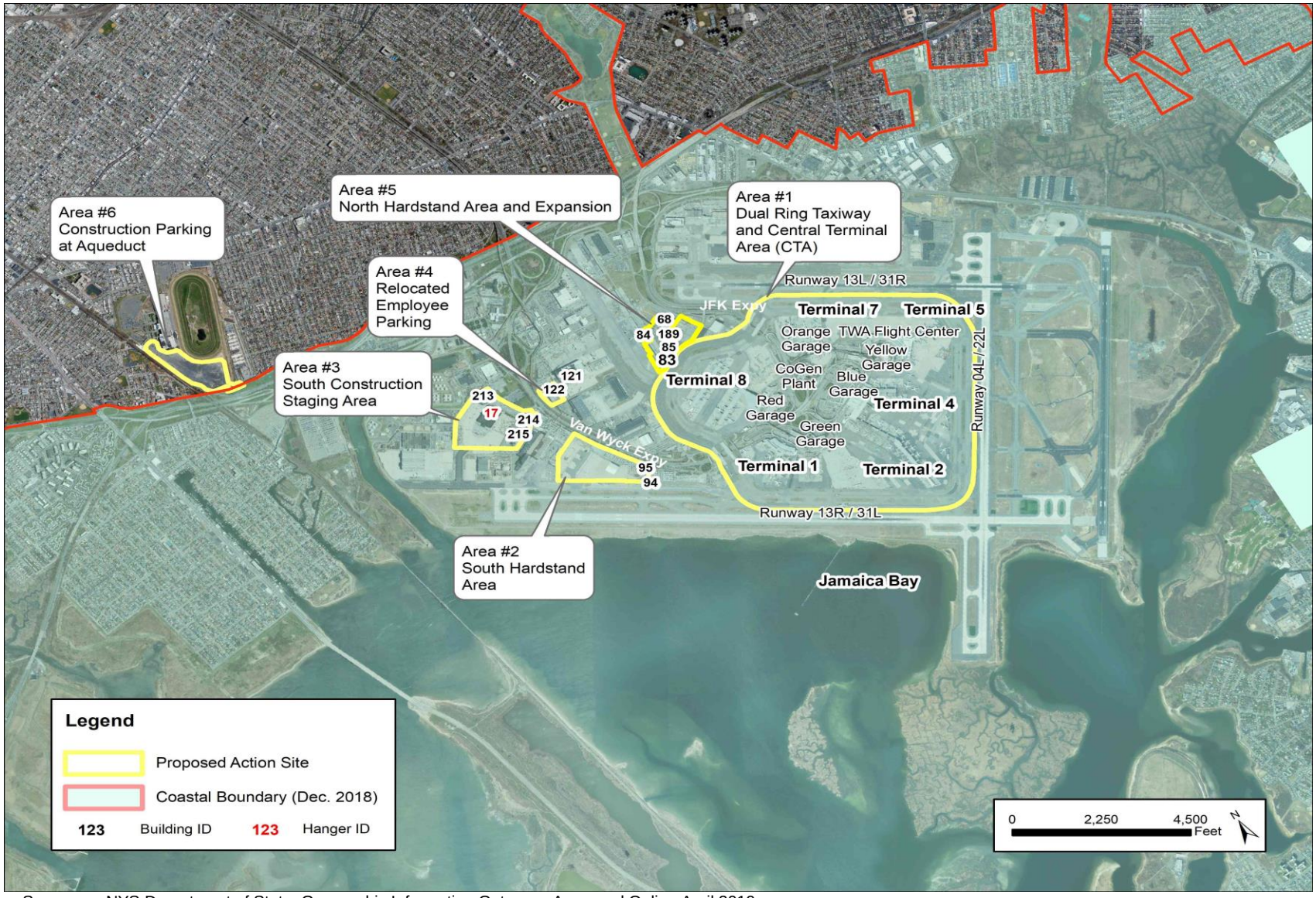
[99] New York City Department of Planning, The New York City Waterfront Revitalization Program, June 2016.

Significant Coastal Fish and Wildlife Habitats are one of the special area designations considered in the NYSDOS coastal consistency assessment. Special Natural Waterfront Areas (SNWA) are large areas with significant open spaces and concentrations of natural resources including wetlands, habitats, and buffer areas. Recognized Ecological Complexes (REC) are clusters of valuable natural features more fragmented than those in the SNWAs and often interspersed with developed sites. There are no salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, or fish and wildlife habitat within, or directly adjacent to the Proposed Action Site. The Proposed Action Site is at least 500 feet from coastal resources and is separated from them by runways and taxiways, access roads, elevated AirTrain tracks, terminals, and other Airport buildings and infrastructure. Although no coastal resources are within the Proposed Action Site, stormwater from the Proposed Action Site eventually discharges to coastal surface waters.

Given the Proposed Action Site's location within the NYSDOS and New York City Waterfront Revitalization Program (NYCWRP) designated coastal zone, a coastal consistency assessment and subsequent consistency determinations from the NYSDOS and NYCDCP are required for the Proposed Action (see **Appendix C, *Coastal & Biological Resources***). The Proposed Action Site is not within an area subject to the CBRA or the CBIA.

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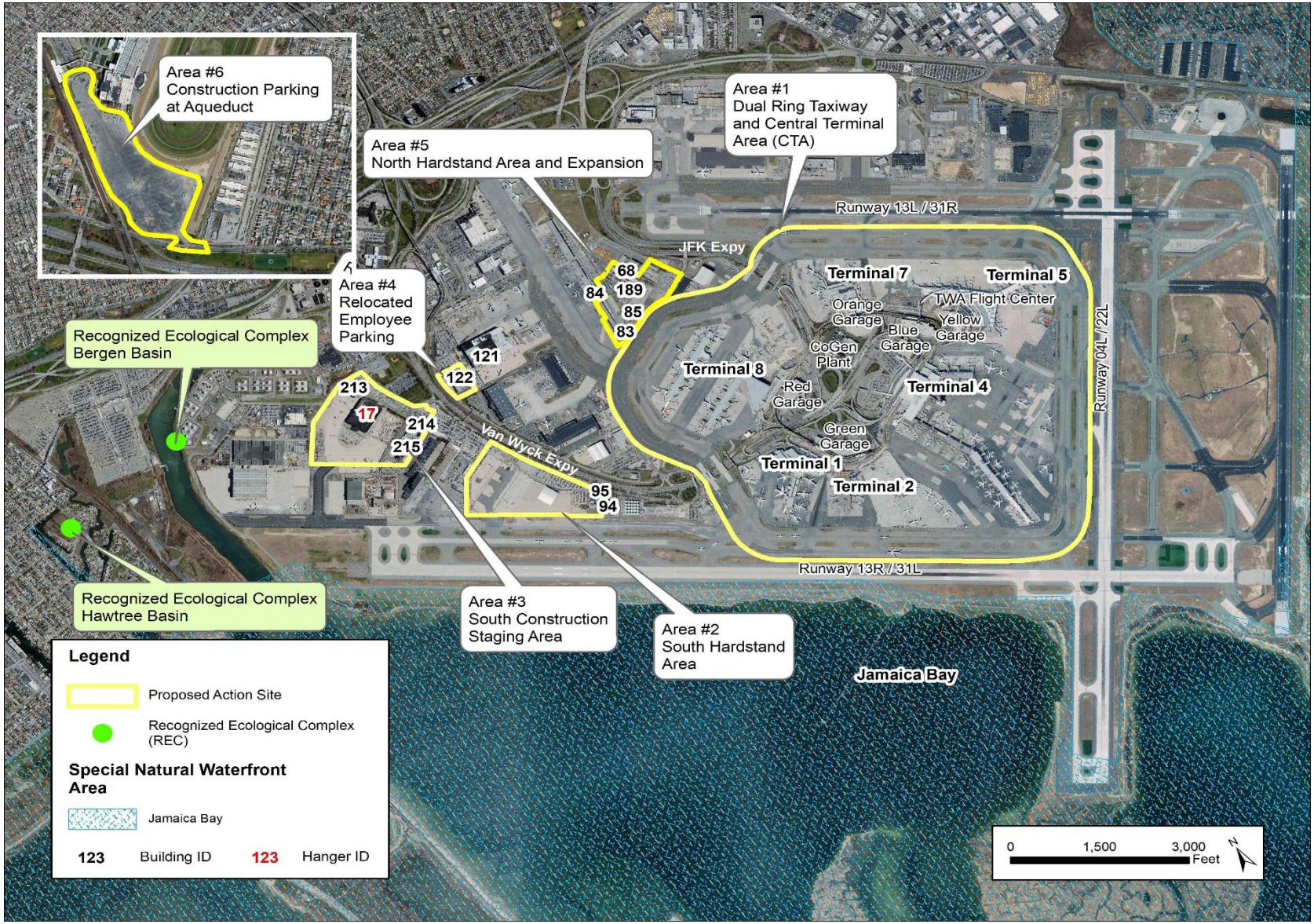
EXHIBIT 4-2 COASTAL ZONE BOUNDARY



Source: NYS Department of State, Geographic Information Gateway, Accessed Online April 2019.

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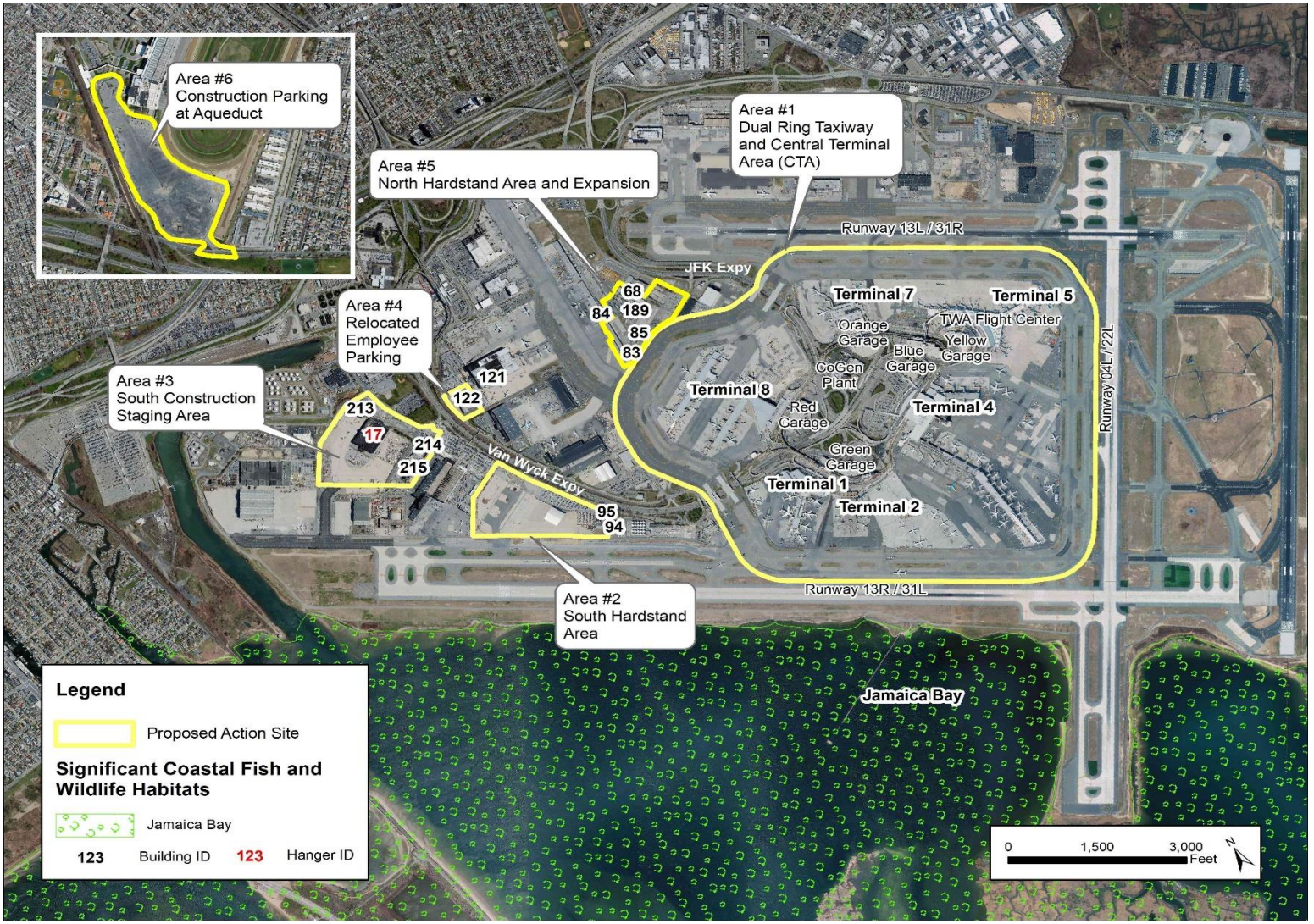
EXHIBIT 4-3 JAMAICA BAY SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT



Source: NYS Department of State, Geographic Information Gateway, Accessed Online March 2019

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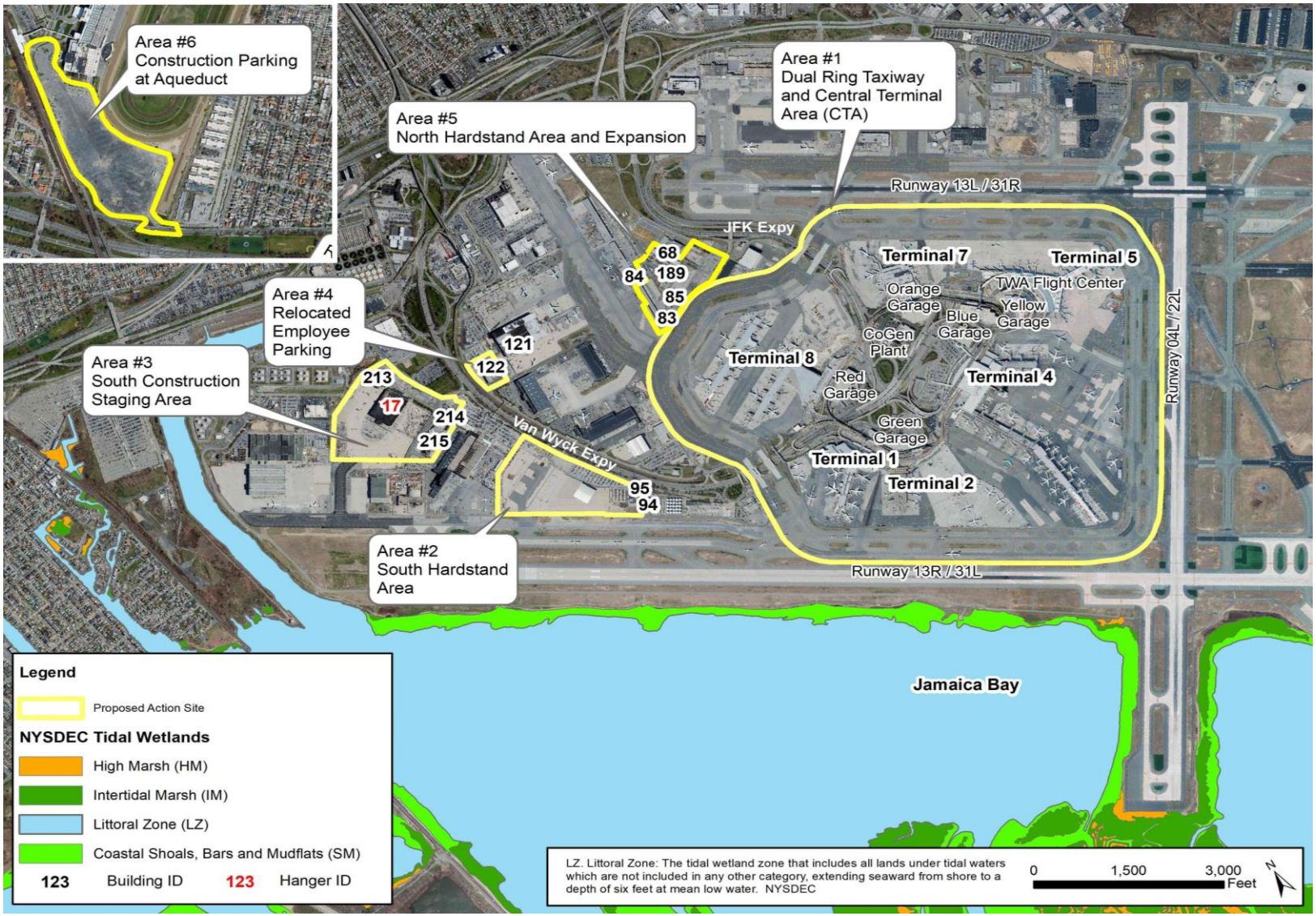
EXHIBIT 4-4 SPECIAL NATURAL WATERFRONT AREAS AND RECOGNIZED ECOLOGICAL COMPLEXES



Source: NYC Department of City Planning, Waterfront Revitalization Program, Online GIS Accessed February 2019.
NYC Department of City Planning, February 2019; NYS Department of State, August 2019.

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EXHIBIT 4-5 STATE-DESIGNATED TIDAL WETLANDS



Source: NYSDEC GIS, March 2019.

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EXHIBIT 4-6 PRELIMINARY FLOOD INSURANCE RATE MAP 2015



Source: NYC Flood Hazard Mapper, Accessed May 2019.

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4.6 DEPARTMENT OF TRANSPORTATION ACT SECTION 4(f) RESOURCES

4.6.1 REGULATORY SETTING

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966[100] prohibits the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuge areas, or public and private historic sites for any Federally funded transportation program, unless a determination is made that

1. there is no feasible and prudent alternative to using such land; and that the program or project includes all possible planning to minimize harm to the land resulting from its use; or

2. the agency determines that the use, including any measures to minimize harm, would ultimately have a minimal and insignificant adverse effect on the property.

Two types of impacts to a Section 4(f) resource can occur from a Proposed Action, physical or constructive use.[101] A physical use would occur if the Proposed Action or alternative(s) would involve an actual physical taking of Section 4(f) property through purchase of land or a permanent easement, physical occupation of a portion or all of the property, or alteration of structures or facilities on the property. The concept of constructive use is that a project that does not physically use land in a park, for example by means of increasing noise, air pollution, water pollution, or other direct or indirect impacts; dissipating its aesthetic value; harming its wildlife; restricting its access; or taking it in every practical sense. Constructive use occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. In accordance with FAA Order 1050.1F, “substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.”

4.6.2 AFFECTED ENVIRONMENT

As detailed in **Section 5.11*, Noise and Noise-Compatible Land Use***, since the Proposed Action would not alter aircraft operations, runway use, or flight tracks, there would be no change in related noise as a result of the Proposed Action. As such, there is no potential for a noise-related constructive use under Section 4(f). Further, the potential for visual impacts to historic properties was determined to be generally negligible due to the extensive physical changes that have taken place at the Airport over time, and the fact that the new buildings constructed as a result of the Proposed Action would be consistent with existing buildings in terms of use, overall form and scale. The only potential use would occur from a direct impact. As such, the study area evaluated for Section 4(f) resources is the boundaries of the Proposed Action Site which is consistent with the Areas of Potential Effect (APEs) defined as part of the Section 106 process, as described in **Section 4.8, *Historical, Architectural, Archaeological, and Cultural Resources***.

Geographic Information System (GIS) databases maintained by the New York City’s Department of Parks & Recreation (NYCDPR), National Register of Historic Places (NRHP), and the New York State Historic Preservation Office (SHPO), a component of the Office of Parks, Recreation & Historic

[100] U.S.C. § 303 Section 4(f).
[101] FAA, 2006, Order 5050.4B, National Environmental Policy Act Implementing Instructions for Airport Actions, Table 7-1, page 7.1-2.

Preservation were reviewed to identify potential Section 4(f) resources, including public parks, recreation and wildlife and waterfowl refuges in the study area. Historic resources that qualify for protection under Section 4(f) are discussed in **Section 4.8, *Historical, Architectural, Archaeological, and Cultural Resources*** and detailed in the NY SHPO consultation package included in **Appendix D, *Cultural Resources***.

Based on a review of available resources, there are no known parks, recreation, wildlife or waterfowl refuges within the Proposed Action Site. From a historical resources perspective there are no known NRHP-eligible resources within the Proposed Action Site, and the only property listed in the NRHP is the TWA Flight Center. Consultation with the NY SHPO regarding potentially NRHP-eligible properties within the APEs is ongoing. All NY SHPO correspondence is included in **Appendix D, *Cultural Resources***.

Twenty Section 4(f) resources were identified proximate to (within 1-mile of) the Airport boundary. These Section 4(f) resources may be affected by changes in ambient noise levels, light or other visual changes, traffic changes, or air quality changes associated with the Proposed Action. However, as described in Section 5 of this EA, there are no significant impacts with regard to noise, visual character, traffic or air quality as a result of the Proposed Action. Therefore, none of these potential changes (noise levels, odor, light or other visual changes, traffic changes, or air quality changes) affects any Section 4(f) resource located within 1 mile of the Area of Potential Effect (APEs).

Further, there are no potential direct impact uses with regard to the 20 off-airport 4(f) resources. This is due to the fact that the off-airport Section 4(f) resources are outside the Proposed Action Site (i.e., there are no project activities outside the airport.)

In addition, as detailed in **Section 5.11, *Noise and Noise Compatible Land Use***, the Proposed Action would not alter aircraft operations, runway use, or flight tracks. Therefore, there would be no change in noise as a result of the Proposed Action. As such, there is no potential for noise-related constructive use under Section 4(f) for any of the off-airport Section 4(f) resources.

The twenty Section 4(f) resources were identified proximate to (within 1-mile of) the Airport boundary. However, for the reasons outlined above, these resources are outside of the study area for the Section 4(f) analysis and are therefore not discussed in this **Section 4.6.2**.

4.7 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

4.7.1 REGULATORY SETTING

Federal statutes intended to regulate the handling and disposal or recycling of hazardous materials and solid waste, and pollution prevention include the Resource Conservation and Recovery Act (RCRA); Pollution Prevention Act (PPA); Toxic Substances Control Act (TSCA); and the Oil Pollution Act (OPA) of 1990. Similarly, New York State regulates the management of solid and hazardous waste under its own solid waste and hazardous waste programs (6 NYCRR Parts 360 - 369 (solid waste) and 6 NYCRR Parts 370-374 (hazardous waste)). In addition, the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), RCRA and OPA provide the Federal government with the authority either to clean up contaminated sites or to force responsible parties to fund and/or perform the cleanup. New York regulates the cleanup of contaminated sites under 6 NYCRR Part 375 of its environmental regulations.

The RCRA of 1976, 42 U.S.C. §§ 6901 - 6992k (as amended by the Hazardous and Solid Waste Amendments of 1984) provides for the management of hazardous and solid wastes and regulation of underground storage tanks (USTs) containing chemical and petroleum products. Pursuant to RCRA, the USEPA has established standards for permitting hazardous waste facilities and persons transporting hazardous waste and cleaning up contamination at hazardous waste sites.

The PPA of 1990, 42 U.S.C. §§ 13101 - 13109, was enacted to reduce the amount of hazardous substances, pollutants, and contaminants entering the waste stream prior to recycling. The PPA sought to prevent or reduce pollution at its source, and where that is not possible, recycle such materials rather than disposing of them.

The TSCA of 1976, 42 U.S.C. §§ 2601 - 2697 (as amended in 2016 by the Frank R. Lautenberg Chemical Safety for the 21st Century Act) establishes a framework for the identification of chemical substances that are manufactured, distributed in commerce, processed, used or disposed of that may present an unreasonable risk of injury to health or the environment and the evaluation of such risks.

The OPA of 1990, 33 U.S.C. §§ 2701 - 2762 was established to improve the nation's ability to prevent and respond to oil spills by expanding the Federal government's ability to respond. The OPA provided new requirements for contingency planning by both government and industry. The Oil Pollution Prevention regulations (40 CFR Part 112) provide the framework for the USEPA's Oil SPCC program. The SPCC program seeks to prevent oil spills from certain aboveground storage tanks (ASTs) and USTs.

4.7.2 AFFECTED ENVIRONMENT

Hazardous Materials

The Proposed Action Site is not within an area on the USEPA's list of contaminated sites that warrant further environmental investigation (i.e., the National Priorities List (NPL)), nor were any NPL sites identified within a one-mile radius of the Proposed Action Site.

The USEPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database identifies potentially contaminated sites brought to the attention of the USEPA that are suspected or confirmed to have adversely impacted the environment. The Proposed Action Site was not identified in an area in the CERCLIS database, nor were any CERCLIS sites identified within a 0.5-mile radius of the Proposed Action Site. The USEPA's database "Cleanups in My Community" was reviewed for hazardous waste cleanup locations.[102] The "Cleanups in My Community" database did not identify any hazardous waste cleanup locations within the Proposed Action Site.

Airport and aircraft operations require the use, handling, and storage of hazardous materials, primarily gasoline and diesel fuel for ground support equipment, trucks and other airside vehicles, and aviation fuel for aircraft. Hazardous materials permitted by the NYSDEC are stored in ASTs, USTs, warehouses, and other storage buildings located on the Airport property. There are two bulk liquid storage facilities (i.e., tank farms) at JFK, but both are outside of the Proposed Action Site. All terminals include an in-ground hydrant fueling system for aircraft refueling.

Consultation with the Port Authority was conducted to review ongoing hazardous substance investigations and cleanup sites within the Proposed Action Site having resulted from accidental releases of these substances, discussed in **Table 4-6, *Ongoing Hazardous Substance Investigations and Cleanup Sites within the Proposed Action Site***.

Buildings proposed for demolition may contain asbestos and electrical components that consist of mercury, such as switches or thermostats, and polychlorinated biphenyls or lead paint coatings.

[102] USEPA Cleanups in my Community. Available online: https://www.epa.gov/cleanups/cleanups-my-community#map. Accessed on April 9, 2019.

TABLE 4-6 ONGOING HAZARDOUS SUBSTANCE INVESTIGATIONS AND CLEANUP SITES WITHIN THE PROPOSED ACTION SITE

John F. Kennedy International Airport

LOCATION	ASSOCIATED CASE NUMBER	STATUS
Former Terminal 3 Vicinity	NYSDEC Spill Number 9604699	Groundwater contamination (benzene and total xylenes) occurred in a former fuel dispensing area at the former location of Terminal 3. The contamination is being remediated pursuant to New York State clean-up requirements. [a] Remediation activities are ongoing pursuant to an approved NYSDEC workplan.
Terminal 6 Vicinity	NYSDEC Spill Number 1114383	In April 2012, light non-aqueous phase liquid (LNAPL) was detected in groundwater samples from in one monitoring well located north of the former Terminal 6 Western Satellite Area. LNAPL gauging and recovery efforts were conducted in 2014 in accordance with a NYSDEC-approved Remedial Action Work Plan. Ongoing groundwater remediation and monitoring efforts are in place to recover LNAPL associated with the groundwater contamination. [b]
Terminal 7 Vicinity	NYSDEC Spill Number 0808334	Ongoing remediation investigations and activities are in place to address soil and groundwater contamination associated with a release of jet fuel of unknown quantity in the vicinity of Terminal 7 Gate 5 Fuel Isolation Valve and Valve in 2013.[c] Remedial activities conducted since 2013 include the installation of monitoring wells, well gauging, and vacuum extraction events.
	NYSDEC Spill Number 0612163	Ongoing remediation investigations and activities are in place to address soil and groundwater contamination associated with a release of diesel fuel and jet fuel of unknown quantity in the eastern portion of Terminal 7 Gate 11 in 2007.[d] Remedial activities conducted since 2007 include the installation of groundwater monitoring wells, well gauging, and vacuum extraction events.

[a] NYSDEC Spill Number 9604699. Closure Workplan, John F. Kennedy International Airport Terminal 2 (Formerly Terminal 1A), September 2007.
[b] Six-Month Progress Report, (April 2017 – September 2017), NYSDEC Spill #1114383, Jet Blue Airways, John F. Kennedy International Airport, Former Terminal 5 Western Satellite Area, Jamaica, New York, November 2017.
[c] Summary of 2017/2018 Remedial Activities: Status Report, Spill #0808334, JFK Airport – Terminal 7, Gate 5 (Area #5), January 2019.
[d] Summary of 2017/2018 Remedial Activities: Status Report, Spill #0612163, JFK Airport – Terminal 7, Gate 11 (Area #3), January 2019.

Solid Waste

According to the Port Authority, approximately 13,310 tons of solid waste were generated at JFK in 2015, of which 6,000 tons were recycled; the solid waste and recyclables were transferred to disposal and recycling facilities through the barging facilities at Greenville Yard.[103] State-permitted disposal facilities located near JFK are capable of handling the Airport's solid waste. Three facilities that can accommodate construction and demolition debris are located within one mile of the Airport, including South Island Industries, Rason Asphalt, and Russo Recycling Company.[104] The Inwood Marine Terminal (approximately 7 miles southeast of the Airport) accepts construction and demolition debris and transports it by barge to disposal or recycling facilities. Additionally, three landfills on Long Island accept solid waste, including 110 Sand Company Clean Fill Disposal Site, Babylon North "U" Bypass, and Blydenburgh Road Landfill Complex.[105] The Port Authority requires the recycling of all solid waste generated at the Airport that can be economically and technically reused or recycled.[106]

Pollution Prevention

The Port Authority has a Spill Prevention Control and Countermeasure (SPCC) Plan for JFK. The plan contains appropriate spill prevention and clean up measures as well as requirements for reporting an unintended release. This includes the maintenance and operation of the underground terminal hydrant distribution system at each passenger terminal which distributes the fuel to individual aircraft parking positions at the gates on the terminal ramp. Tenants who store chemicals must also comply with all applicable regulations and prepare and maintain an SPCC plan that complies with the Airport's SPCC Plan.

4.8 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Historic and cultural resources include archaeological sites, buildings, cultural landscapes, historic districts, objects, structures, and places of religious and cultural significance.

4.8.1 REGULATORY SETTING

Potential direct or indirect effects to cultural resources were evaluated in accordance with National Historic Preservation Act (NHPA) regulations (36 CFR Part 800). The alteration, displacement, or demolition of a property is a direct effect. Changes in the operation, character, or use of a property could be either a direct or indirect effect. Changes in a property's visual context or the addition of new audible elements are indirect effects. Section 106 of the NHPA (54 U.S.C. § 300101 et seq.) requires Federal agencies to consider the effects of their Proposed Actions on properties that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). An effect is considered to be adverse "when an undertaking (Proposed Action) may alter, directly or indirectly, any of the

103 2015 Airport Sustainability Report, Port Authority of New York and New Jersey, Available online: http://www.panynj.gov/about/pdf/aviation-sustainability-report-12212016-2015.pdf. Accessed on March 29, 2019

104 Construction and Demolition (C&D) Debris – Solid Waste Management Facilities Map, New York State Department of Environmental Conservation. Available online: https://data.ny.gov/Energy-Environment/Construction-and-Demolition-C-D-Debris-Solid-Waste/hra5-yqwi. Accessed on March 29, 2019.

105 Landfill – Solid Waste Management Facilities Map, New York State Department of Environmental Conservation, Available online: https://data.ny.gov/Energy-Environment/Landfill-Solid-Waste-Management-Facilities-Map/afg5-7i6u. Accessed on March 29, 2019.

106 2015 Airport Sustainability Report, Port Authority of New York and New Jersey, Available online: http://www.panynj.gov/about/pdf/aviation-sustainability-report-12212016-2015.pdf. Accessed on March 29, 2019

characteristics of the historic resource that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association" (36 CFR Section 800.5).[107]

4.8.2 AFFECTED ENVIRONMENT

A review of potential historical, architectural, archaeological, and cultural resources was conducted within the Areas of Potential Effects (APEs) for the Proposed Action (see **Exhibit 4-7, *Areas of Potential Effects (APEs)***). The NHPA regulations (36 CFR. 800.16(d)) define an APE as the "geographic area or areas within which an undertaking (Proposed Action) may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." Given the Proposed Action, multiple APEs were identified.

The APEs were determined based on potential direct effects resulting from the Proposed Action, including alteration to or demolition of structures. Potential indirect effects off-airport resulting from increased noise or traffic from the Proposed Action were also considered.

Six distinct APEs were identified for the Proposed Action (five of these APEs are on the Airport property, while the sixth is northwest of, but proximate to the Airport).

1. Within the CTA (APE Area #1 – Dual Ring Taxiway and Central Terminal Area (CTA))
2. West of the CTA and south of the Van Wyck Expressway, on the current site of Buildings 95 and 20 (APE Area #2 – South Hardstand Area)
3. Northwest of the CTA and west of the Van Wyck Expressway, on the current site of Buildings 214 and 215 (APE Area #3 – South Construction Staging Area)
4. Northwest of the CTA and east of the Van Wyck Expressway, on the current site of Buildings 121 and 122 (APE Area #4 – Relocated Employee Parking)
5. Northwest of the CTA and southwest of the JFK Expressway, on the current site of Buildings 68, 83, 85, and 189 (APE Area #5 – Construction Staging Area and Expansion of North Hardstand Area)
6. Approximately 2.75 miles northwest of the CTA and immediately north of the intersection of Aqueduct Road and North Conduit Avenue (Route 27), in the southernmost portion of the Aqueduct Racetrack parking lot (APE Area #6 – Construction Parking at Aqueduct)

The potential for indirect effects as a result of the Proposed Action is negligible because the redevelopment would take place within the previously developed, generally noisy, and high-traffic Airport property. The surrounding area is highly developed and urban in nature and the Proposed Action would not enhance capacity at the Airport and, thus, would not result in an increase in noise compared to forecast conditions.

The potential for indirect effects due to changes in the visual context in areas adjacent to the structures or properties associated with the Proposed Action was also considered. Such effects as a result of the Proposed Action are negligible due to three factors:

[107] In the context of this EA, "undertaking" is the Proposed Action.

1. The extensive physical changes that have taken place at the Airport over time, such as widespread reconfiguration and demolition and construction of dozens of buildings, roads, overpasses, taxiways, parking lots, etc.
2. The fact that the new buildings constructed as a result of the Proposed Action would be consistent with existing buildings in terms of use, overall form and scale within each of the APEs.
3. That there will be no redevelopment off-airport property in the Aqueduct Racetrack parking lot (APE Area #6).

EXHIBIT 4-7 AREAS OF POTENTIAL EFFECTS (APES)



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As such, it was determined that the potential significance of historic resources within the Airport would be specifically derived from the individual historical or architectural character and integrity of that structure itself, rather than the state of the surrounding landscape or setting. Development on the Airport has changed extensively over time. It is anticipated that massing and design of the proposed buildings and improvements would be consistent with current design. Based on this, and in further consideration of the high-density of development on the Airport, the building demolition and improvements would not alter the overall setting of the Airport.

The NRHP database and the New York State Cultural Resources Information System (CRIS) were reviewed to identify known historic properties within the APEs.[108] The TWA Flight Center was identified as the sole property listed in, or formally determined eligible for, listing in the NRHP. Field survey and supplemental background research was also undertaken to identify previously unidentified historic properties that could potentially meet the NRHP criteria and, therefore, be eligible for listing.

Descriptions of each building within the APEs follow in **Table 4-7, *Buildings and Structures in APE Area #1 – Dual Ring Taxiway and Central Terminal Area (CTA)*** through **Table 4-12, *Buildings and Structures in APE Area #6 – Construction Parking at Aqueduct*.** Detailed information about each of these buildings, including age, design, construction materials, alterations, existing and historic use, and photographs, are provided in **Appendix D, *Cultural Resources***. The evaluation of these buildings is being undertaken in consultation with the NY SHPO.

No archeological resources were identified through the NRHP database or through the NY SHPO's CRIS database. Prior to the construction of the Airport, the southern coast of Queens was lined with a thick tract of marshland and chain of marshy hassocks. However, much of JFK is constructed on a thick layer of fill material so archeological resources, if they exist, are deeply buried or are historical materials with no contextual setting that are part of the fill material. In addition, extensive ground disturbance has occurred as a result of the construction of the existing Airport and its associated infrastructure. Coordination with the NY SHPO is ongoing to verify that there is no potential for intact archaeological resources within the APEs.

[108] National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places. Available online: https://data.ny.gov/Recreation/National-Register-of-Historic-Places/iisn-hnyv/data. Accessed on April 10, 2019.

TABLE 4-7 BUILDINGS AND STRUCTURES IN APE AREA #1 – DUAL RING TAXIWAY AND CENTRAL TERMINAL AREA (CTA)

John F. Kennedy International Airport

NAME	DESCRIPTION	PROPOSED ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Terminal 1	Steel-and-glass-span building designed in the "Airfoil Modern" style and completed circa 1998.	Demolition	To be determined in consultation with NY SHPO
Terminal 2	Opened in 1962, this International Style building is a rectangular steel-frame block with concrete and glass panel walls and a flat roof topped by two large mechanical and elevator penthouses.	Demolition	To be determined in consultation with NY SHPO
Terminal 4	Designed in the "Airfoil Modern" style and constructed in 2001, T4 is a steel frame structure with inset metal and glass panels.[109]	Expansion	To be determined in consultation with NY SHPO
Terminal 5	Constructed in 2008, Terminal 5 is a crescent shaped structure constructed of steel and glass. It is connected to the NRHP-listed TWA Flight Center through elevated tubes.	Expansion	To be determined in consultation with NY SHPO
Terminal 7	T7 was completed in 1970. The original portions of the building consist of steel-frame blocks with concrete and glass panel apron walls which slope steeply outward.	Demolition	To be determined in consultation with NY SHPO
Green Lot Parking Garage	Constructed in 1998, the Green Lot Parking Garage is a steel frame and poured concrete structure.	Demolition	To be determined in consultation with NY SHPO
Blue Lot Parking Garage	Constructed in 1991, the Blue Lot Parking Garage is a steel frame and poured concrete structure.	Demolition	To be determined in consultation with NY SHPO
Orange Lot Parking Garage	Constructed circa 2001, the Orange Lot Parking Garage is a steel frame and poured concrete structure.	Minor Interior Reconfiguration	To be determined in consultation with NY SHPO

[109] A 1997 New York Times article on the redevelopment of the Airport, states that the Airfoil Modern style is characterized by "rooflines as gently bowed as an aircraft's wing and silvery surfaces as smooth as a fuselage skin. "A "New" Kennedy Airport Takes Wing." New York Times: October 27, 1997.

NAME	DESCRIPTION	PROPOSED ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Yellow Lot Parking Garage	Constructed in 2008, the Yellow Lot Parking Garage is a steel frame and poured concrete structure.	Minor Interior Reconfiguration	To be determined in consultation with NY SHPO
TWA Flight Center	The TWA Flight Center was designed by Eero Saarinen and completed in 1962. A distinctive example of Post-War modern design, it was declared a New York City Landmark in 1994 and nominated to the NRHP in 2005. A Memorandum of Agreement (MOA) for the Rehabilitation, Restoration and Adaptive Reuse of the TWA T5 was executed in 2004 and amended in 2016. The Flight Center is currently undergoing redevelopment as a hotel and conference center.	No Change	NR Listed

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

TABLE 4-8 BUILDINGS AND STRUCTURES IN APE AREA #2 – SOUTH HARDSTAND AREA
John F. Kennedy International Airport

NAME	DESCRIPTION	ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Building 95	Constructed circa 1965, Building 95 is of steel-frame construction with exposed vertical framing, concrete panel apron walls, broad sheet metal box cornices, and flat roofs.	Demolition	To be determined in consultation with NY SHPO

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

TABLE 4-9 BUILDINGS AND STRUCTURES IN APE AREA #3 – SOUTH CONSTRUCTION STAGING AREA
John F. Kennedy International Airport

NAME	DESCRIPTION	ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Building 214	Constructed circa 1960, this utilitarian building is a two-story, steel-frame structure with a poured concrete foundation, buff brick apron walls, expansive ribbon windows with blue-tinted glass, and a flat roof.	Demolition	To be determined in consultation with NY SHPO
Building 215	Constructed circa 1960, this utilitarian building is a two-story, reinforced concrete structure with a flat roof topped by reinforced concrete penthouses.	Demolition	To be determined in consultation with NY SHPO

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

TABLE 4-10 BUILDINGS AND STRUCTURES IN APE AREA #4 – RELOCATED EMPLOYEE PARKING
John F. Kennedy International Airport

NAME	DESCRIPTION	ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Building 121	Constructed circa 1975, this utilitarian building is a two-story rectangular block with a poured concrete foundation, concrete block walls, and a flat roof. Roll-up and pass-through doors are located on the north and south elevations, respectively.	Demolition	To be determined in consultation with NY SHPO
Building 122	Constructed circa 1975, this utilitarian building is a two-story, rectangular block with a poured concrete foundation, steel frame, concrete brick apron walls, and a flat roof.	Demolition	To be determined in consultation with NY SHPO

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

TABLE 4-11 BUILDINGS AND STRUCTURES IN APE AREA #5 – CONSTRUCTION STAGING AREA AND NORTH HARDSTAND AREA

John F. Kennedy International Airport

NAME	DESCRIPTION	ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
Building 68	Constructed in 1963, this utilitarian building is a one-and-a-half-story, rectangular block with a raised concrete foundation, concrete block and red brick apron walls, and a gable roof.	Demolition	To be determined in consultation with NY SHPO
Building 83	Constructed circa 1960, this utilitarian building is a one- and two-story, steel-frame structure with a raised concrete foundation, buff-brick and concrete block apron walls, and overhanging flat roof.	Demolition	To be determined in consultation with NY SHPO
Building 84	Constructed circa 1960, this utilitarian building is a one-story, steel-frame structure with a raised concrete foundation, buff-brick and concrete block apron walls, and overhanging flat roof.	Adjoining Building Demolition	To be determined in consultation with NY SHPO
Building 85	Constructed circa 1960, this utilitarian building is a small, one-story, buff brick block with a flat roof.	Demolition	To be determined in consultation with NY SHPO
Building 189	In 1958, this building was funded and constructed by the American Society for the Prevention of Cruelty to Animals (ASPCA) as a handling and rooming facility for animals traveling in and out of the Airport. This was the first such facility constructed in the U.S. It is a small, two-story structure with a poured concrete foundation, buff brick walls, and a flat roof.	Demolition	To be determined in consultation with NY SHPO

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

TABLE 4-12 BUILDINGS AND STRUCTURES IN APE AREA #6 – CONSTRUCTION PARKING AT AQUEDUCT
John F. Kennedy International Airport

NAME	DESCRIPTION	ACTIVITY	NATIONAL REGISTER (NR) ELIGIBILITY
N/A	No buildings would be altered within the Construction Parking Area at Aqueduct APE.	N/A	N/A

Source: National Register of Historic Places, New York State Office of Parks, Recreation, and Historic Places and FHI, 2019.

4.9 LAND USE

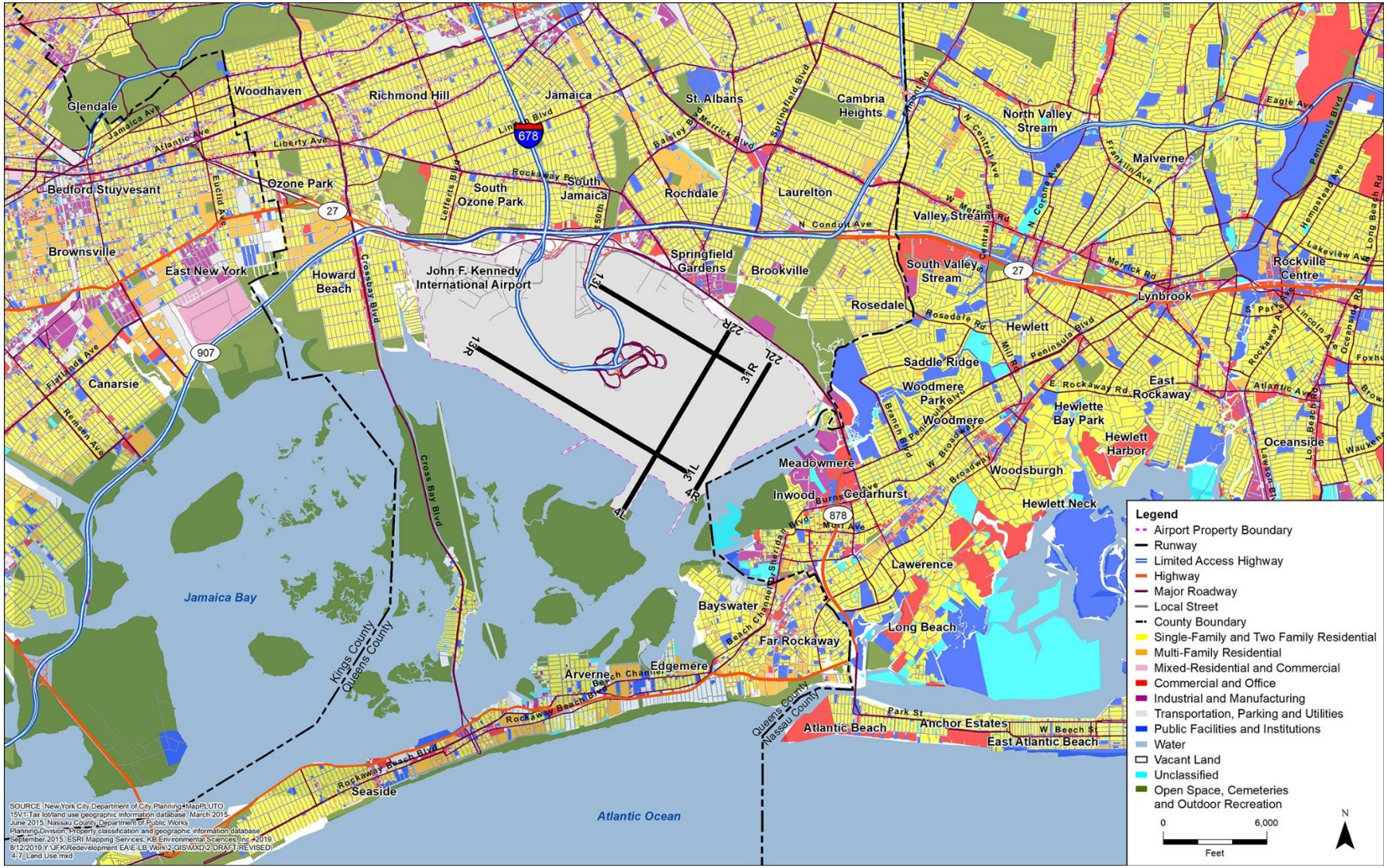
4.9.1 REGULATORY SETTING

Special guidance relevant to land use is given in the NEPA implementing regulations, which require consideration of "possible conflicts between the proposed action and the objectives of Federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." The impacts on land use may include indirect impacts such as the disruption of communities, relocation, induced socioeconomic impacts, and impacts to land uses protected under DOT Act Section 4(f).

4.9.2 AFFECTED ENVIRONMENT

Land use near JFK consists of commercial and industrial developments, and residential areas ranging from detached single-family houses to medium-density row houses and garden apartments. The Belt Parkway and the Queens neighborhoods of Baisley Park, South Ozone Park, and Springfield Gardens are north of JFK. To the east is Thurston Bay. Located directly to the west is Bergen Basin. The Jamaica Bay Wildlife Refuge is on the south side of the Airport. The land uses in the JFK area are shown on **Exhibit 4-8, *Land Uses in the Vicinity of John F. Kennedy International Airport***.

EXHIBIT 4-8 LAND USES IN THE VICINITY OF JOHN F. KENNEDY INTERNATIONAL AIRPORT



Source: New York City Department of City Planning, https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-pluto-mappluto.page#mappluto.

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4.10 NATURAL RESOURCES AND ENERGY SUPPLY

4.10.1 REGULATORY SETTING

The analysis of natural resources and energy supply provides an evaluation of a project's consumption of natural resources and use of energy supplies.

4.10.2 AFFECTED ENVIRONMENT

Buildings and other structures at the Airport require electricity and natural gas for lighting, cooling, and heating. A CoGen facility is located within the CTA that produces electrical power. This electricity is fed to the local power grid, operated by Consolidated Edison the utility provider, which supplies power to JFK. The power is used for cooling and lighting buildings, lighting for aircraft and vehicle parking areas, airfield lighting systems, roadway lighting, and operating the JFK AirTrain. JFK has four electrical substations, the Bergen Substation, Van Wyck Substation, Farmers Substation, and Central Substation. These electrical substations are critical components of the electrical power distribution system at JFK, supplying power to all JFK air terminals, and airside and landside facilities and supporting infrastructure. They are also past their useful life and are becoming increasingly unreliable. The Port Authority has been planning an independent airport electrical upgrade project that would rehabilitate and upgrade the existing substations that serve the Airport and consolidate the Van Wyck and Bergen Substations. In addition, a new substation (Central Substation #2) would be constructed as part of the Proposed Action. These improvements would address existing capacity deficiencies to allow the system to safely accommodate peak period demand and provide more redundancy from multiple electrical power substations.

JFK is located within a highly urbanized area with adequate access to natural resources for airport facilities, and aircraft operations. The Airport has access to utilities and fuel and these energy sources are not in short supply in the region.

4.11 NOISE AND NOISE-COMPATIBLE LAND USE

4.11.1 REGULATORY SETTING

For aviation noise analyses, the FAA has determined that the cumulative noise exposure of individuals resulting from aviation activities be established in terms of Yearly Day-Night Average Sound Level (DNL). DNL values represent the sound exposure produced over a 24-hour period.

In addition, the FAA relies upon criteria contained in 14 C.F.R. Part 150, *Airport Noise Compatibility Planning* to determine noise compatibility with most land uses. This approach is consistent with those developed by other Federal agencies such as the USEPA and the Department of Housing and Urban Development (HUD).[110,111] From this, a DNL of 65 decibels (dB) is the noise level at which noise-sensitive land uses (residences, churches, schools, libraries, and nursing homes) are viewed as "significantly impacted" unless treated or otherwise constructed to reduce interior noise levels to below 45 DNL. Below DNL 65 dB, all land uses are determined to be compatible with airport noise.

[110] Federal Interagency Committee on Urban Noise (FICUN), 1980, Guidelines for Considering Noise in Land Use Planning and Control.

[111] Federal Interagency Committee on Noise (FICON), 1992, Federal Agency Review of Selected Airport Noise Analysis Issues, August.

The Port Authority is performing a noise compatibility study pursuant to 14 CFR Part 150 of the FAA regulations. The study will lead to the development of a Noise Compatibility Program for JFK. **Exhibit 4-8** provides an overview of the land uses within proximity to the Airport as part of the 14 CFR Part 150 Study.[112]

Compatible Land Use

The FAA has determined that the major land uses listed in 14 CFR Part 150, Appendix A, Table 1 (presented below as **Table 4-13, *14 CFR Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels***) are normally compatible with aircraft noise below the DNL 65 contour. Therefore, when evaluating land use compatibility, attention is focused on uses within the DNL 65 contour. As shown, noise-sensitive land uses such as residential, mobile home parks, transient lodging, schools, and outdoor music venues are deemed noncompatible with noise exposure of DNL 65 or higher. Other noise-sensitive land uses such as hospitals, nursing homes, churches, auditoriums, and concert halls are considered compatible with noise exposure of DNL 65 to 75, provided that appropriate noise attenuation is designed into the building's structure. Commercial, manufacturing, and recreational land (parks, amusement parks, zoos, etc.) are generally less sensitive to noise and are considered compatible with noise exposure up to DNL 70 without noise attenuation and up to DNL 80 with appropriate noise attenuation.

[112] An overview of land uses proximate to the Airport can be found in the JFK Final Noise Exposure Map (NEM) Report of the 14 CFR Part 150 Study at: http://www.panynjpart150.com/JFK_FNEM.asp

TABLE 4-13 14 CFR PART 150 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

John F. Kennedy International Airport

LAND USE	YEARLY DAY NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS					
	BELOW 65	65-70	70-75	75-80	80-85	OVER 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheatres	Y	N	N	N	N	N

LAND USE	YEARLY DAY NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS					
	BELOW 65	65-70	70-75	75-80	80-85	OVER 85
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.

Notes:
1. The designations contained in this **Table 4-13** do not constitute a Federal determination that any use of land covered by the program is acceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute Federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
2. SLUCM=Standard Land Use Coding Manual.
3. Y (Yes)=Land Use and related structures compatible without restrictions.
4. N (No)=Land Use and related structures are not compatible and should be prohibited.
5. NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
6. 25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Source: 14 CFR § 150 Airport Noise Compatibility Planning, Appendix A, Table 1.

4.11.2 AFFECTED ENVIRONMENT

Noise

Noise levels in the vicinity of most metropolitan airports are a function of various airport and non-airport sources of noise. Near JFK, examples include aircraft operations, helicopter overflights, roadway traffic and numerous other activities common to an urban environment such as NYC.

Current noise conditions surrounding JFK are based on the recently-completed noise analysis prepared for the Reconstruction of Runway 13L/31R and Associated Taxiways Project.[113] From this analysis, the DNL 65, 70, and 75 dB noise contours (representing noise exposure on an average annual 24-hour period) are shown as **Exhibit 4-9, *Existing Conditions Noise Exposure Contour***. The total areas within each contour are also presented in **Table 4-14, *Existing Conditions Noise Exposure Contour Area*.**

TABLE 4-14 EXISTING CONDITIONS NOISE EXPOSURE CONTOUR AREA
John F. Kennedy International Airport

DNL	AREA (ACRES)
65+	8,477
65-70	5,062
70-75	1,856
75+	1,559

Source: Reconstruction of 13L/31R and Associated Taxiways Project Environmental Assessment, VHB Engineering, Surveying and Landscape Architecture, P.C., November 2018.

The Port Authority Aviation Department's Noise Office operates a network of 40 noise monitors around JFK to evaluate effects of airport-related noise in the nearby communities.[114] The data is used to further analyze the impacts of aircraft noise in these areas.

Compatible Land Use

Based on the Runway 13L/31R analysis, the number of households, the populations and noise-sensitive land uses exposed to noise levels of DNL 65 dB and above are provided in **Table 4-15, *Existing Conditions Noise Exposure Contour – Noise Sensitive Land Uses Exposed to DNL 65 DB and Higher Contours***. Importantly, these data are the same as those published in the latest *Noise Exposure Map Report* for JFK.[115]

[113] The 2019 Proposed Action contour from the Reconstruction of 13L-31R and Associated Taxiways Project Environmental Assessment, VHB Engineering, Surveying and Landscape Architecture, P.C., November 2018, was used as the Existing Conditions contour for this EA.
[114] The Noise Office maintains a noise information website (https://aircraftnoise.panynj.gov/aircraft-noise-monitors/jfk-noise-monitor-locations/).
[115] John F. Kennedy International Airport, Part 150 Final Noise Exposure Map Report, April 2017.

TABLE 4-15 EXISTING CONDITIONS NOISE EXPOSURE CONTOUR – NOISE SENSITIVE LAND USES EXPOSED TO DNL 65 DB AND HIGHER CONTOURS

John F. Kennedy International Airport

LOCATION	NOISE LEVELCONTOUR (DNL)			TOTAL
	65-70	70-75	75+	
Households	9,749	618	0	**10,367**
Population	28,497	1,782	0	**30,279**
Places of Worship	17	0	0	**17**
Schools	12	0	0	**12**
Hospitals & Residential Healthcare	6	0	0	**6**
Historic Resources	2	0	0	**2**
Day Care & Assisted Living	9	0	0	**9**
Library	1	0	0	**1**

Note:
1. The household and population estimates provided above were developed using census block-level demographic data from the 2010 Decennial Census and New York City housing data. This approach provided an average number of persons per household for each individual Census block, which accounted for changes in land use, housing types, and residential density within the different areas in the DNL 65 and higher contours.
2. Eight of the twelve schools were included in the Port Authority's School Soundproofing Program and are compatible with noise exposure of DNL 65 and higher.
3. Five schools and places of worship are historic sites, but not included here to avoid double counting; see Table 19 of Reconstruction of 13L-31R and Associated Taxiways Project Environmental Assessment for the full list.

Source: Reconstruction of 13L-31R and Associated Taxiways Project Environmental Assessment, VHB Engineering, Surveying and Landscape Architecture, P.C., November 2018.

EXHIBIT 4-9 EXISTING CONDITIONS NOISE EXPOSURE CONTOUR, JOHN F. KENNEDY INTERNATIONAL AIRPORT



Source: Reconstruction of 13L-31R and Associated Taxiways Project Environmental Assessment, VHB Engineering, Surveying and Landscape Architecture, P.C., November 2018.

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4.12 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

4.12.1 REGULATORY SETTING

FAA Order 5050.4B and FAA Order 1050.1F, require evaluation of the potential for proposed actions to result in social impacts, including health and safety risks to children, socioeconomic impacts, and the potential to cause disproportionate and adverse effects on low-income or minority populations. FAA has not established significance thresholds for these topics. This section provides an overview of the existing socioeconomic conditions and identifies low-income and minority populations, children and schools in the study area.

Socioeconomics

Since the Proposed Action does not involve the acquisition of property or relocation of homes or businesses, there are no regulations specific to socioeconomic resources that apply to this analysis, other than CEQ NEPA requirements and the FAA Orders identified above.

Environmental Justice

The USEPA's Office of Environmental Justice defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies".[116]

Executive Order 12898, *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all Federal agencies to identify and address any disproportionately high and adverse human health or environmental impacts of their programs and policies on minorities and low-income populations and communities. The Executive Order also requires Federal agencies to provide low-income and minority populations with an opportunity to participate in agency programs and activities. In response to Executive Order 12898, the U.S. Department of Transportation (USDOT) issued the Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (U.S. DOT Order 5610.2(a)). Consistent with USEPA definitions, the USDOT guidance clarifies the meaning of "fair treatment":

> "fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate burden of the negative human health and environmental impacts, including social and economic effects, resulting from transportation decisions, programs and policies made, implemented and enforced at the federal, state, local or tribal level."

USDOT Order 5610.2(a) defines a "disproportionately high and adverse effect on minority and low-income populations" as an adverse effect that:

1. Is predominately borne by a minority population and/or a low-income population, or

[116] https://www.epa.gov/environmentaljustice

2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."

In accordance with CEQ guidance,[117] U.S. DOT Order 5610.2(a), and FAA Order 1050.1F, minorities are members of one of the following racial or ethnic groups: Black, Hispanic or Latino, Asian American, American Indian or Alaskan Native, or Native Hawaiian or Other Pacific Islander. Low-income populations consider the percentage of individuals in the study area whose median household income is at or below poverty thresholds as established by the U.S. Department of Health and Human Services.[118]

Children's Environmental Health and Safety Risks

According to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, Federal agencies are directed to identify environmental health and safety risks that could disproportionally affect children. These risks are defined as risks to health or safety attributable to products or substances that a child is likely to encounter or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

4.12.2 AFFECTED ENVIRONMENT

For the purposes of this EA, the study area for direct and indirect effects is generally limited to the Airport boundaries. The exceptions are related to traffic and air quality. The study area for socioeconomic resources, environmental justice communities, and children's environmental health and safety risks was established to be consistent with those areas with the highest potential for experiencing direct or indirect effects from traffic or air quality (including during construction).

Off-airport air quality impacts are directly linked to changes in traffic congestion and circulation associated with the Proposed Action. Existing traffic patterns on and around the Airport are provided here for context. Access to JFK is primarily provided by way of the Van Wyck Expressway and the JFK Expressway, both of which connect to the Belt Parkway and local surface roads. Passengers may also access JFK using public transit, including the JFK AirTrain, an elevated rail system that operates between the JFK passenger terminals, the Long Island Railroad's Jamaica Station, and the Howard Beach Station. In addition, several bus routes operated by the Port Authority stop at the passenger terminals and other locations at JFK and provide service to Jamaica Station and Howard Beach Station. Several local roads and regional truck routes provide access to the Airport, including the JFK Expressway. Commercial trucks are prohibited on the Belt Parkway, but trucks can use the North and South Conduit Roads along the Belt Parkway to access the Airport. Additional information about on- and off-airport roadways, including their existing LOS is provided in **Chapter 2, *Purpose and Need*** and detailed in **Appendix G, *Traffic Report***.

The study area for this section is defined as the U.S. Census Block Groups within or partially within the following areas around the Airport (see **Exhibit 4-10, *Low-income Population* and Exhibit 4-11, *Minority Population***).

- ½-mile north of the Beltway, extending 2 miles west of its intersection with the Van Wyck Expressway and 2 miles east of the intersection with the JFK Expressway.
- ½-mile radius around the proposed employee parking lot at the Aqueduct Racetrack

[117] Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act*. 1997.
[118] FAA Order 1050.1F Desk Reference. July 2015.

- ½-mile west of the long-term parking lot on Pan Am Road

In addition to the study area, for comparative purposes and to provide a more regional representation of socioeconomic conditions, socioeconomic and environmental justice data is provided for both Queens County and the New York Metropolitan Transportation Council (NYMTC) area.[119]

Socioeconomics

JFK is in the Borough of Queens and is surrounded primarily by residential properties ranging in type and size from detached single-family homes on 40- to 60-square-foot lots to medium-density row houses and garden apartments. As discussed in **Chapter 1, *Background and Introduction***, JFK is one of the largest airports in the U.S., ranking 6th in passenger traffic and seventh in cargo traffic. In 2018, the Airport handled over 61.6 million passengers and 1.4 million tons of cargo. JFK is a major contributor to the local and regional economy, contributing approximately $51.3 billion, 279,000 total jobs, and more than $17 billion in annual wages to the New York-New Jersey Metropolitan Region in 2018.[120]

Socioeconomic conditions in the NYMTC region, Queens County, and U.S. Census Block Groups in the study area are presented in **Table 4-16, *Regional Socioeconomic Conditions***. The percentage of low-income individuals as a percentage of the total population within the study area (12%) is slightly less than the NYMTC region (17%) and Queens County (13%). However, the percentage of minorities as a percentage of the total population within the Study Are (81%) is higher than the NYMTC region (47%) and Queens County (60%).

[119] The New York Metropolitan Transportation Council (NYMTC) is the designated Metropolitan Planning Organization for the New York metropolitan region. NYMTC was used to represent the region and includes Bronx County, Kings County, Nassau County, New York County, Putnam County, Queens County, Richmond County, Rockland County, Suffolk County, and Westchester County. While Queens County is included in the NYMTC data, it was also called out separately as a separate data set since the Airport is within Queens County.

[120] Port Authority of New York and New Jersey, *Airport Traffic Report 2018*. Available online at http://www.panynj.gov/airports/pdf-traffic/ATR2018.pdf. Accessed May 3, 2019.

TABLE 4-16 REGIONAL SOCIOECONOMIC CONDITIONS
John F. Kennedy International Airport

Geographic Area	Total Population	Population <18 years	In Labor Force	Unemployment Rate	Total Households	Low-Income Population [121]	Minority Population
NYMTC	12,820,548	3,665,281	6,651,037	4%	4,556,005	17%	47%
Queens County	2,339,280	473,695	1,228,111	4%	777,904	13%	60%
Census Block Groups in the Study Area[122]	178,138	38,581	93,449	6%	51,546	12%	81%

Source: U.S. Census Bureau 5-year American Community Survey 2103-2017. Available online at http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh+t. Accessed September 3, 2019.

Environmental Justice

Information regarding low-income and minority populations in the study area was obtained from the U.S. Census Bureau[123] and compared against data from the New York Metropolitan Transportation Council (NYMTC), which serves as a representation of regional economic and demographic conditions. NYMTC and CEQ guidance for defining environmental justice populations were then applied. NYMTC's established regional thresholds for defining environmental justice populations, as stated in Plan 2040: Appendix 4, Environmental Justice and Title VI (September 2013; "NYMTC Plan 2040"), are 56 percent for minority populations and 15 percent for low-income populations. Pursuant to CEQ guidance, minority populations exist where: "(a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."[124] In consideration of this guidance, as a conservative approach, the threshold for identifying environmental justice populations within the study area based on minorities is 50 percent for this analysis. The CEQ guidance and FAA Order 1050.1F do not recommend specific thresholds for defining low-income populations in environmental justice analysis. For the purposes of this analysis, the low-income threshold for environmental justice is 15 percent, consistent with NYMTC guidance. Environmental justice populations, based on these thresholds, are shown on **Exhibits 4-10 and 4-11**.

Demographic and economic data from the U.S. Census Bureau's American Community Survey 2013-2017 was retrieved for these census block groups to estimate the percentage of low-income and/or minority population within each census block group. As shown in **Table 4-17*, Low-Income and Minority Populations within Block Groups in the Study Area***, if a census block group's percent minority population exceeded 50 percent or the percent low-income exceeded 15 percent, it was determined the census block group contained an environmental justice population.

[121] Low-income populations were identified based on the U.S. Census Bureau data for populations with income in the past 12 months below poverty level. This was determined by dividing the *Income in the past 12 months below poverty level* column with the survey's specific total population count and recorded as a percent.
[122] Data presented in this row is the total for all U.S. Census Block Groups within the study area.
[123] U.S. Census Bureau American Community Surveys 5-Year Estimates, 2013-2017. Available online at http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh+t. Accessed September 3, 2019.
[124] Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act*. 1997.

TABLE 4-17 LOW-INCOME AND MINORITY POPULATIONS WITHIN CENSUS BLOCK GROUPS IN THE STUDY AREA

John F. Kennedy International Airport

Map Key	Census Block Group	Total Population	Percentage of Population that is Low-Income Population[125]	Percentage of Population that is Minority Population	Environmental Justice Population?
Total for All Block Groups in Study Area		*178,137*	*12%*	*81%*	
1	Block Group 1, Census Tract 40.02	1,764	26%	76%	Yes
2	Block Group 2, Census Tract 54	919	15%	55%	Yes
3	Block Group 1, Census Tract 58	2,233	7%	45%	No
4	Block Group 2, Census Tract 58	1,091	5%	70%	Yes
5	Block Group 2, Census Tract 62.01	2,862	0%	38%	No
6	Block Group 2, Census Tract 62.02	645	13%	82%	Yes
7	Block Group 1, Census Tract 86	1,566	1%	67%	Yes
8	Block Group 2, Census Tract 86	1,354	26%	45%	Yes
9	Block Group 1, Census Tract 88	1,912	5%	30%	No
10	Block Group 2, Census Tract 88	1,860	13%	27%	No
11	Block Group 1, Census Tract 94	1,303	10%	87%	Yes
12	Block Group 2, Census Tract 94	1,414	19%	83%	Yes
13	Block Group 1, Census Tract 96	2,097	12%	86%	Yes
14	Block Group 2, Census Tract 96	1,909	0%	76%	Yes
15	Block Group 1, Census Tract 98	1,641	20%	89%	Yes
16	Block Group 2, Census Tract 98	1,218	0%	92%	Yes
17	Block Group 1, Census Tract 100	1,395	12%	86%	Yes
18	Block Group 2, Census Tract 100	3,090	12%	87%	Yes
19	Block Group 1, Census Tract 102	1,347	6%	88%	Yes
20	Block Group 2, Census Tract 102	1,738	10%	82%	Yes
21	Block Group 1, Census Tract 104	1,781	4%	94%	Yes
22	Block Group 2, Census Tract 104	1,775	17%	83%	Yes
23	Block Group 2, Census Tract 106	2,538	0%	91%	Yes
24	Block Group 2, Census Tract 112	1,153	4%	69%	Yes
25	Block Group 1, Census Tract 166	2,526	3%	90%	Yes
26	Block Group 2, Census Tract 166	1,059	10%	81%	Yes
27	Block Group 1, Census Tract 168	1,569	14%	90%	Yes
28	Block Group 2, Census Tract 168	1,745	0%	86%	Yes
29	Block Group 1, Census Tract 178	1,129	10%	93%	Yes

[125] Low-income populations were identified based on the U.S. Census Bureau data for populations with income in the past 12 months below poverty level. This was determined by dividing the *Income in the past 12 months below poverty level* column with the survey's specific total population count and recorded as a percent.

Map Key	Census Block Group	Total Population	Percentage of Population that is Low-Income Population[125]	Percentage of Population that is Minority Population	Environmental Justice Population?
30	Block Group 1, Census Tract 180	1,457	41%	72%	Yes
31	Block Group 1, Census Tract 182	1,450	15%	96%	Yes
32	Block Group 2, Census Tract 182	1,088	2%	86%	Yes
33	Block Group 1, Census Tract 184.01	2,118	23%	95%	Yes
34	Block Group 2, Census Tract 288	1,103	4%	99%	Yes
35	Block Group 1, Census Tract 294	1,846	4%	100%	Yes
36	Block Group 2, Census Tract 294	996	5%	98%	Yes
37	Block Group 3, Census Tract 294	1,104	7%	100%	Yes
38	Block Group 4, Census Tract 294	1,157	5%	100%	Yes
39	Block Group 5, Census Tract 294	872	27%	100%	Yes
40	Block Group 6, Census Tract 294	1,122	4%	95%	Yes
41	Block Group 1, Census Tract 306	1,383	15%	96%	Yes
42	Block Group 2, Census Tract 306	1,176	11%	96%	Yes
43	Block Group 3, Census Tract 306	1,684	0%	94%	Yes
44	Block Group 4, Census Tract 306	584	8%	86%	Yes
45	Block Group 1, Census Tract 320	833	55%	98%	Yes
46	Block Group 2, Census Tract 320	980	9%	84%	Yes
47	Block Group 3, Census Tract 320	2,282	9%	97%	Yes
48	Block Group 4, Census Tract 320	1,002	16%	90%	Yes
49	Block Group 1, Census Tract 328	1,169	11%	97%	Yes
50	Block Group 2, Census Tract 328	1,357	13%	97%	Yes
51	Block Group 1, Census Tract 330	2,007	1%	100%	Yes
52	Block Group 2, Census Tract 330	874	4%	97%	Yes
53	Block Group 3, Census Tract 330	1,619	6%	100%	Yes
54	Block Group 4, Census Tract 330	1,321	15%	93%	Yes
55	Block Group 5, Census Tract 330	1,100	0%	99%	Yes
56	Block Group 2, Census Tract 334.01	2,404	3%	99%	Yes
57	Block Group 2, Census Tract 334.02	1,558	4%	100%	Yes
58	Block Group 3, Census Tract 334.02	1,687	13%	94%	Yes
59	Block Group 4, Census Tract 334.02	2,952	13%	94%	Yes
60	Block Group 5, Census Tract 334.02	2,498	0%	100%	Yes
61	Block Group 6, Census Tract 334.02	1,444	23%	100%	Yes
62	Block Group 2, Census Tract 352	1,724	10%	91%	Yes
63	Block Group 3, Census Tract 358	1,180	34%	92%	Yes
64	Block Group 4, Census Tract 358	647	21%	98%	Yes

Map Key	Census Block Group	Total Population	Percentage of Population that is Low-Income Population[125]	Percentage of Population that is Minority Population	Environmental Justice Population?
65	Block Group 2, Census Tract 638	423	2%	91%	Yes
66	Block Group 1, Census Tract 646	1,970	8%	99%	Yes
67	Block Group 2, Census Tract 646	1,440	2%	100%	Yes
68	Block Group 1, Census Tract 650	1,597	7%	96%	Yes
69	Block Group 2, Census Tract 650	1,503	8%	97%	Yes
70	Block Group 1, Census Tract 654	1,104	6%	93%	Yes
71	Block Group 2, Census Tract 654	1,301	6%	92%	Yes
72	Block Group 3, Census Tract 654	884	0%	80%	Yes
73	Block Group 2, Census Tract 660	2,344	4%	93%	Yes
74	Block Group 1, Census Tract 664	282	11%	39%	No
75	Block Group 2, Census Tract 664	1,805	0%	93%	Yes
76	Block Group 3, Census Tract 664	659	0%	100%	Yes
77	Block Group 4, Census Tract 664	845	11%	100%	Yes
78	Block Group 5, Census Tract 664	1,755	9%	91%	Yes
79	Block Group 1, Census Tract 680	1,167	2%	97%	Yes
80	Block Group 2, Census Tract 680	1,757	5%	99%	Yes
81	Block Group 3, Census Tract 680	1,746	0%	99%	Yes
82	Block Group 4, Census Tract 680	773	13%	100%	Yes
83	Block Group 1, Census Tract 682	667	11%	97%	Yes
84	Block Group 2, Census Tract 682	442	23%	100%	Yes
85	Block Group 1, Census Tract 690	1,838	11%	100%	Yes
86	Block Group 2, Census Tract 690	1,651	23%	97%	Yes
87	Block Group 1, Census Tract 694	1,989	21%	89%	Yes
88	Block Group 2, Census Tract 694	1,821	11%	97%	Yes
89	Block Group 1, Census Tract 716	0	0%	0%	No
90	Block Group 1, Census Tract 788	1,113	21%	90%	Yes
91	Block Group 2, Census Tract 788	776	19%	100%	Yes
92	Block Group 1, Census Tract 790	1,310	16%	98%	Yes
93	Block Group 2, Census Tract 790	1,574	16%	95%	Yes
94	Block Group 1, Census Tract 792	1,358	12%	98%	Yes
95	Block Group 2, Census Tract 792	1,523	0%	95%	Yes
96	Block Group 1, Census Tract 814	1,877	16%	83%	Yes
97	Block Group 2, Census Tract 814	1,378	21%	91%	Yes
98	Block Group 3, Census Tract 814	900	27%	89%	Yes
99	Block Group 1, Census Tract 818	1,901	9%	91%	Yes

Map Key	Census Block Group	Total Population	Percentage of Population that is Low-Income Population[125]	Percentage of Population that is Minority Population	Environmental Justice Population?
100	Block Group 2, Census Tract 818	712	25%	73%	Yes
101	Block Group 3, Census Tract 818	1,295	15%	97%	Yes
102	Block Group 1, Census Tract 838	1,883	23%	77%	Yes
103	Block Group 2, Census Tract 838	1,324	1%	72%	Yes
104	Block Group 3, Census Tract 838	1,494	8%	63%	Yes
105	Block Group 4, Census Tract 838	1,004	15%	56%	Yes
106	Block Group 1, Census Tract 840	1,779	14%	89%	Yes
107	Block Group 2, Census Tract 840	1,597	1%	94%	Yes
108	Block Group 3, Census Tract 840	907	23%	72%	Yes
109	Block Group 4, Census Tract 840	838	5%	86%	Yes
110	Block Group 5, Census Tract 840	1,379	29%	91%	Yes
111	Block Group 1, Census Tract 846.01	1,688	15%	78%	Yes
112	Block Group 2, Census Tract 846.01	1,414	20%	62%	Yes
113	Block Group 1, Census Tract 846.02	1,064	49%	87%	Yes
114	Block Group 1, Census Tract 864	1,874	16%	77%	Yes
115	Block Group 2, Census Tract 864	1,127	41%	66%	Yes
116	Block Group 1, Census Tract 884	926	9%	1%	No
117	Block Group 2, Census Tract 884	563	2%	26%	No
118	Block Group 3, Census Tract 884	519	6%	0%	No
119	Block Group 4, Census Tract 884	956	11%	6%	No
120	Block Group 5, Census Tract 884	1,333	16%	13%	Yes
121	Block Group 6, Census Tract 884	1,443	7%	31%	No
122	Block Group 7, Census Tract 884	747	6%	25%	No
123	Block Group 8, Census Tract 884	1,479	23%	13%	Yes
124	Block Group 2, Census Tract 892	889	7%	13%	No
125	Block Group 3, Census Tract 892	1,753	10%	16%	No
126	Block Group 5, Census Tract 892	1,082	2%	2%	No
127	Block Group 7, Census Tract 892	832	0%	0%	No
128	Block Group 8, Census Tract 89	352	0%	0%	No

Source: U.S. Census Bureau 5-year American Community Survey 2103-2017. Available online at http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh+t. Accessed September 3, 2019.

As shown on **Exhibits 4-10 and 4-11**, nearly all block groups in the study area meet environmental justice criteria based on the percentage of minority populations; 26 percent (33 of the 128 block groups) meet the criteria based on low-income populations. Overall, approximately 87 percent of the block groups within the study area meet the criteria for an environmental justice community. These blocks

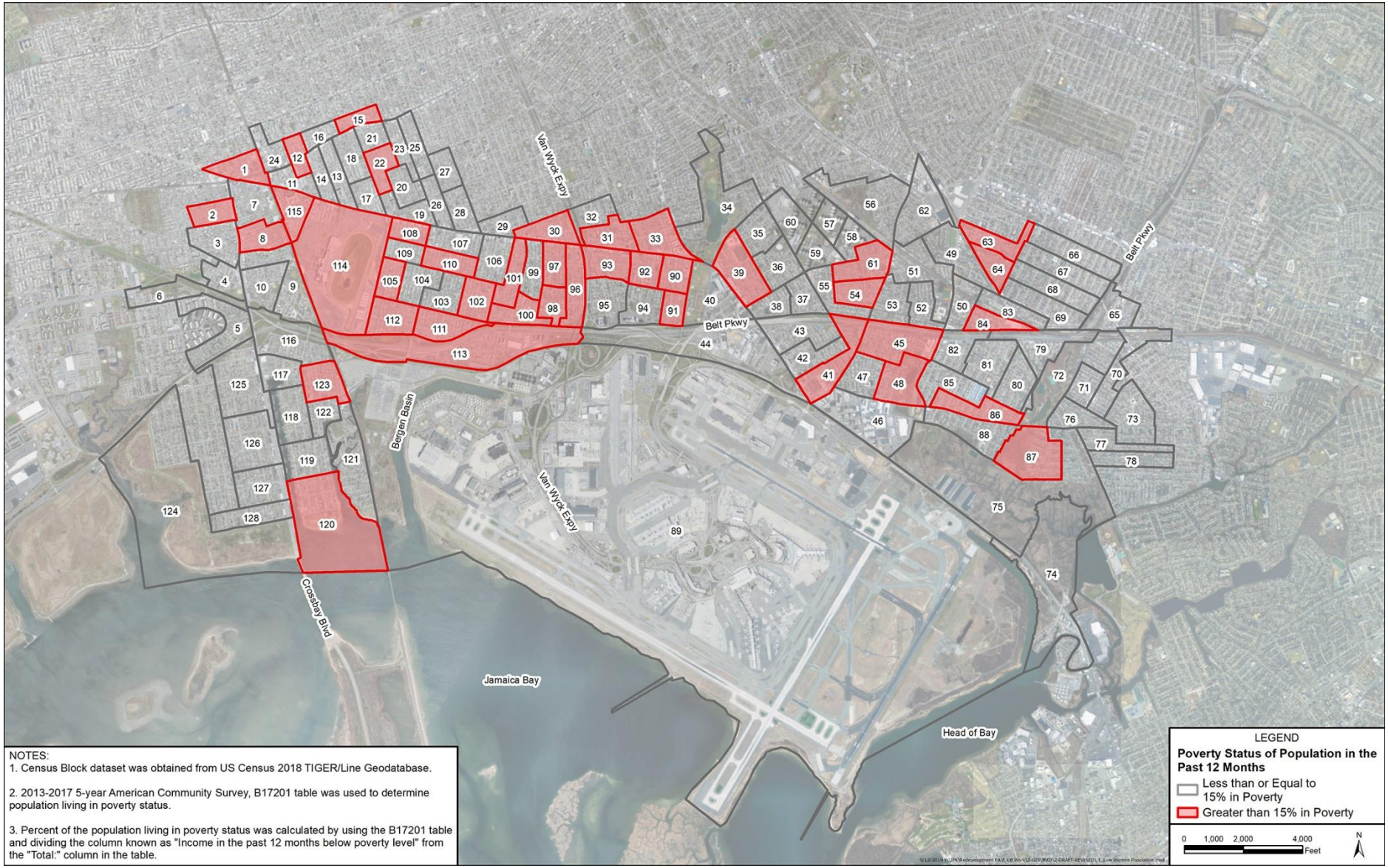
groups include portions of the Ozone Park, South Ozone Park, Wakefield, Spring Gardens, Laurelton, and Brookville neighborhoods of Queens. The 13 percent of the block groups that do not meet the environmental justice criteria are concentrated west of the Airport in the Hamilton Beach and Howard Beach neighborhoods.

Children's Environmental Health and Safety Risks

As shown in **Table 4-16**, the study area has a population of 178,137 and of this total 38,581, or nearly 22 percent, are children under age 18 (i.e., school-aged children). In addition, there are 29 schools within the study area. The schools are scattered throughout the study area, primarily near its perimeter. The nearest schools to the Airport are P.S. 146 Howard Beach and Ave Maria Catholic Academy to the west, P.S. 124 Osmond A Church to the northwest, P.S. 052 Queens to the north, and P.S. 181 Brookfield to the northeast. Most of the schools are located on or proximal to the major roadways in the study area.

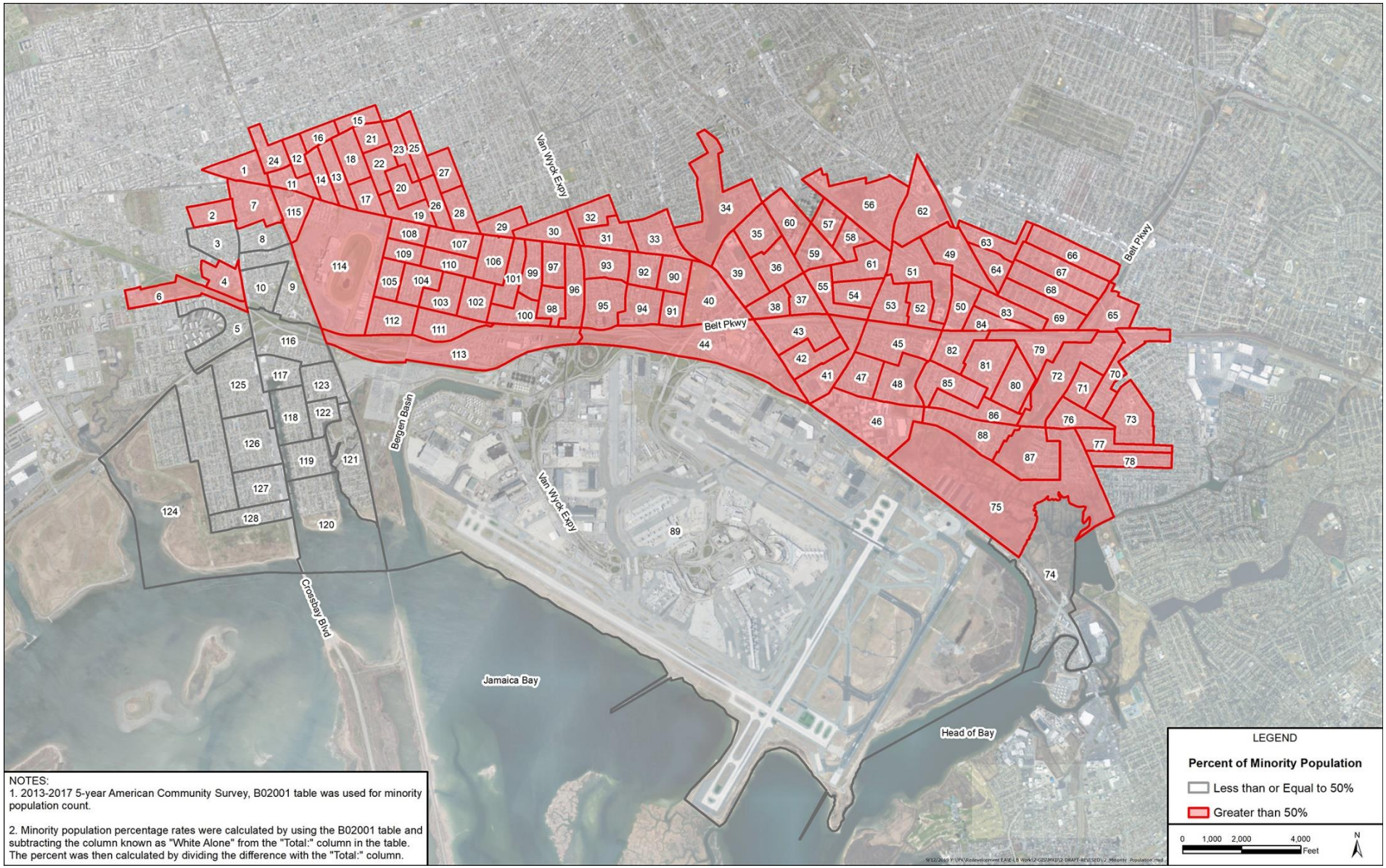
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EXHIBIT 4-10 LOW INCOME POPULATION



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EXHIBIT 4-11 MINORITY POPULATION



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4.13 VISUAL EFFECTS

4.13.1 REGULATORY SETTING

An analysis of visual effects evaluates the extent to which the Proposed Action would have the potential to either 1) produce light emissions that create annoyance or interfere with normal activities; or 2) affect the nature of the visual resources or visual character of the area, including the importance, uniqueness and aesthetic value of the affected visual resources, including by contrasting with, or detracting from, the visual resources and/or the visual character of the existing environment or blocking or obstructing the views of visual resources, including whether those resources would still be viewable from other locations.[126] Although there are no Federal requirements specific to light emissions and visual effects there are laws protecting resources that may be affected by visual effects, such as Section 106 of the NHPA, and Section 4(f) of the DOT Act.

4.13.2 AFFECTED ENVIRONMENT

Light Emissions

JFK is currently illuminated by various types of lighting on the airfield and landside facilities. Lighting that emanates from the airfield includes runway, apron, and navigational lighting such as hold position lights, stop-bar lights, and runway and taxiway signage. Airfield lighting is located along taxiways and ramps for guidance during periods of low visibility, and to assist aircraft movement on the airfield. Aircraft lighting, such as landing lights, position and navigation lights, beacon lights, and vehicle lighting (e.g., headlights, brake lights) are other types of light sources on the airfield. Lights for landside facilities include those for buildings, roadways, and parking facilities. JFK is in an urbanized area, which is composed of other development that is also lighted and contributes to the overall light emissions in the area.

Visual Resources/Visual Character

As previously discussed, the land uses near the Airport consist of commercial and industrial developments and residential areas ranging from detached single-family houses on 40- to 60- foot square lots to medium-density row houses and garden apartments.

4.14 WATER RESOURCES

In accordance with Section 14 of 1050.1F Desk Reference, water resources include wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. The study area for these resources is limited to the Airport and adjacent water bodies, and the affected environment is described below.

4.14.1 REGULATORY SETTING

Wetlands

The United States Army Corps of Engineers (USACE) is the Federal agency that regulates wetlands and waters of the U.S., under the Clean Water Act (CWA). Section 401 of the CWA requires any

[126] FAA, 2015, Order 1050.1F, Environmental Impacts: Policies and Procedures, Exhibit 4-1, page 4-10.

Federal license or permit applicant to obtain a water quality certification if any proposed activity may result in a discharge of pollutants into waters of the U.S. This certification assures that the discharge would comply with the applicable effluent limitations and state water quality standards. Section 402 of the CWA establishes a framework for regulating stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) to ensure water quality standards are attained. All discharges to waters of the state require a permit through the SPDES. If the proposed action or alternative(s) has the potential to discharge pollutants into waters of the United States through a point source, a SPDES permit will likely need to be obtained. Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Wetlands are generally defined by the USACE as, "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."[127]

In the State of New York, the NYSDEC regulates freshwater wetlands in accordance with the New York State Freshwater Wetlands Act (Article 24 of the New York State Environmental Conservation Law [ECL]). In general, NYSDEC regulates wetlands that are 12.4 acres or greater, primarily based on the presence of hydrophytic vegetation. NYSDEC-regulated wetlands are depicted on the NYS Freshwater Wetlands Maps. NYSDEC also regulates a 100-foot adjacent area landward from the wetland/upland boundary.

The NYSDEC administers a permit program regulating activities in tidal wetlands and their adjacent areas in accordance with the Tidal Wetlands Act (NYS ECL Article 25). In general, tidal wetlands consist of the salt marshes, non-vegetated as well as vegetated flats, and shorelines subject to tides. The NYSDEC-regulated "tidal wetland adjacent area" extends up to 300 feet inland from the wetland boundary (up to 150 feet inland within New York City, where JFK is located), but may be less depending on the land use adjacent to the tidal wetland.

Floodplains

Floodplains are defined by EO 11988, *Floodplain Management*, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year."[128]
EO 11988, Floodplain Management requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of 100-year floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The 100-year floodplain is the area determined to have a 1-percent annual chance flood.

EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, issued January 30, 2015, amended EO 11988 and established the Federal Flood Risk Management Standard (FFRMS) to improve the nation's resilience to current and future flood risks. These risks are anticipated to increase over time due to the effects of climate change. EO 13690 and 11988, and the FFRMS call for avoiding adverse impacts associated with actions in a floodplain and minimizing potential harm if an action must be in a floodplain.

[127] Corps of Engineers Wetlands Delineation Manual (January 1987) available at: http://www.cpe.rutgers.edu/wetlands/1987-army-corps-wetlands-delineation-manual.pdf
[128] Executive Order 11988 of May 24, 1977, 42 FR 26951, 3 CFR, 1977.

Surface Water

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403 et seq.) prohibits the unauthorized obstruction or alteration of any navigable waters of the U.S. Section 10 of the Rivers and Harbors Act regulates the construction of any structure in or over any navigable water of the U.S., or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters.

Section 303(d) of the CWA authorizes USEPA to assist states, territories and authorized tribes in listing waters that do not meet applicable water quality standards (i.e., impaired waters) and developing Total Maximum Daily Loads (TMDLs) for these waterbodies. A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality in impaired waters.

The NYSDEC regulates certain surface waters in accordance with New York State ECL Article 15, Protection of Waters Program. All waters of the State of New York are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Certain waters of the state are protected on the basis of their classification.

Groundwater

The Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300(f) – 300j-26) was established to protect the health of the public by ensuring a safe drinking water supply. The Sole Source Aquifer Program, authorized by Section 1424(e) of the SDWA, requires the USEPA to review any Federally financed projects that have the potential to contaminate a sole source aquifer or its recharge area. The NYSDEC works to ensure public health protection through primacy of SDWA and the provision of potable water. Potable water is defined as finished water, after treatment that is safe and satisfactory for drinking and cooking. Public water and water distribution systems in the State of New York are regulated by the NYSDEC (see 6 NYCRR Parts 700-706).

4.14.2 AFFECTED ENVIRONMENT

Wetlands

The following data sources were reviewed to determine if wetlands occur in or adjacent to the Proposed Action Site:

- The USFWS National Wetlands Inventory (NWI) maps[129]
- United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) soils maps[130]
- NYSDEC on-line ERM[131]
- NYSDOS Geographic Information Gateway[132]

Based on review of online data sources and field verification, there are no Federal- or state-regulated freshwater or tidal wetlands within or immediately adjacent to the Proposed Action Site. However, JFK

129 https://www.fws.gov/wetlands/data/Mapper.html. Accessed April 9, 2019.
130 https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed April 9, 2019.
131 http://www.dec.ny.gov/gis/erm/. Accessed April 9, 2019.
132 http://opdgig.dos.ny.gov/#/map. Accessed April 9, 2019.

is adjacent to Federal- and state- regulated tidal wetlands associated with Jamaica Bay as previously shown on **Exhibit 4-4, *State-Designated Tidal Wetlands***. Within New York City, the NYSDEC-regulated "tidal wetland adjacent area" extends up to 150 feet inland from the upper limit of the tidal wetlands. The Proposed Action Site is more than 500 feet from tidal wetlands and is therefore outside the NYSDEC-regulated tidal wetland adjacent area.

Floodplains

Under the 2015 Preliminary Flood Insurance Rate Map (FIRM) the Proposed Action Site is not in the 1 percent (i.e., 100-year floodplain) annual chance floodplain but is mostly within the 0.2 percent Annual Chance floodplain (i.e., 500-year floodplain). The 100-year floodplain as depicted on the FIRM for JFK and the surrounding areas are shown in **Exhibit 4-6, *Preliminary Floor Insurance Rate Map 2015***. The Proposed Action Site is outside the 100-year floodplain. The closest 100-year floodplain to the Proposed Action Site is adjacent to Jamaica Bay and more than 500 feet south of the southernmost element of the proposed South Terminal Development area. **Exhibit 4-6** provides the Federal Emergency Management Agency's (FEMA) designated flood zones. The FEMA zones are defined below:

V-Zone: Coastal areas with a 1 percent annual chance of flooding and an additional hazard associated with storm waves

A-Zone: Areas with a 1 percent annual chance of flooding (100-year floodplain)

Shaded X Zone: Areas with 0.2 percent annual chance floodplain (500-year floodplain)

Surface Water

There are no surface water features in or immediately adjacent to the Proposed Action Site. The closest surface water feature is Jamaica Bay, which is more than 700 feet southwest of the Proposed Action Site. Surface water runoff from parking areas, rooftops, runways, tarmacs, and landscaped areas at JFK drains to a storm sewer system that discharges to Jamaica Bay and its tributaries through 26 outfalls in accordance with the requirements of a NYSDEC SPDES permit.[133] **Exhibit 4-12**, ***Existing Drainage and Outfalls*** depicts the locations of the outfalls and the drainage areas. All sanitary waste from the buildings and terminals at JFK is piped directly to the Jamaica Bay wastewater treatment plant run by the New York City Department of Environmental Protection.

Jamaica Bay is a saline to brackish, eutrophic estuary covering about 25,000 acres with a mean depth of 13 feet and a semidiurnal tidal range average of 5 feet.[134] Tributaries that flow into Jamaica Bay in the vicinity of JFK include Bergen Basin to the west and Thurston Basin and Head of Bay to the east. Rockaway Inlet connects Jamaica Bay to the Lower Bay of New York Harbor, as shown on **Exhibit 4-12**. Although tidal waters enter the Bay at this location there is limited exchange of fresh water with ocean water.

All waters in New York State are assigned a letter classification that denotes their best uses. Letter classes such as A, B, C, and D are assigned to fresh surface waters, and SA, SB, SC, I, and SD to

[133] SPDES Permit No. NY 0008109
[134] Significant Habitats and Habitat Complexes of the New York Bight Watershed, Jamaica Bay and Breezy Point Complex: https://nctc.fws.gov/pubs5/web_link/text/jb_form.htm#Jamaica%20Bay%20and%20Breezy%20Point accessed April 23, 2019

saline (marine) surface waters.[135] The waters of Jamaica Bay and Head of Bay are classified by NYSDEC as SB. The best uses of Class SB waters are primary and secondary contact recreation and fishing. Class SB waters must be suitable for fish, shellfish, and wildlife propagation and survival. Bergen Basin and Thurston Basin are classified as Class I. The best uses of Class I waters are secondary contact recreation and fishing. These waters must be suitable for fish, shellfish, and wildlife propagation and survival. In addition, the water quality shall be suitable for primary contact recreation, although other factors may limit the use for this purpose. Jamaica Bay, Bergen Basin and Thurston Basin are all on the New York State 2016 Section 303(d) List of Impaired/TMDL Waters. The list identifies those waters that do not support appropriate uses and that require development of a TMDL or other restoration strategy.[136]

Groundwater

JFK is underlain by the Brooklyn/Queens groundwater aquifer system, which is part of the larger Long Island aquifer complex. In Queens County, the major aquifers consist of layers of unconsolidated sediment, including sand and gravel. Layers of low permeability clay and silt in the groundwater aquifer system do not transmit water readily; they confine the water under artesian pressure in the aquifers lying between them. Four distinct aquifer levels occur in Queens County. They are, in descending order, the Upper Glacial aquifer, the Jameco aquifer, the Magothy aquifer, and the Lloyd aquifer.[137] Precipitation that percolates to the water table and then downward to the lower aquifers has been the main source of recharge to the groundwater aquifer system in Queens County.

The Brooklyn/Queens aquifer system is designated as a sole source aquifer by the USEPA.[138] Between 1887 and 1996, the privately-owned Jamaica Water Supply Company (JWS) operated a group of groundwater wells that pumped water from the Brooklyn/Queens aquifer system and delivered it to communities in southeastern Queens and portions of Nassau County. In 1996, New York City purchased the Queens portion of the JWS and took responsibility for the delivery of drinking water to those communities served by the groundwater wells. As of 2007, drinking water for these communities is no longer provided by groundwater and instead is provided by surface water sources in upstate New York through the City's viaduct system. Although groundwater is no longer the source of drinking water in Queens, the aquifer system is still considered as a sole-source aquifer because the wells could be made active again and because much of Nassau County and Suffolk County still rely on groundwater as their primary water source. Groundwater within the Proposed Action Site ranges from approximately 5 to 20 feet below ground surface and- generally flows to the south toward Jamaica Bay and away from water supply wells in central Queens. [139, 140]

135 6 CRR-NY Part 701 Classifications – Surface Waters and Groundwaters
136 *New York State 2016 Section 303(d) List of Impaired/TMDL Waters* https://www.dec.ny.gov/docs/water_pdf/303dListfinal2016.pdf
137 U.S. Geological Survey, Prepared in cooperation with the New York State Department of Environmental Conservation, Division of Water Resources; Ground-Water and Geohydrologic Conditions in Queens County, Long Island, New York; 2001.
138 U.S. Environmental Protection Agency; Sole Source Aquifers for Drinking Water; Online at: https://www.epa.gov/dwssa, accessed January 14, 2019.
139 U.S. Geological Surface Long Island Depth to Water View 2013, accessed online at https://ny.water.usgs.gov/maps/li-dtw13/, May 6, 2019.
140 U.S. Geological Survey, Prepared in cooperation with the New York State Department of Environmental Conservation, Division of Water Resources; Ground-Water and Geohydrologic Conditions in Queens County, Long Island, New York; 2001.

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EXHIBIT 4-12 EXISTING DRAINAGE AND OUTFALLS, JOHN F. KENNEDY INTERNATIONAL AIRPORT



Source: New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) Permit No. 0008109

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5 ENVIRONMENTAL CONSEQUENCES

This chapter presents the assessment of potential environmental impacts resulting from implementation of the Proposed Action and the No-Build Alternative. The analysis presented in this chapter includes considerations of direct, indirect, and cumulative impacts and their significance and possible conflicts with the objectives of Federal, regional, state, tribal, and local land use plans, policies, and controls for the area concerned. The Proposed Action would not result in significant impacts to environmental resources as demonstrated in this chapter of the EA; therefore, mitigation measures are not required. However, as a best management practice, to reduce the potential for impacts to environmental resources a number of avoidance and/or minimization measures have been incorporated into the Proposed Action. These measures are discussed, as relevant, for each resource category listed in **Section 5.1, *Resources Potentially Affected***. The following analysis discloses the impacts for the construction years of the Proposed Action (2020-2025). Environmental impacts are presented for air quality and noise and noise-compatible land use in 2025 because that is the anticipated opening year of the Proposed Action, and 2030 because that is five years after opening.

5.1 RESOURCES POTENTIALLY AFFECTED

This chapter is focused on those environmental resources that may potentially be affected by the Proposed Action or No-Build Alternative. These resources are evaluated in detail in this chapter of the EA. This chapter of the EA is organized to address the following topics:

- Section 5.2 – Air Quality
- Section 5.3 – Biological Resources
- Section 5.4 – Climate
- Section 5.5 – Coastal Resources
- Section 5.6 – Department of Transportation (DOT) Act: Section 4(f) Resources
- Section 5.7 – Hazardous Materials, Solid Waste, and Pollution Prevention
- Section 5.8 – Historical, Architectural, Archeological, and Cultural Resources
- Section 5.9 – Land Use
- Section 5.10 – Natural Resources and Energy Supply
- Section 5.11 – Noise and Noise-Compatible Land Use
- Section 5.12 – Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- Section 5.13 – Visual Effects
- Section 5.14 – Water Resources
- Section 5.15 – Cumulative Impacts

The following environmental resources are not present within the Proposed Action Site as shown in **Chapter 1, *Introduction and Background***, on **Exhibit 1-1, *Proposed Action Site***, and would not be affected by the Proposed Action or No-Build Alternative:

- **Farmlands** - The Proposed Action does not include the conversion of any farmlands to non-agricultural use.
- **Wild and Scenic Rivers** - A review of the Wild and Scenic Rivers System list indicated that there are no designated State or National Scenic Rivers within the Proposed Action Site or Queens County.[141]
- **Section 6** - Section 6 of the Federal Land and Water Conservation Fund Act of 1965 (LWCFA) Act created the LWCF as a funding source to implement the outdoor recreation goals in the law. Section 6(f) of the Act requires all funded lands to be retained and used solely for outdoor recreation in perpetuity. No properties funded under the Act are present within the Proposed Action Site; therefore, the Proposed Action would not result in a use of Section 6f-protected resources.

[141] Department of the Interior, National Wild and Scenic Rivers System. Available online: https://www.rivers.gov/new-york.php. Accessed March 2019.

5.2 AIR QUALITY

This section discusses the analysis of potential air quality impacts associated with the Proposed Action. This includes the overall approach, technical analysis and results. More detailed information is contained in **Appendix B, *Air Quality Technical Report*** of this EA

5.2.1 OVERALL APPROACH

The overall approach to conducting the air quality analysis follows FAA guidelines for preparing NEPA documents, which includes:

- FAA Order 1050.1F, *Policies & Procedures for Considering Environmental Impacts* - This document (including the *Desk Reference*) provides guidelines for air quality assessments of all airport-related projects or actions evaluated under NEPA.[142]
- FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects* - Developed specifically for projects or actions under the jurisdiction of the Airports Division of the FAA, this document provides general guidelines for the assessment of air quality impacts in a NEPA analysis.[143]

In accordance with these guidelines, the principal aim of the air quality impact analysis is to meet the requirements of the two following regulations:

NEPA*:* Conformance with NEPA is accomplished by disclosing in the EA the direct and indirect emissions associated with the Proposed Action. This is achieved with emission inventories of both construction activities and operational conditions with (i.e., Proposed Action) and without (i.e., No-Build Alternative) the project. NEPA also requires that the project is shown not to cause, or contribute to, violations of the NAAQS. In this case, this requirement is met by demonstrating that the Proposed Action complies with the State Implementation Plan (SIP).

- Federal CAA: The CAA requires that project emissions do not cause or contribute to violations of the NAAQS. In Nonattainment and Maintenance Areas, a project's compliance with this requirement can be demonstrated by showing that the project emissions conform to the state's plan (State Implementation Plan) for achieving and maintaining NAAQS. For the Proposed Action, this is achieved by demonstrating that the construction and operational emissions are below (i.e., within) the General Conformity Rule *de minimis* levels for criteria air pollutants (see **Section 4.2.2, *Affected Environment***).

As noted in **Section 4.2**, ***Air Quality***, Queens County (including JFK) is designated as a Nonattainment area for O_3 and Maintenance for both CO and $PM_{2.5}$.[144,145] These designations indicate that violations of the NAAQS have occurred in this area. Therefore, the emissions of the greatest importance with respect to the Proposed Action are CO, $PM_{2.5}$, and the pre-cursors to O_3 (NO_x and VOCs).

For the purposes of meeting the requirements of the General Conformity Rule of the CAA, changes in emissions caused by the Proposed Action requires a comparison to the applicable *de minimis* level. The General Conformity Rule establishes *de minimis* levels to identify Proposed Actions with air quality

142 FAA Order 1050.1F, *Policies & Procedures for Considering Environmental Impacts, Desk Reference,* July 2015
143 FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 2006
144 USEPA, Nonattainment Status for Each county by Year for New York, (Current as of March 31, 2018). Accessed on 4/2/2018 via http://www.epa.gov/airquality/greenbook/anayo_ny.html
145 See also Chapter 4, Section 4.2 for classifications and definitions of Attainment/Non-attainment/Maintenance areas.

impacts large enough to require a conformity determination. When the change in emissions between the No-Build Alternative and the Proposed Action is less than the applicable *de minimis* levels, it is considered too small to adversely affect the air quality status of the area. Therefore, the action is presumed to conform to the approved SIP, and the air quality analysis process is complete. For Nonattainment areas, the *de minimis* levels for criteria air pollutants vary based on the degree to which the area is in Nonattainment. The higher (more serious) the classification, the lower the *de minimis* threshold.[146] As set forth in **Section 4.2*, Air Quality***, the New York region is classified by USEPA as being in Maintenance for CO and $PM_{2.5}$ and Serious Nonattainment for the 2008 ozone NAAQS. Therefore, the *de minimis* threshold for the ozone-precursors of NO_x and VOCs is 50 tons per year and for CO and $PM_{2.5}$ the threshold is 100 tons per year.[147, 148]

5.2.2 AIR QUALITY ANALYSIS METHODOLOGY

For the purposes of this analysis, sources of emissions associated with the Proposed Action are divided into the following three categories:

- Construction Activities: These include construction equipment (e.g., graders, cranes, pile drivers) and vehicles (e.g., haul trucks, transport vehicles, construction worker vehicles). Wind erosion of earthen materials (i.e., dust) and evaporative emissions from asphalt paving activities are also included. This accounts for construction emissions for Years 2020 through 2025.
- Aircraft Operations: These comprise emissions from aircraft engines (including auxiliary power units (APUs)) running on the airside of the CTA, including emissions associated with aircraft that are taxiing or waiting due to terminal area taxiway, apron and gate delays. Additionally, emissions from GSE servicing the aircraft were included. This accounts for aircraft operational emissions for Years 2020 to 2025 and Year 2030.
- Motor Vehicle Traffic: These are emissions associated with passenger-related motor vehicle trips traveling to the CTA that may be affected by the Proposed Action.

The study area for the air quality analysis is centered on the CTA and encompasses the Proposed Action as described in **Section 1.1.2, *Description of the Proposed Action***. Off-airport, the study area expands outward north, east and west to include the Aqueduct Parking area, the JFK Expressway and the Belt Parkway. Construction worker trips and construction truck haul routes extend further to the neighboring Queens and Kings Counties. The CO, $PM_{2.5}$, and O_3 Nonattainment/Maintenance areas encompass the New York/New Jersey Metropolitan Region (the Region).

In accordance with FAA NEPA guidelines and the Proposed Action development schedule, air emissions are estimated for both the Proposed Action and the No-Build Alternative. Two scenarios were considered in evaluating potential air quality impacts from the Proposed Action. These scenarios are: Construction Scenario and Operational Scenario. Each scenario has an associated time period – Construction Scenario occur from 2020 through 2025 and Operational Scenario include Year 2025 and 2030. Sources of emissions during the Construction Scenario include construction equipment, aircraft operations and motor vehicle traffic at intersections. Emissions during the first Operational Scenario (Year 2025), and five years beyond the first Operational Scenario (Build-out Year 2030) are estimated from aircraft operations and on-airport motor traffic.

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146 Ozone nonattainment areas are further classified as extreme, severe, serious, moderate, or marginal.
147 USEPA, Nonattainment Status for Each county by Year for New York, (Current as of March 31, 2018). Accessed on 4/2/2018 via http://www.epa.gov/airquality/greenbook/anayo_ny.html
148 See also **Chapter 4, Section 4.2** for classifications and definitions of Attainment/Non-attainment/Maintenance areas.

Air Quality Analysis Process

The following describes the Air Quality Analysis Process for the collection, refinement and preparation of input data for the emissions sources (construction activities, aircraft operations and motor vehicle traffic) discussed above and forms the basis of the analysis. As a means of developing the necessary data to perform the air quality analysis, the following multi-step process was used:

- Identify Data Needs: Detailed listings of data requirements were prepared and distributed to the Port Authority and the developers of the Proposed Action. Examples of information requested include construction equipment types and age, fuel types and use, motor vehicle travel distances and aircraft delay times.
- Obtain the Data: Detailed information was obtained from the Port Authority and the entities responsible for constructing and operating the Proposed Action (e.g., facility dimensions, construction duration, materials, equipment use, and operational characteristics).
- Evaluate and Refine the Data: Construction and operational data were reviewed and refined as necessary to account for specific details associated with the Redevelopment Program.
- Data Preparation: The data was organized and converted to appropriate formats for emission calculations and modeling.

5.2.3 EMISSIONS DURING THE CONSTRUCTION SCENARIO

In general, air emissions associated with construction activities are temporary and variable depending on the Proposed Action location, duration, and level of activity. These emissions occur predominantly in engine exhaust from the operation of construction equipment and vehicles at the site (e.g., scrapers, dozers, delivery trucks, etc.) and from transporting construction workers to and from the site. Additionally, fugitive dust emissions result from site preparation, land clearing, material handling, equipment movement on unpaved areas; and from evaporative emissions that occur during the application of asphalt paving. The construction equipment typically utilized in airport projects is comprised both of on-road vehicles (i.e., on-road licensed) and non-road equipment (i.e., off-road). The former category of vehicles are used for the transport and delivery of supplies, material and equipment to and from the site and includes construction worker vehicles. The latter category of equipment is operated on-site for activities such as soil/material handling, site clearing and grubbing.

Emissions from Construction Equipment

Data needed to compute construction emissions was obtained from the Airport Construction Emissions Inventory Tool (ACEIT), a tool developed under the Airport Cooperative Research Program.[149] ACEIT provided data for the number and types of construction equipment, the horsepower of the equipment, how long they operate (hours), and VMT. The tool also provides default values for these inputs so that emissions can be estimated for projects that lack project-specific data because the construction project is in the early stages of design. For projects in more advanced stages of design, ACEIT allows use of project-specific data instead of relying on default values. Using project-specific data in ACEIT results in a more accurate emissions estimate than using default values. As stated in ACEIT's documentation, users with detailed information on expected site-specific construction activities should use the site-

[149] ACEIT is the companion tool to the Airport Cooperative Research Program Report 102 - Guidance for Estimating Airport Construction Emissions.

specific construction data rather than ACEIT default values to improve the accuracy of ACEIT's output.[150]

At the time of the development of the air quality analysis for this EA, detailed data on construction schedules and equipment was readily available from the developers of both the North and South Terminal Developments. This data included the numbers of construction equipment/vehicles, equipment types, activity levels (i.e., hours of use), and VMT, and had been prepared by each Developments' project managers, construction engineers, and construction schedulers to support construction cost estimates and for other business purposes.

For aspects of the Redevelopment Program that did not yet have project-specific construction data (e.g., roadways in the CTA), the emissions estimate relied on ACEIT default values for construction equipment/vehicles, equipment types, activity levels, and VMT. The Port Authority validated the ACEIT default values by conferring with its construction planners and schedulers; this ensured that equipment types and use were consistent with other construction projects occurring on JFK. Where Port Authority construction planners and schedulers had detailed plans for construction activities, that data was utilized in ACEIT.

For both on-road vehicles and off-road construction equipment, emission factors were developed using USEPA's Motor Vehicle Emission Simulator (i.e., MOVES)[151], fugitive dust emissions were calculated using emission factors within EPA's Compilation of Air Pollutant Emission Factors (AP-42) and evaporative emissions were developed using EPA guidance on asphalt paving.

Unless project-specific information on the age of the construction equipment to be used is available, equipment age is taken into account by MOVES, which uses a composite age based for Queens County. Because the South and North Terminal Redevelopments were in advanced stages of design, the construction emissions estimate was based on actual project criteria. Specifically, consistent with its agency-wide efforts to minimize air quality impacts from its large capital projects, the Port Authority is limiting diesel construction equipment used for the Proposed Action to equipment that meets the most stringent USEPA emissions standards.[152] USEPA has been phasing-in increasingly more stringent emissions standards for nonroad diesel equipment over time, starting with the first phase (Tier 1) for model year 1998 equipment and currently Tier 4 (beginning with the 2008 model year). Based on the equipment fleets used on recent Port Authority construction projects, industry research and input from the developers of the North and South Terminal Redevelopments, there is now sufficient Tier 4 construction equipment on the market and in use to limit construction equipment for the Redevelopment Program to the following:

- Equipment Less Than 100 HP: 70 percent of non-road diesel construction equipment that is less than 100 horsepower shall meet USEPA Tier 4 Emission Standards; and
- Equipment Greater Than 100 HP: 100 percent of non-road diesel construction equipment equal to or greater than 100 horsepower shall meet USEPA Tier 4 Emissions Standards.

150 National Academies of Sciences, Engineering, and Medicine 2014. Guidance for Estimating Airport Construction Emissions. Washington, DC: The National. Academies Press. https://doi.org/10.17226/22437

151 EPA's MOVES2014b is the latest version of MOVES, which includes the NONROAD model. Additional information on MOVES2014b is available at https://www.epa.gov/moves/moves2014a-latest-version-motor-vehicle-emission-simulator-moves.

152 40 C.F.R. Sections 86, 89.112, 1039, and 1065.

This estimate of construction emissions takes into account the Tier 4 nonroad diesel equipment requirements set by the USEPA. Tier 4 standards were then used to determine the appropriate equipment ages to apply to the Motor Vehicle Emissions Simulator (MOVES) to develop emission factors. If Tier 4 emission standards were not considered, emission factors would be determined solely from the MOVES composite emission factors for Queen's county, which would meet Tier 3 emission standards.

Operational Emissions During the Construction Scenario

Operational emissions during the Construction Scenario (2020 through 2025) include emissions associated with aircraft operations (including GSE and APUs) as well as motor vehicles operating within the CTA.

The Port Authority provided aircraft fleet mix and estimates of aircraft taxi and delay times during the Construction Scenario. There will be no changes in operations during the Construction Scenario attributable to the Proposed Action; however, emissions could change due to changes in aircraft taxi and delay times. Emissions estimates associated with aircraft operations were developed using the Aviation Emissions and Environmental Design Tool (AEDT). In this case, the emissions are related to aircraft delay associated with gate availability during construction. For example, an arriving aircraft that has to wait for an available gate is assumed to run its engines during the time that it is delayed. For more details on aircraft taxi and delay times, see **Appendix H: *TAAM Report*** of the EA.

On-airport traffic emissions are associated with motor vehicles traveling on roadways and parking facilities within the airport property. Emissions from these sources are computed using emission factors from MOVES and VMT data from the VISSIM Traffic Simulation Program. For more details on VISSIM modeling and on-airport traffic see **Appendix G: *Traffic Report of the EA*.**

The model, databases and resources used in the operational emissions analysis are FAA- and EPA-Required or Preferred and are summarized in **Table 5-1, *Operational Emissions Assessment Models & Databases***.

TABLE 5-1 OPERATIONAL EMISSIONS ASSESSMENT MODELS & DATABASES
John F. Kennedy International Airport

Model/Database	Application
Aviation Environmental Design Tool (AEDT)	FAA model for computing airport-related air emissions from aircraft engines during ground-based taxi/delay periods as well as APUs, and GSE.
Motor Vehicle Emission Simulator (MOVES)	USEPA model used to compute emission factors for on-road motor vehicles. The outputs are based on area-specific inputs such as fuel type, geographic location, fleet age, temperature, etc.
VISSIM Traffic Simulation Program	Used to develop on-airport motor vehicle VMT.

Traffic Intersection Emissions Inventory (Hot Spot Analysis)

To assess the impact of the Proposed Action from off-site traffic during the Construction Scenario, a hot-spot intersection analysis was performed for the peak traffic year of 2022. Based on an assessment of the construction phasing plans for the Proposed Action, construction activities in 2022 are expected to generate the greatest number of construction-related worker and truck trips on the surrounding off-Airport roadway system. Therefore, 2022 was selected as the analysis year for evaluating potential off-Airport traffic impacts during construction.[153]

A hot-spot analysis is used to determine whether CO and $PM_{2.5}$ emissions caused by increases in traffic volumes associated with the Proposed Action would result in unacceptably high pollutant concentrations in public areas. CO and $PM_{2.5}$ are the typical pollutants of concern related to traffic. Traffic volumes would increase temporarily during the Construction Scenario. Therefore, a hot-spot analysis was conducted for the worst-case construction conditions, which is not necessary for future conditions after construction is complete.

The screening procedures established in the *CEQR Technical Manual* were used to further determine whether a hot-spot modeling analysis was required, in accordance with 40 CFR 93.116 requirements. Traffic volume data was used for screening and was derived for nine intersections anticipated to be the most impacted by traffic increases during construction. Further, to determine the worst-case impacts, traffic volumes were evaluated for weekday peak-hour periods for 2022, which is anticipated to have the most significant increase in off-airport traffic related to the Proposed Action. For each intersection, traffic volumes were estimated based on existing traffic counts and projected future growth. Intersection data used un the analysis, including level-of-service, signal timing, traffic counts, etc. were derived from the Synchro Traffic Model outputs.[154] For more details on intersection traffic data see **Appendix G, *Traffic Report.***

Each of the nine intersections was screened according to the following *CEQR Technical Manual* thresholds:

- CO: 170 or more incremental vehicle trips caused by the Proposed Action
- $PM_{2.5}$: 23 or more incremental heavy-duty diesel vehicles (HDDV) caused by the Proposed Action

If the foregoing screening thresholds were not exceeded for an intersection, no further analysis was needed. For intersections where thresholds were exceeded, they were ranked based on both LOS degradation and traffic volume increases. The screening analysis determined that three intersections would require further hot-spot modeling for CO, while further analysis was not needed for $PM_{2.5}$.

The model, databases and resources used in the Hot Spot Analysis are FAA- and EPA- Required or Preferred and summarized in **Table 5-2, *Hot-Spot Analysis Models & Databases***.

[153] Details of Peak Traffic Year are contained in Appendix G – Traffic Report, Traffic Analysis of Off-Airport Roadways During Construction

[154] Synchro Studio Planning and Analysis Software (Synchro) is a software application that is used to model signalized intersections, unsignalized intersections and traffic circles. Synchro is also used to determine intersection capacity.

TABLE 5-2 HOT-SPOT ANALYSIS MODELS & DATABASES
John F. Kennedy International Airport

Model	Application
Motor Vehicle Emission Simulator (MOVES)	USEPA model used to compute emission factors for on-road motor vehicles for input into CAL3QHC. The outputs are based on area-specific inputs such as fuel type, geographic location, fleet age, temperature, etc.
Synchro Traffic Model	Develops intersection data including, level-of-service, signal timing, traffic counts, for input into CAL3QHC. (See **Appendix G: *Traffic Report*** for further details on Synchro).
CAL3QHC	Hot-spot model with input from (i) Synchro traffic data and (ii) emission factors from MOVES. CAL3QHC is used to estimate air pollutant concentrations at receptor locations near impacted intersections.

5.2.4 EMISSIONS DURING THE OPERATIONAL SCENARIO

The Operational Scenario analysis addresses emissions associated with on-airport motor vehicle traffic and aircraft operations during Years 2025 and 2030.

On-Airport Traffic

On-site traffic emissions are associated with motor vehicles traveling on roadways and parking facilities within the Airport property. Emissions from these sources are computed using emission factors from MOVES and VMT data from VISSIM. For more details on VISSIM modeling and on-airport traffic see **Appendix G: *Traffic Report*** of the EA.

Aircraft Operations

For the Operational Scenario 2025 and 2030, emissions from aircraft operations on the ground are estimated using AEDT. Aircraft operational data (aircraft types, taxi and delay time) inputted into AEDT are derived from TAAM. APUs and GSE types and time-in-mode (TIM) are based on AEDT defaults.

The configuration of the existing T1, T2, T6 and T7 piers and aprons has resulted in taxilane geometries that impede the efficient circulation of aircraft, with single points (dependent) of entry and exit from the terminal aprons to the rest of the airfield. Chronic congestion occurs during peak periods as inbound aircraft are forced to wait on Taxiways A or B for outbound aircraft to leave their gates. Only a single aircraft can use each of these taxilanes at a time. Aircraft waiting on Taxiways A and B frequently block the circulation of other aircraft traffic, or air traffic controllers make them move, forcing them to bypass their intended parking location and recirculate and attempt to enter their terminal's apron for a second time.

The aircraft apron and taxilane geometry in the Proposed Action would eliminate traffic conflicts by creating single direction aircraft traffic flows on the terminal aprons. The North and South Terminal Developments would have aprons with independent exit and entry points, allowing inbound and outbound aircraft to simultaneously access their gates. The majority of the existing aircraft traffic conflicts that occur with the No-Build Alternative apron geometry would be eliminated.

The Port Authority completed a comprehensive TAAM simulation analysis of the Proposed Action to quantify its impact on airfield operations. Two alternatives were analyzed: (1) No-Build Alternative, and (2) the Proposed Action. Simulation models were developed to assess the Airport's performance for each flow configuration typically used by aircraft while taxing at the Airport. These models were then used to estimate the differences between the aircraft taxi times and ground delays between the No-Build Alternative and Proposed Action. The analysis examined two demand levels, 2025 and 2030, using flight schedules that represented the Average Day Peak Month for each year. The simulation demonstrated that implementation of the proposed Redevelopment Program would result in a delay reduction for all flow configurations.

For each flow configuration for the 2025 demand level, **Table 5-3, *Average Delay Per Operation – 2025 Demand Level*** shows: (1) the average delay per operation for the No-Build Alternative and Proposed Action; and (2) delay reduction improvement between the No-Build Alternative and Proposed Action**. Table 5-4, *Average Delay Per Operation – 2030 Demand Level*** presents similar metrics for the 2030 demand level.

- In 2025, the aircraft delay reduction ranges from 0.2 minutes / operation for the NW flow, to 1.8 minutes / operation for the SW flow.
- In 2030, the aircraft delay reduction ranges from 0.8 minutes / operation for the NE flow, to 1.9 minutes / operation for the SW flow.

TABLE 5-3 AVERAGE DELAY PER OPERATION – 2025 DEMAND LEVEL
John F. Kennedy International Airport

Flow	No-Build Alternative (minutes)	Proposed Action (minutes)	Improvement (minutes)
Northeast	16.7	16.1	0.6
Southeast	23	22.4	0.5
Northwest	30.5	30.3	0.2
Southwest	17	15.2	1.8

Source: Port Authority, 2019

TABLE 5-4 AVERAGE DELAY PER OPERATION – 2030 DEMAND LEVEL
John F. Kennedy International Airport

Flow	No-Build Alternative (minutes)	Proposed Action (minutes)	Improvement (minutes)
Northeast	16.9	16.1	0.8
Southeast	22	20.6	1.4
Northwest	32.5	31	1.5
Southwest	17	15.2	1.9

Source: Port Authority, 2019.

As shown in **Tables 5-3** and **5-4**, the Proposed Action would result in an overall decrease in average taxi time at JFK. As a result, aircraft emissions would be reduced with the implementation of the Proposed Action compared to the No-Build Alternative.

5.2.5 AIR QUALITY ANALYSIS RESULTS

As discussed in **Chapter 2*, Purpose and Need***, the Proposed Action would not increase aircraft activity beyond forecasted levels or cause a permanent change in runway use patterns. The Proposed Action also would not cause an increase in the total number of motor vehicles traveling to and from JFK beyond that associated with forecasted growth. However, the Proposed Action would generate air emissions associated with construction activities, alter surface traffic movements in the CTA, and change aircraft taxi/delay times on the airside during the Construction Scenario.

The following air quality analysis results are organized by Construction Scenario and Operational Scenario for Years 2020 through 2025, and Year 2030, as outlined below:

- Specific pollutants in Serious Nonattainment (NO_x) and Maintenance (CO and $PM_{2.5}$) for the Construction Scenario (2020 through 2025);
- Construction Scenario and Operational Scenario combined for Years 2020 to 2025 plus Year 2030; and
- Intersection Hot-Spot Analysis within the Construction Scenario.

Construction Scenario Nonattainment and Maintenance Pollutant Emissions

Due to the New York region's classification by the USEPA as being in Maintenance for CO and $PM_{2.5}$ and Serious Nonattainment for the 2008 ozone NAAQS, a detailed analysis of pollutant emission tons per year for CO, NO_x, and $PM_{2.5}$ are provided in **Table 5-5, *Nonattainment/Maintenance Pollutant Emissions for the Construction Scenario (Tons/Year)***. The sources of emissions in this **Table 5-5** come from construction equipment needed to construct the Redevelopment Program, including buildings, aircraft hardstand parking positions, and roadways, as well as motor vehicle trips by construction workers accessing the site. The emissions are distinguished by construction year and Proposed Action element.

TABLE 5-5 NONATTAINMENT/MAINTENANCE POLLUTANT EMISSIONS FOR THE CONSTRUCTION SCENARIO (TONS/YEAR)
John F. Kennedy International Airport

Year	2020			2021			2022		
Proposed Action Element	**CO**	**NO_x**	**$PM_{2.5}$**	**CO**	**NO_x**	**$PM_{2.5}$**	**CO**	**NO_x**	**$PM_{2.5}$**
South Terminal Development	17.3	5.1	0.6	44.1	11.6	1.2	37.1	12.7	1.1
North Terminal Development	7.3	5.8	1.9	12.8	6.6	1.4	13.7	4.5	1.0
Terminal 4 Headhouse and Concourse A Expansion	3.2	5.8	0.3	8.0	3.5	0.2	6.5	2.8	0.2
South Hardstand Area	4.6	8.4	1.2	9.2	5.4	1.3	--	--	--
North Hardstand Area	4.0	6.9	0.5	--	--	--	--	--	--
Roadways to Support Terminal Development	1.5	0.9	0.1	7.5	1.2	0.2	6.2	1.2	0.2
***CAA de minimis* thresholds (1)**	***100***	***50***	***100***	***100***	***50***	***100***	***100***	***50***	***100***
Total	**38.0**	**32.9**	**4.6**	**81.6**	**28.3**	**4.2**	**63.4**	**21.3**	**2.4**
Year	**2023**			**2024**			**2025**		
Proposed Action Element	**CO**	**NO_x**	**$PM_{2.5}$**	**CO**	**NO_x**	**$PM_{2.5}$**	**CO**	**NO_x**	**$PM_{2.5}$**
South Terminal Development	32.5	15.2	1.6	19.4	8.5	1.6	4.2	4.7	0.5
North Terminal Development	11.5	3.9	0.4	10.4	5.6	0.9	3.5	2.6	0.2
Terminal 4 Headhouse and Concourse A Expansion	--	--	--	--	--	--	--	--	--
South Hardstand Area	--	--	--	--	--	--	--	--	--
North Hardstand Area	--	--	--	--	--	--	0.8	1.9	0.6
Roadways to Support Terminal Development	0.1	0.2	<.1	--	--	--	--	--	--
***CAA de minimis* thresholds**	***100***	***50***	***100***	***100***	***50***	***100***	***100***	***50***	***100***
Total	**44.1**	**19.3**	**2.0**	**29.8**	**14.1**	**2.4**	**8.5**	**9.2**	**1.3**

Note: (1) 40 CFR Section 93.153(b)(1) (general conformity *de minimis* thresholds).
[a] "—" = No emissions changes expected.
Source: KB Environmental Sciences, 2019.

Construction and Operational Scenario Emissions Results

Total emissions associated with the Proposed Action are the sum of construction (vehicle/equipment) and operational (aircraft/APUs and GSE) emissions occurring during the same year. Total emissions of NO_x, VOCs, CO, PM_{10} and $PM_{2.5}$ for the Proposed Action are provided in **Table 5-6, *Emissions Associated with the Proposed Action, During the Period 2020-2025 and 2030 (Tons Per Year)***. **Table 5-6** includes all emissions from **Table 5-5**. For ease of interpretation, the total emissions in **Table 5-6** are segregated into Construction and Operation Scenario. They are also added together for direct comparison to the General Conformity Rule *de minimis* levels.

As shown in **Table 5-6**, the second year of construction (2021) represents the year of highest overall project-related emissions; the emissions are due to the level of construction activities scheduled for this time period.

As described in **Tables 5-3** and **5-4**, beginning in 2023, taxiway improvements from the Proposed Action result in a decline in aircraft delays over existing conditions. For example, CO and NO_x emissions are reduced by 14.5 and 1.7 tons, respectively, compared to the No-Build Alternative. This reduction in emissions compared to the No-Build Alternative is attributable to reduced taxi/delay periods resulting from the Proposed Action's airfield improvements and the addition of new gates. Emissions reductions are also realized from improvements to the CTA roads, which provide for more efficient motor vehicle operating conditions from reduced roadway congestion, higher LOS at terminal curbfront, and less "stop-and-go" and "bottle-necks" throughout the CTA.

The reduction in operational emissions continues through 2030. These benefits can be seen in more detail in **Appendix B, *Air Quality Technical Report.***

TABLE 5-6 EMISSIONS ASSOCIATED WITH THE PROPOSED ACTION, DURING THE PERIOD 2020-2025 AND 2030 (TONS/YEAR)
John F. Kennedy International Airport

YEAR 2020						
Emission Sources	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	38.0	32.9	0.17	25.6	31.8	4.6
Operational Emissions	--[a]	--	--	--	--	--
Total	38.0	32.9	0.17	25.6	31.8	4.6
***CAA de minimis* thresholds**[(1)]	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	***--***[b]	***No***	***--***[b]	***No***
YEAR 2021						
Emissions Sources	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	81.6	28.3	0.16	30.6	30.8	4.2
Operational Emissions	--	--	--	--	--	--
Total	81.6	28.3	0.16	30.6	30.8	4.2
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	***--***	***No***	***--***	***No***
YEAR 2022						
Emission Sources	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	63.4	21.3	0.2	30.8	15.8	2.4
Operational Emissions	--	--	--	--	--	--
Total	63.4	21.3	0.2	30.8	15.8	2.4
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	***--***	***No***	***--***	***No***

YEAR 2023						
Emission Sources	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	44.1	19.3	0.1	10.2	12.6	2.0
Operational Emissions	-14.5	-1.7	-3.1	-0.8	-0.1	-0.1
Total	29.6	17.6	-3.0	9.4	12.5	1.9
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	**--**	***No***	**--**	***No***
YEAR 2024						
Emissions Source	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	29.8	14.1	0.1	26.1	19.0	2.4
Operational Emissions	-25.4	-2.9	-5.4	-1.3	-0.1	-0.1
Total	4.4	11.2	-5.3	24.8	18.9	2.3
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	**--**	***No***	**--**	***No***
YEAR 2025						
Emissions Source	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	8.8	10.1	0.1	14.0	10.1	1.4
Operational Emissions	-106.9	-12.3	-22.9	-5.6	-0.4	-0.4
Total	-98.1	-2.2	-22.8	8.4	9.7	1.0
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	**--**	***No***	**--**	***No***
YEAR 2030						
Emissions Source	CO	NO_x	SO_2	VOC	PM_{10}	$PM_{2.5}$
Construction Emissions	--	--	--	--	--	--
Operational Emissions	-249.9	-27.7	-52.6	-12.9	-0.9	-0.9
Total	-249.9	-27.7	-52.6	-12.9	-0.9	-0.9
***CAA de minimis* thresholds**	*100*	*50*	*100*	*50*	--	*100*
Exceeds CAA *de minimis*?	***No***	***No***	**--**	***No***	**--**	***No***

Note: (1) 40 CFR Section 93.153(b)(1) (general conformity *de minimis* thresholds).
Criteria pollutants and their precursors include carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOCs), and particulate matter with diameters of 10 and 2.5 microns (PM_{10} and $PM_{2.5}$).
Negative numbers under emissions categories represent reductions from baseline conditions.
Table reflects the change in operational emissions due to the Proposed Action only.
[a] "--" = Queens is in attainment and the *de minimis* levels do not apply
[a] "—" = No emissions changes expected.
Source: KB Environmental Sciences, 2019.

As discussed in **Section 4.2, *Air Quality,*** under the CAA, compliance with the SIP must be demonstrated for the Proposed Action. To meet this requirement, the total project emissions are compared to the General Conformity Rule *de minimis* levels.

Using the emissions estimate methods described in **Section 5.2.3, *Emissions During the Construction Years,*** and based the Proposed Action would not generate emissions in amounts that exceed the applicable *de minimis* thresholds of the General Conformity Rule. This outcome applies to all five construction years (2020 through 2025), the operational Year 2025 and Build-out Year 2030 and all pollutants for which the JFK area is designated as nonattainment (O_3) and maintenance (CO and $PM_{2.5}$).Therefore, the Proposed Action meets the requirements of the General Conformity Rule, and thereby conforms with the approved SIP. As a result, no further action is required to meet the requirements of the General Conformity Rule.[155]

5.2.6 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

One of the "key" components of the Proposed Action is the implementation of emissions avoidance and minimization measures, which were appropriately accounted for in the emissions modeling. The emission reductions achieved with these minimization measures are additional to those achieved by the operational benefits of the Proposed Action on both the airside (e.g., less emissions with less taxi/delay) and landside (e.g., more efficient roadway system resulting in less "stop-and-go" traffic and thus less emissions).

While the construction of the Proposed Action would be anticipated to contribute to fugitive dust in and around the construction site, emissions will be minimized by adhering to guidelines included in FAA Advisory Circular (AC) 150/5370-10G, *Standards for Specifying Construction of Airports*.[156] These measures include: (i) exposing the minimum area of erodible earth; (ii) using water sprinkler trucks and covered haul trucks; and requiring contractors to adhere to Construction Emission Control Plans. This will minimize the amount of dust migrating off the Airport and into adjoining communities.

As discussed previously, the following construction emission control measures are considered one of the main contractor requirements for reducing construction emissions associated with the Proposed Action:

- Equipment Less Than 100 HP; 70% of non-road diesel construction equipment that is less than 100 horsepower shall meet USEPA Tier 4 Emission Standards; and
- Equipment Greater Than 100 HP; 100% of non-road diesel construction equipment equal to or greater than 100 horsepower shall meet USEPA Tier 4 (final) emissions standards.

These measures are considered "over and above" what is normally required for construction projects off-airport. In addition, the following measures that are already in-place by the Port Authority will be applied where appropriate:

- **Reduce Emissions Associated with Construction Equipment/Vehicles and Materials Handling and Construction Debris**

[155] Should further changes occur to the construction schedule for the Redevelopment Program that are presently unanticipated, it is very unlikely the emission inventory results would change substantially or exceed *de minimis* levels because construction related emissions are well below the applicable de minimis levels for CO, VOCs, NO_x, and $PM_{2.5}$ and the construction schedule, which the emission inventory results is based upon, assumes some project variability.

[156] FAA Advisory Circular, *Standards for Specifying Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*, AC 150/5370-10G (July 21, 2014)

- Required use of ultra-low sulfur diesel.
- Limit idling to 3 minutes.
- Use of electric-powered equipment instead of diesel to the extent feasible.
- Use of the lowest-practical engine size (lowest horsepower) for the job.
- Prohibition on tampering to boost horsepower or to defeat emissions controls.
- Random inspections.
- Submittal of a Diesel Emissions Compliance Plan for PA review and approval.
- Diesel-powered generators are limited to situations where commercial electric power may not readily be available.

- **Reduce Emissions Associated with Transportation of Construction Materials and Construction Debris**
  - Utilize fewest trips possible.
  - Cover transported materials with tarps to avoid wind erosion.
  - Use two-way trips when possible to avoid (deadheading) to and from the construction sites.
  - Use alternative “less polluting” transport when possible (e.g., barging, rail, conveyors)

- **Reduce Emissions Associated with Construction Worker Vehicle Trips**
  - Workers have to park at Aqueduct.
  - Workers will be shuttled between Aqueduct and the construction site by either zero-emissions vehicles or low-emissions vehicles equipped with idling reduction devices.
  - Contractors have to provide the workers with incentives for use of public transportation (e.g., provide MTA MetroCards, enroll in a program like WageWorks).
  - At least 10% of each contractors’ on-road vehicle fleet used at JFK has to be electric.

- **Reduce Operational Emissions**
  - New terminals LEED Silver (at a minimum)
  - eGSE charging stations required at each gate
  - Required transition from diesel/gasoline GSE to eGSE
  - 400 HZ ground power required at each gate (eliminates the need for diesel-powered ground-power units)
  - Preconditioned air required at each gate (eliminates the need for aircraft to run their APUs)
  - More gates mean fewer delays, which means lower emissions associated with aircraft that are idling while waiting for a gate
  - More efficient use of airside space at the terminals (apron area) will minimize congestion of aircraft at the apron, which translates to reduced emissions associated with aircraft that are idling while waiting for other aircraft to move
  - Simplified roadways and terminal frontages will reduce vehicle traffic congestion in the CTA, thereby cutting vehicle-related emissions
  - More charging stations for electric vehicles in the patron parking garage (Ground Transportation Center). Signage in the GTC to direct drivers to available parking spaces will reduce time spent circling around inside the garage looking for parking (and, thus, reduced emissions)

Furthermore, in accordance with the Port Authority's Sustainable Design Guidelines, project-related emissions will be further reduced during and after construction. For example, during construction, contractors will also be required to use ultralow sulfur diesel (ULSD) fuel; all off-road equipment will be required to be retrofitted with emission control devices using Best Available Technology; and diesel-powered generators will be limited to situations where commercial electric power may not readily be available.

5.2.7 SUMMARY OF AIR QUALITY IMPACTS

The action would not cause pollutant concentrations to exceed one or more of the NAAQS, as established by the USEPA under the CAA, for the time periods analyzed, or to increase the frequency or severity of existing violations.

Emissions associated with the Proposed Action are less than the *de minimis* thresholds of the CAA General Conformity Rule. Therefore, the Proposed Action conforms to the SIP and there are no significant impacts to air quality.

Notably, there is a reduction in aircraft and motor vehicle emissions due to the planned improvements to the CTA taxiway and apron areas and efficiencies associated with the on-airport roadway network.

There will be other projects underway during construction of the Proposed Action, such as the T8 Improvements project. Cumulative effects of other projects are further detailed in **Section 5.15, *Cumulative Impacts***.

5.3 BIOLOGICAL RESOURCES

This section analyzes the potential impacts of the No-Build Alternative and Proposed Action on the existing biological resources identified in **Chapter 4, *Affected Environment***, including ecological communities and vegetation, wildlife, and rare/protected species.

5.3.1 NO-BUILD ALTERNATIVE

No physical development would occur under the No-Build Alternative. Therefore, no impacts to biological resources would occur.

5.3.2 PROPOSED ACTION

Ecological Communities and Vegetation

The Proposed Action Site primarily consists of previously disturbed, developed/industrial land currently used for airport operations interspersed with small areas of regularly maintained grass and landscape plantings. There are no naturally vegetated areas in the Proposed Action Site that could be impacted by the Proposed Action. Therefore, the Proposed Action would not have an adverse impact on ecological communities or vegetation.

Wildlife

Wildlife present in the Proposed Action Site is limited to those species that are highly tolerant of human disturbance and can use the buildings, paved areas and small patches of maintained grass and landscaped areas. The Proposed Action would not noticeably modify wildlife habitat at the Airport. Approximately 5.9 acres of currently grassed area would be paved as shown on **Exhibit 5-1, *New***

Impervious Surfaces Resulting from the Proposed Action. However, this paving would be dispersed throughout the Proposed Action Site, not concentrated in one area, and would largely pave small grassy areas currently occurring on the airfield and between the existing taxiways. Further, wildlife usage at the Airport is actively managed in accordance with the *John F. Kennedy International Airport Wildlife Hazard Management Plan* (WHMP), which discourages wildlife use of the Airport. Therefore, the Proposed Action would be unlikely to adversely impact wildlife in the Proposed Action Site.

Federally Listed Species and Designated Critical Habitats

The Proposed Action Site is fully developed, containing only a few areas of maintained grass and landscaping, and does not provide habitat for Federally-listed species. There is no designated critical habitat in the Proposed Action Site that could potentially be impacted by the Proposed Action.
As detailed in Chapter 4, habitat for the Federally-listed species identified by the IPaC review do not occur within the Proposed Action Site, and therefore, would not be adversely impacted by the Proposed Action. Coordination with the USFWS is ongoing to confirm the Proposed Action would have no effect on Federally-listed species or designated critical habitat.

State-listed Species

Although state-listed bird species were identified by the New York Natural Heritage Program (NYNHP) as potentially occurring at the Airport, bird presence at the Airport would continue to be discouraged and managed in accordance with the WHMP, such as peregrine falcon and upland sandpiper. In accordance with the WHMP, the vegetation in unpaved areas of the Airport is actively managed and there are no naturally vegetated areas that would be conducive to usage as breeding habitat by the identified state-listed species. Therefore, it is unlikely that the Proposed Action would have adverse impacts on state-listed species. Coordination with the New York State Department of Environmental Conservation (NYSDEC) is ongoing to confirm that the Proposed Action would have no effect on State-listed species.

Birds Protected Under the Migratory Bird Treaty Act & the Bald and Golden Eagle Protection Act

As discussed in Chapter 4 of this EA, the USFWS IPaC report identified 30 migratory birds protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act that may occur near the Proposed Action Site. South of the Proposed Action Site is the Jamaica Bay estuarine complex which consists of extensive marine open water habitats, with numerous islands, tidal creeks, marshes, brackish ponds and upland field and wooded habitats for migratory birds and other species. The 30 migratory bird species identified by the USFWS IPaC report are more likely to be present in nearby more suitable natural habitats, and not the Proposed Action Site. The nature and extent of the development and groomed grassy areas at the Proposed Action Site are not suitable habitats for the identified migratory bird species. Additionally, implementation of JFK's WHMP discourages birds of all types in support of flight safety. Therefore, the Proposed Action is not likely to adversely impact migratory birds in the Proposed Action Site.

5.3.3 SUMMARY OF BIOLOGICAL RESOURCES IMPACTS

There are no naturally vegetated areas within the Proposed Action Site and Federally listed species are not known to be present at the Airport. Given the existing use of and development at the Airport, habitat areas (or lack thereof) for state-listed species and birds known to occur near the Airport, and the nature of the Proposed Action, it is not anticipated that the Proposed Action would result in adverse impacts to

biological resources. Therefore, the Proposed Action would not result in significant adverse impacts on biological resources.

5.3.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

The Proposed Action would have no impact on biological resources; therefore, no mitigation is required.

5.4 CLIMATE

There is widespread consensus that human-caused greenhouse gases (GHGs) contribute to climate change (also known as global warming). Brought about principally by the combustion of fossil fuels, decomposition of waste materials and deforestation, these changes are said to cause an increase in the earth's average temperature which is commonly referred to as "climate change".

The three GHGs of greatest interest are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). On a world-wide scale, CO_2 represents largest proportion ranging from 80 to over 90 percent of the total. Because CO_2, CH_4 and N_2O are products of fuel combustion, they are also the predominate GHGs associated with most airports. Presently, there are no Federal or state standards for GHGs in ambient air.

5.4.1 NO-BUILD ALTERNATIVE

Under the No-Build Alternative, there would be no project specific GHG emissions. However, aircraft operations would continue to occur at outdated facilities and be subject to delays associated with inefficient apron areas. Additionally, the delays and congestion associated with the inefficient terminal roadway system would continue to occur. These inefficiencies would cause higher emissions levels than would be achieved by a more efficient CTA at JFK.

5.4.2 PROPOSED ACTION

For disclosure purposes, **Table 5-7, *Greenhouse Gas (GHG) Emissions Associated with Construction***, provides an estimate of annual GHG emissions associated with construction of the Proposed Action. The methodology and assumptions for the climate analysis are provided in **Appendix B, *Air Quality Technical Report.***

TABLE 5-7 GREENHOUSE GAS (GHG) EMISSIONS ASSOCIATED WITH CONSTRUCTION
John F. Kennedy International Airport

Year	CO_2 (metric tons/year)	CH_4 (metric tons/year)	N_2O (metric tons/year)	CO_2e (metric tons/year)
2020	26,885	0.86	0.07	26,927
2021	24,946	0.69	0.07	24,983
2022	24,141	0.52	0.09	24,179
2023	18,870	0.48	0.06	18,901
2024	13,584	0.38	0.05	13,607
2025	7,482	0.27	0.02	7,494

Notes: CO2: Carbon Dioxide; CH4: Methane; CO2e: Carbon Dioxide equivalent; CO2e is computed using Global Warming Potential (GWP) for CO2=1; CH4= 28, N2O = 265
Source: KB Environmental Sciences, 2019.

In 2012, the FAA issued its own guidance for assessing GHGs and climate change (FAA Order 1050.1E, Guidance Memo #3: *Considering Greenhouse Gases and Climate Change under the National Environmental Policy Act; Interim Guidance to FAA Order 1050.1E* [FAA 2012b]). This memo explicitly identifies climate change as a category of potential environmental effect to be considered in NEPA documents and provides additional details on what data to collect and how to document the extent and context of greenhouse gas emissions for aviation projects. The FAA memo states that the climate change section should not attempt to determine the effects of GHG emissions on climate change. The CEQ guidance recently published the *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (August 1, 2016). It states that "Agencies should consider applying this guidance to projects in the Environmental Impact Statement (EIS) or EA preparation stage if this would inform the consideration of differences between alternatives or address comments raised through the public comment process…." This Proposed Action complies with latest guidance and is not a significant contributor to climate change.

5.4.3 SUMMARY OF CLIMATE IMPACTS

While no significance thresholds have been established for climate impacts, GHGs associated with the Proposed Action have been calculated in accordance with FAA guidelines.

5.4.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

While no significance thresholds are established for climate, FAA guidelines for EAs call for the disclosure of emissions associated with climate change. In accordance with this policy, GHGs from the Proposed Action have been quantified. In addition, measures are included in the construction and operation of the Proposed Action that will minimize and help reduce GHGs. These include the emission reduction and minimization measures discussed in **Section 5.2, *Air Quality*.** Examples include the mandatory use of no- or low-emission construction equipment/vehicles and the improvement of motor vehicle travel on the improved CTA roadway network.

In addition, the Proposed Action would minimize impacts on climate through efficient building design, aircraft apron and taxiway design, and a commitment to meeting a minimum Silver LEED rating certification for construction. The Port Authority's *Sustainable Design Guidelines* require projects to achieve energy cost decreases of 30 percent over the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) 90.1-1999 guidance. The use of electric baggage tugs, belt loaders, and push-back tractors along with the deployment of 400 Hz power and preconditioned air at every gate will reduce GHG emissions from aircraft support activities

The developers and their contractors are required to ensure that at least 10 percent of their on-road vehicles used for the Proposed Action are zero or low emitting. In the new GTC/JFK Central, 20 to 25 percent of the parking spaces will have EV charging stations.

5.5 COASTAL RESOURCES

This section presents the analysis of potential coastal resource impacts of the No-Build Alternative and the Proposed Action. The FAA has not established a significance threshold for coastal resources; however, it has provided factors to consider when determining if there is a significant impact to coastal resources. These factors are whether the Proposed Action would have the potential to:

- Be inconsistent with the relevant state coastal zone management plan(s);
- Impact a coastal barrier resources system unit (and the degree to which the resource would be impacted);
- Pose an impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- Cause an unacceptable risk to human safety or property; or
- Cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.

5.5.1 NO-BUILD ALTERNATIVE

No physical development would occur under the No-Build Alternative. Therefore, no impacts to coastal resources would occur.

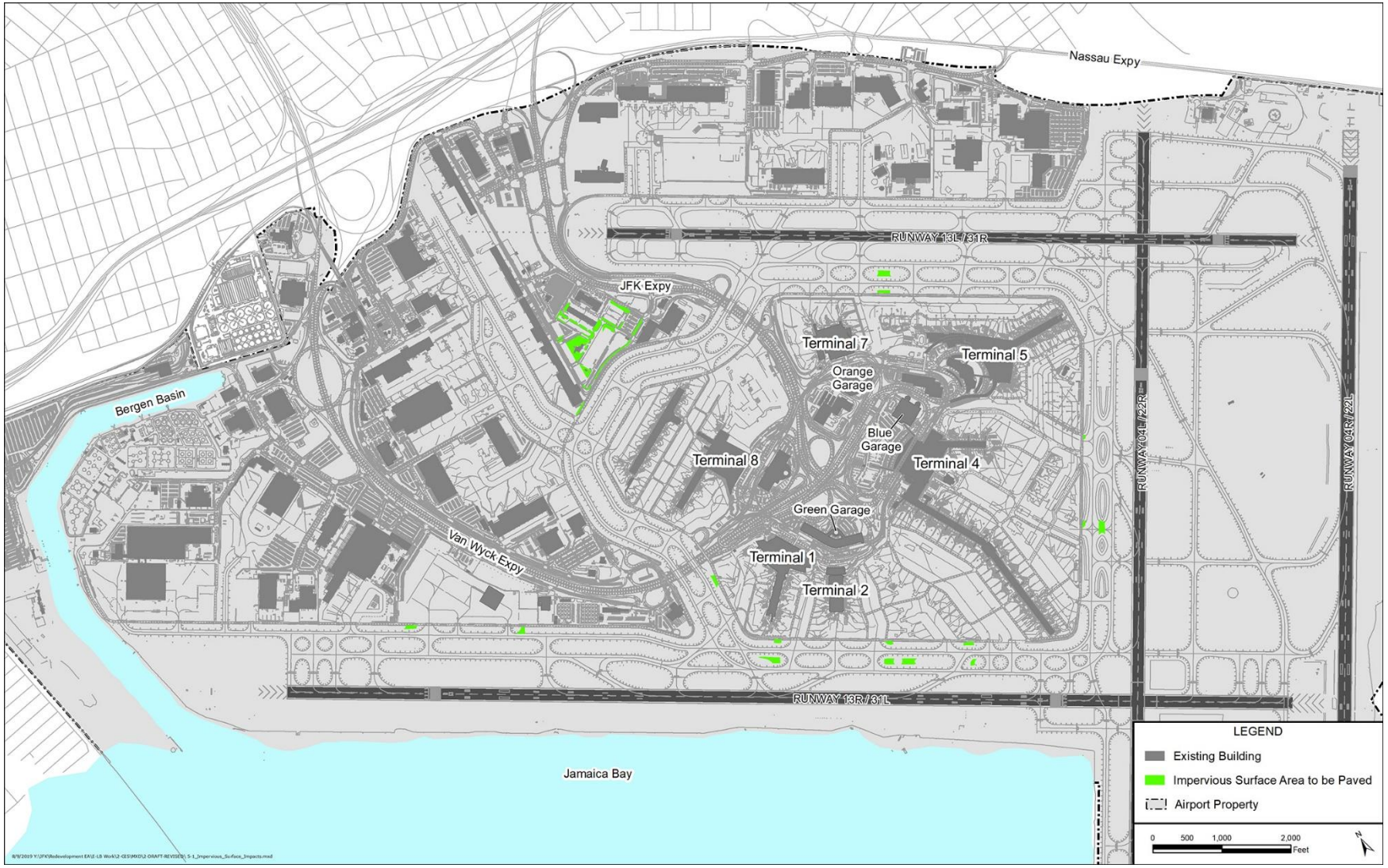
5.5.2 PROPOSED ACTION

Except for the proposed offsite construction parking area at the Aqueduct Racetrack, the Proposed Action would occur entirely within the coastal zone boundary designated by the NYSDOS and NYCDCP. However, improvements would be in developed upland areas. As such, the Proposed Action would not result in direct impacts to coastal resources, including coastal barriers, wetlands, floodplains, or fish and wildlife habitat. Specifically, Jamaica Bay is designated as a Significant Coastal Fish and Wildlife Habitat and there are state-designated tidal wetlands and floodplains associated with Jamaica Bay and Bergen Basin. These resources are more than 500 feet from the Proposed Action Site; therefore, the Proposed Action would have no direct adverse impact on coastal resources.

However, potential indirect impacts to the coastal zone could result from the increase in impervious paved areas if this increase results in a corresponding increase in the volume of stormwater discharged into Jamaica Bay and surrounding waterbodies. As shown on **Exhibit 5-1, *New Impervious Surfaces Resulting for the Proposed Action*,** and discussed in **Section 5.3, Biological Resources**, the Proposed Action would result in an approximately 5.9-acre increase in impervious surface in the form of

new pavement. Multiple areas of new pavement would be distributed throughout the Proposed Action Site, with the majority of new pavement related to the realignment of taxiways near the proposed North and South Terminal Facilities and the north construction staging area.

EXHIBIT 5-1 NEW IMPERVIOUS SURFACES RESULTING FROM THE PROPOSED ACTION



Source: Port Authority, 2019.

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The new impervious surface would be concentrated in the north construction staging areas with smaller areas where taxiways would be realigned. Although the overall impervious surface area would be increased as part of the Proposed Action, the impervious areas are not connected, and stormwater can infiltrate the existing grassed infield areas and other vegetated spaces within the study area. Further, given the distributed nature of the newly paved areas and the quantity of new pavement compared to the overall 4,930-acre footprint of the Airport (less than 0.1 percent of the Airport's overall footprint), the increase in stormwater discharge over existing levels is anticipated to be relatively small. It is anticipated that the minimal increase in runoff would be collected and treated on-site by the Airport's existing stormwater collection and management system and would not add additional stormwater discharges to receiving waters. Overall, the quality and quantity of stormwater that leaves the Airport property would not be changed by the Proposed Action.

Additionally, to minimize the potential for stormwater-related impacts to coastal resources, the Proposed Action would adhere to a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would be prepared in accordance with accepted engineering practices and be consistent with the State Pollutant Discharge Elimination System (SPDES) and NYSDEC requirements. During excavation and construction, any groundwater recovered during dewatering would be monitored, treated, and discharged to existing infrastructure in accordance with FAA policies, NYSDEC, SPDES requirements, and the Airport's Best Management Practices Plan (BMP) requirements. If dewatering is necessary, pumps would not be allowed to discharge directly into a watercourse or wetland. BMPs will be incorporated into the Proposed Action design to minimize erosion and sedimentation (E&S) during construction of the Proposed Action and after the Proposed Action has been built. All E&S controls would be installed prior to land disturbing activities, to ensure the reduction of sedimentation and pollutants in receiving waters. Low Impact Development (LID) approaches would be included in the Proposed Action design to the extent practicable to reduce runoff, promote groundwater recharge and minimize post-construction impacts to water quality.

As part of the Port Authority's commitment to environmental stewardship, stormwater capture systems at the new terminals and glycol recovery systems at aircraft deicing facilities would be incorporated into the design where feasible. Stormwater capture systems to be installed at the Expanded T5 would be capable of reducing stormwater runoff at the terminal by 50 percent. A glycol recovery system would be installed in the South and North Terminal Developments, South and North Hardstand Areas, and T4 expansion and would recover at least 60 percent of the annual volume of deicing fluid applied to aircraft. These measures would minimize the potential for pollutant releases into Jamaica Bay, Bergen Basin, Thurston Bay and Head of Bay, the water bodies adjacent to the Airport. Therefore, the Proposed Action would not result in a significant increase of discharge to adjacent waterbodies and based on the foregoing is unlikely to adversely impact coastal resources either directly or indirectly.

Potential impacts to coastal resources were further assessed during the coastal zone consistency determination process, which required concurrence from the NYSDOS relative to the Proposed Action's consistency with Federal, state, and local coastal policies and from the NYCDCP relative to the City's WRP policies. The coastal consistency assessments were submitted to the NYSDOS and NYCDCP. The respective consistency assessments are included in **Appendix C**, ***Coastal & Biological Resources***. A response is pending from the NYSDOS and NYCDCP to determine if the Proposed Action meets the Department's general consistency concurrence criteria. The Proposed Action would be consistent with Federal, state, and local coastal zone policies, and would not otherwise affect

coastal resources. Therefore, the Proposed Action would not result in a significant adverse impact on coastal resources and would be consistent with applicable coastal policies.

5.5.3 SUMMARY OF COASTAL RESOURCE IMPACTS

With existing BMP and minimization measures, the Proposed Action would at most would have a *de minimis* indirect adverse impact on coastal resources and surface waters. The Proposed Action would be consistent with Federal, state, and local coastal zone policies, and would not otherwise affect coastal resources.

5.5.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

The Proposed Action would not result in significant adverse impacts on coastal resources; therefore, no mitigation is required. As discussed above, elements have been incorporated into the Proposed Action to minimize and/or avoid potential adverse impacts to coastal resources. Since they are components of the Proposed Action, these elements are described in the impact analysis in **Section 5.5.2** above.

5.6 DEPARTMENT OF TRANSPORTATION ACT SECTION 4(f) RESOURCES

This section presents the analysis of potential impacts to the U.S. Department of Transportation (USDOT) Act, Section 4(f) resources as a result of the No-Build Alternative and the Proposed Action.

As described in **Section 4.6, *Department of Transportation Act Section 4(f) Resources***, two types of impacts to a Section 4(f) resource, physical or constructive use, can occur from a Proposed Action, physical or constructive use.[157] As described in FAA Order 5050.4B, a determination is made by the FAA if the Proposed Action or a reasonable alternative would eliminate or severely degrade the intended use of the Section 4(f) resource. That is, would the Proposed Action or alternative physically or constructively use (i.e., substantially impair the use of) that resource?

Exhibit 4-1 of FAA Order 1050.1F and Paragraph 5.3.7 of the 1050.1F Desk Reference provides the FAA's significance threshold for Section 4(f) properties under NEPA. A significant impact would occur when: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.

5.6.1 NO-BUILD ALTERNATIVE

Physical Use

According to 23 CFR 774.17, the Physical Use of a Section 4(f) property occurs, "(1) When land is permanently incorporated into a transportation facility; (2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in 774.13(d)." No physical development would occur under the No-Build Alternative. Therefore, no physical use impacts to DOT Section 4(f) resources would occur.

[157] Port Authority. Sustainable Infrastructure Guidelines, March 23, 2011.

Constructive Use

According to 23 CFR 774.15(a), a Constructive Use, "occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished." No physical development would occur under the No-Build Alternative. Therefore, no constructive use impacts to DOT Section 4(f) resources would occur.

5.6.2 PROPOSED ACTION

Physical Use

As discussed in **Chapter 4, Section 4.6, *Department of Transportation Act Section 4(f) Resources***, there are no publicly owned parks, recreation areas, or wildlife and waterfowl refuge areas within the Proposed Action Site, the study area for this Section 4(f) impact analysis. Therefore, the Proposed Action would have no impact on these Section 4(f) resources.

As stated in **Chapter 4, Section 4.8, *Historical, Architectural, Archaeological, and Cultural Resources***, the Trans World Airlines (TWA) Flight Center is designated a New York City Landmark and was placed on the National Register of Historic Places (NRHP) on September 7, 2005. The construction and implementation of the Proposed Action would not alter the structure of this building, therefore, a physical use to this Section 4(f) resource would not occur.

There are no other NRHP-listed properties within the Proposed Action Site. Consultation with the NY SHPO regarding potentially NRHP-eligible properties within the APEs is ongoing. If any buildings within the Proposed Action Site are determined to be NRHP eligible and demolition cannot be avoided, the demolition would constitute a physical use of a Section 4(f) resource. If a physical use of the property would occur from the Proposed Action, a Section 4(f) Evaluation must be prepared.

Constructive Use

The TWA Flight Center is in an active airport environment. Under the Proposed Action, the TWA Flight Center would be exposed to the same noise levels as the No-Build Alternative (2025). These noise levels would not substantially impair the property because the activities, features, and attributes that qualify the property for protection under Section 4(f) would not be affected by the implementation of the Proposed Action. Therefore, the Proposed Action would likely not result in a constructive use of the TWA Flight Center.

The potential for constructive use impacts due to changes in the visual context was also considered, Consultation with the NY SHPO regarding constructive use impacts due to visual changes is ongoing. See **Section 5.8, *Historical, Architectural, Archeological, and Cultural Resources* and Section 5.13, *Visual Effects***, for potential visual effects. Therefore, the Proposed Action would not result in a constructive use of Section 4(f) resource.

5.6.3 SUMMARY OF DEPARTMENT OF TRANSPORTATION ACT SECTION 4(f) RESOURCE IMPACTS

The Proposed Action would not adversely affect public parks or recreational facilities, or wildlife or waterfowl refuges. The Proposed Action is not likely to result in a constructive use of potential Section 4(f) resources though consultation with the NY SHPO is ongoing regarding potential visual impacts to the TWA Flight Center.

5.6.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

If it is determined by the NY SHPO an adverse effect would result from the Proposed Action, measures to avoid, minimize or mitigate would be identified in consultation with the NY SHPO and FAA. A Memorandum of Agreement (MOA) would be prepared. The MOA would outline the measures needed to mitigate any adverse effect from the Proposed Action.

5.7 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

Federal actions require consideration of hazardous material, solid waste, and pollution prevention impacts in NEPA documentation. Project development should consider the hazardous nature of any materials or wastes to be used, generated, or disturbed by this Proposed Action and incorporate pollution prevention considerations into this Proposed Action.

Generally, airport and aircraft operations require the use, handling, and storage of hazardous materials, primarily fuel. Hazardous materials are stored in ASTs, warehouses, and other storage buildings located on or near airport property. The ground support for aircraft operations can create the potential for accidental releases of these substances, resulting in the potential for adverse environmental impacts.

The Port Authority's BMPs require that facilities with petroleum and/or chemical bulk storage areas comply with all applicable regulations, including those involving releases, handling, and storage. The Port Authority has a SPCC Plan for JFK. The plan contains appropriate spill prevention and clean up measures as well as requirements for reporting an unintended release. Tenants who store chemicals must also comply with all applicable regulations and prepare and maintain an SPCC plan that complies with the Airport's plan and NYSDEC Petroleum Bulk Storage requirements.

Municipal solid waste (MSW) generated by operations at the Airport include residual trash or garbage generated by passengers, staff, and retail operations. Most of New York City's MSW is collected and delivered to transfer stations for additional sorting and then transported out of the city for disposal. Waste management contractors collect and dispose of solid waste and recyclable materials. Solid waste in New York City is managed in conformance with a 20-year Solid Waste Management Plan, which also mandates that commercial and industrial establishments are subject to recycling requirements.

This section assesses the potential exposure to hazardous materials, describes the potential for solid waste generation, and presents pollution prevention measures that would occur as a result of the No-Build Alternative and Proposed Action.

5.7.1 NO-BUILD ALTERNATIVE

Hazardous Materials

There would be no change to hazardous materials as described in **Section 4.7, *Hazardous Materials, Solid Waste, and Pollution Prevention***, for the No-Build Alternative. In addition, no sites involving fuel storage, handling, or dispensing of fuels would be affected by the No-Build Alternative.

Solid Waste

The No-Build Alternative assumes the proposed redevelopment of facilities in the Proposed Action Site would not be constructed; therefore, this alternative would not result in construction debris. The existing passenger terminals would remain unchanged and would continue to operate at their existing sites. Thus, the existing passenger terminals at JFK would accommodate the increase in passenger activity that is forecast to occur at JFK. The volume of solid waste generated at the Airport would also increase. However, the increase in volume of solid waste can be accommodated at the existing disposal facilities without compromising capacity.

Pollution Prevention

There would be no change to existing pollution prevention measures from the No-Build Alternative. The Port Authority would continue to operate the Airport under the existing Port Authority's *Sustainable Infrastructure Guidelines*.[158]

5.7.2 PROPOSED ACTION

Hazardous Materials

As described in **Section 4.7, *Hazardous Materials, Solid Waste, and Pollution Prevention***, historical soil and groundwater contamination is present in the vicinity of the Proposed Action Site and would be a potential continuing source of contaminants at the Airport. A review of the USEPA's National Priorities List (NPL) confirmed that there are no NPL sites within the Proposed Action Site or within a one-mile radius of the Proposed Action Site. Furthermore, the USEPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database confirmed the absence of potentially contaminated sites within the Proposed Action Site and within a 0.5-mile radius of the Proposed Action Site. However, the use, handling, and storage of hazardous materials on the Airport has resulted in historical accidental releases of these substances,

Accidental releases of hazardous materials on the Airport have been documented and coordinated with the NYSDEC to ensure remediation of these contaminated sites meets state and Federal requirements. In order to implement the Proposed Action, ongoing remediation of groundwater and soil contamination sites, discussed in **Section 4.7, *Hazardous Materials, Solid Waste, and Pollution Prevention***, would need to be completed or impacted areas would need to be avoided during construction activities in coordination with the NYSDEC. Soil and groundwater management plans may be prepared prior to construction to ensure all hazardous materials are identified and properly disposed of to prevent further contamination. Any contaminated soil and/or groundwater encountered during demolition and construction activities would be properly disposed of and/or remediated pursuant to all applicable regulations. The extent feasible, contaminated soils encountered during construction would be

[158] Port Authority. Sustainable Infrastructure Guidelines, March 23, 2011.

remediated or reused on-site. For soils that cannot be reused on-site, possible locations for hazardous material disposal include, but are not necessarily limited to, facilities in Bellmawr, Carteret, Secaucus, Teterboro, or South Kearny, in New Jersey.

Construction and implementation of the Proposed Action may require the removal and/or the relocation of existing fuel tanks and underground fuel lines. All activities that involve disturbing or excavating soils would be performed by the contractor in accordance with applicable regulatory requirements. During the removal or relocation, it is possible that unknown fuel spills and hazardous soils may be encountered. These materials are not considered to be uncommon and contractors would follow existing disposal practices to handle and dispose of the materials safely; therefore, no impact is anticipated.

Furthermore, construction activities associated with the Proposed Action are expected to include the short-term use of hazardous and non-hazardous materials and generation waste common to construction, including petroleum hydrocarbon-based fuels, lubricants, oils, paints, and cleaning solvents for the construction equipment. These materials would be handled and stored in accordance with all applicable Federal, state, or local regulations. During demolition activities, workers may also come into contact with asbestos and electrical components that contain mercury, such as switches or thermostats, and polychlorinated biphenyls or lead paint coatings. To ensure identification and proper management of any hazardous materials to be encountered during construction, the Port Authority would require the contractor to develop site-specific health and safety plans. Tenants performing alterations on Airport property are required to comply with the health and safety requirements set forth in the Port Authority's *Tenant Construction and Alteration Manual* (March 2017).

Therefore, all demolition activities would be conducted with regard to worker safety and according to all applicable Federal, state, and local regulations, including the RCRA. Therefore, no significant impacts related to hazardous materials would occur as a result of the Proposed Action.

Solid Waste

Operational

The amount of solid waste for operational activities due to the Proposed Action would be the same as that of the No-Build Alternative because the Proposed Action would not increase capacity of the Airport. Because the increase in volume of solid waste can be accommodated at the existing disposal facilities without compromising capacity, the Proposed Action would not result in solid waste impacts.

Construction

Solid wastes associated with construction of the Proposed Action are expected to include waste materials typical of demolition, building construction, earthwork and paving projects. Construction and demolition debris associated with the Proposed Action would be recycled to the greatest extent possible. As part of the LEED certification for the new terminal building and the Port Authority *Sustainable Infrastructure Guidelines*, a construction waste management program would be implemented with a goal of diverting 75 percent of all construction debris from receiving landfills, including steel, asphalt, Portland cement concrete (PCC) and clean soil. Lower recycling rates (closer to 50 percent) are more typical for large construction projects. Materials that can be recycled include asphalt millings; masonry (in reusable form or as fill); roofing (in reusable form); metals; plastics (numbered containers, bags and sheeting); lumber and plywood (in reusable form); cardboard and

paper; appliances and fixtures; and windows and doors. Construction waste not diverted, recycled, or reused would be transported to and disposed of in local permitted construction/demolition facilities or in accordance with applicable state and local requirements.

Furthermore, all excavated material would be disposed of in accordance with applicable Federal, state, and local regulations. Excess soil and construction debris that is not hazardous waste may be disposed of as solid waste. On-road vehicles (trucks) would be used to transport waste to receiving landfills and construction contractors would manage the storage, transport, and disposal of construction waste in accordance with applicable Federal, state, and New York City requirements. If separate disposal methods are required for larger quantities of material, a disposal facility would be identified that is properly permitted to receive excess soils and/or construction debris. It is anticipated that there is sufficient disposal capacity at South Island Industries, Rason Asphalt, and Russo Recycling Company to handle the anticipated volumes of waste generated by construction of the Proposed Action. No problems are anticipated with respect to meeting applicable Federal, state, or New York City requirements for construction waste management or disposal. The disposal of debris would be coordinated between the contractor and a licensed waste hauler. Therefore, no significant construction-related solid waste impacts would occur.

Pollution Prevention

The Proposed Action would be designed to meet the Port Authority *Sustainable Building Guidelines* and would be LEED Silver certifiable from the USGBC.[159] This includes a recycling program that would recycle wastes from food and beverage services (such as metal cans and plastic/glass bottles) and paper products (such as high-grade office paper, newspapers, magazines, cardboard, etc.).

Following completion of the Proposed Action, SPCC Plans would be updated to reflect resulting conditions and operations. Where applicable, tenants would prepare new SPCC(s) per NYSDEC requirements.

Therefore, significant impacts to soil and water due to the Proposed Action are not anticipated.

5.7.3 SUMMARY OF HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION IMPACTS

Demolition activities would result in the generation of solid waste and potentially hazardous materials requiring proper disposal, which would impact existing disposal capacity. However, the recommendations discussed in **Section 5.7.4** would ensure no applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials would be violated. Additionally, the recommendations would ensure that the Proposed Action would not contribute to the existing contamination. Therefore, no significant impacts related to solid waste, hazardous materials or pollution prevention are anticipated due to the implementation of the Proposed Action.

5.7.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

No mitigation is required for the Proposed Action. However, all activities that involve disturbing or excavating soils would be performed in coordination with the NYSDEC and in accordance with applicable regulatory requirements. Additionally, all demolition activities would be conducted with regard to worker safety and according to all applicable Federal, state, and local regulations, including

[159] Port Authority. Sustainable Building Guidelines. January 1, 2017.

the RCRA. Adherence to the aforementioned BMPs and control measures would effectively reduce potential risks to human health and the environment during construction.

Further, measures to minimize the solid waste stream, such as source reduction and recycling strategies, would be implemented. This includes the implementation of the Port Authority policy requiring that contractors recycle 75 percent of certain demolition debris items. Additionally, the Port Authority's *Sustainable Building Guidelines* would be implemented to reduce adverse environmental impacts of the design, construction, operation and maintenance and occupancy or leasing of new or substantially renovated buildings and facilities, reconstruction projects, and programs of the Port Authority and its tenants.

Based on the combined effects of the measures discussed, the Proposed Action would likely result in net positive impacts related to the potential removal of hazardous materials and there would be no impact to the ability of facilities in the area to handle solid waste.

5.8 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

This section presents the analysis of potential effects to historical, architectural, archaeological, and cultural resources as a result of the No-Build Alternative and the Proposed Action. The APEs are described in **Chapter 4, Section 4.8, *Historical, Architectural, Archaeological, and Cultural Resources***, and shown on **Exhibit 4-7, *Areas of Potential Effects (APEs)***.

5.8.1 NO-BUILD ALTERNATIVE

No physical development would occur under the No-Build Alternative. Therefore, no effects to historical, architectural, archeological, or cultural resources would occur.

5.8.2 PROPOSED ACTION

As described in **Section 4.8.2 *Affected Environment*** and on **Exhibit 4-7 *Areas of Potential Effect*,** six distinct APEs were identified for the Proposed Action (five of these APEs are on the Airport property, while the sixth is northwest of, but proximate to the Airport). Within the six APEs, the TWA Flight Center is the only property listed in the National Register. It is within the CTA (APE #1), immediately southwest of T5. The property is significant under Criteria A and C as a nationally significant example of mid-20th century modern architectural design, engineering and airline terminal planning. It is physically connected to T5 through two elevated connector tubes constructed in 1962 and 1967. While the addition to T5 would be constructed in the immediate vicinity of the TWA Flight Center, the 2004 Concept Master Plan for the Terminal 5/6 Redevelopment included a future phase that wrapped further around the Flight Center to the west and north than that actually constructed (Attachment B of the 2004 MOA for T5/6 Redevelopment Project). The proposed T5 expansion would extend the building to the north and west similar to what was originally planned, while also adding another gate wing to the north. The expansion of T5 would not compromise the individual identity of the TWA Flight Center as a historic building, nor is it likely to substantively alter the signature view from the building's landside elevation as the new T5 expansion would be largely obscured by the existing elevated connection to the AirTrain. Similarly, the expansion of T4 would not alter the view looking southwest from the landside elevation of the TWA Flight Center, as it would be obscured by an elevated section of the Airport's access road that is located south of the TWA Flight Center.

A coordination package detailing this analysis was submitted to NY SHPO on November 4, 2019 and a response was received on December 2, 2019. The coordination package requested concurrence with the APEs and associated identification efforts for the Proposed Action and requested assessment of potential National Register eligibility for above-ground resources within the APEs associated with the Proposed Action. The coordination package also requested concurrence with the finding of no adverse effect to archeological resources in accordance with Section 106. A copy of the coordination package submitted to NY SHPO and NY SHPO concurrence are provided in **Appendix D, *Cultural Resources***. The NY SHPO concurrence letter is provided in **Appendix D, *Cultural Resources***. In addition, consultation with local governments, including the Queens Borough President's Office and the New York City Landmarks Preservation Commission is being conducted. This consultation contains the same information provided to NY SHPO and is being conducted this in accordance with 36 CFR 800.5(c). Associated correspondence is included in **Appendix D, *Cultural Resources***.

5.8.3 SUMMARY OF FAA'S PROPOSED FINDINGS AND CONSULTATION PROCESS FOR HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

There would be no impact to historic properties due to construction noise or traffic. The Proposed Action does not involve expansion of runways or expansion of airport property. The Proposed Action would not cause a change in runway use patterns or flight paths and would not cause an increase in aircraft operations. Therefore, no change in aircraft noise would occur as a result of the Proposed Action. A temporary increase in auto traffic would occur during construction. The increase in auto traffic would occur on roadways that already experience traffic and any increase in traffic is expected to be negligible and would not be expected to cause indirect impacts to historic properties.

Pursuant to 36 CFR § 800.4(a)(1), the FAA requested NYSHPO concurrence with the identified APEs and associated identification efforts for this Proposed Action and requested NY SHPO's assessment of potential National Register eligibility for above-ground resources within the APEs associated with the JFK Airport Redevelopment Program. In addition, FAA requested NY SHPO concurrence with our finding of No Adverse Effect to archeological resources accordance with Section 106. While approximately 5.9 acres of previously unpaved areas would be paved as part of the aforementioned relocation of taxiway exits and paving areas to be used for construction staging, CRIS does not identify any archeological resources within the Proposed Action APEs. The Airport property has been heavily disturbed by prior development.

In its December 2nd, 2019 response to the FAA (see **Appendix D, *Cultural Resources***), NY SHPO concurred with the identified APEs and with the finding of No Adverse Effect to archeological resources accordance with Section 106. NY SHPO's assessment of potential National Register eligibility for above-ground resources within the APEs is pending.

Consultation with local governments, including the Queens Borough President's Office and the New York City Landmarks Preservation Commission, is being conducted. This consultation contains the same information provided to NY SHPO and is being conducted in accordance with 36 CFR 800.5(c). Associated correspondence is included in **Appendix D, *Cultural Resources***. Comments from the public are also invited.

5.8.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

If it is determined an adverse effect would result from the Proposed Action, measures to avoid, minimize or mitigate would be identified in consultation with the NY SHPO. If deemed appropriate, a MOA would outline the measures needed to mitigate any adverse effect from the Proposed Action.

5.9 LAND USE

This section presents the analysis of potential land use incompatibility of the No-Build Alternative and the Proposed Action, including potential conflicts with surrounding land uses and zoning as identified in comprehensive plans for the surrounding communities.

The FAA has not established a significance threshold for land use. The determination that significant impacts exist in the land use impact category is normally dependent on the significance of other impacts. Potential impacts on noise compatible land use are discussed in **Section 5.11, *Noise and Noise Compatible Land Use***. Potential impacts related to potential for disruptions to communities or relocation of residences or businesses is discussed in **Section 5.12, *Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks***. Regarding consistency with state and/or local plans, an inconsistency with surrounding land uses and zoning by itself does not automatically result in a significant impact.

5.9.1 NO-BUILD ALTERNATIVE

No physical development would occur under the No-Build Alternative. Therefore, no impacts to land use would occur.

5.9.2 PROPOSED ACTION

The Proposed Action Site is on Airport property, which is owned by the Port Authority and in a predominantly commercial and industrial area. The Proposed Action would redevelop the CTA and associated landside (parking and roadways) and aircraft aprons and taxilanes to allow more efficient utilization of the available space in the CTA and to accommodate current and projected passengers with an acceptable level of service at JFK. In addition, no land acquisition would occur as part of the Proposed Action. Therefore, the Proposed Action would be compatible with the surrounding land uses and consistent with local plans or laws related to land use and development. No impacts to land use would occur with implementation of the Proposed Action.

The Port Authority provided assurance by letter that appropriate action, including the adoption of zoning laws, has been or would be taken to the extent reasonable to restrict the use of land adjacent to, or in the immediate vicinity of the Airport to activities and purposes compatible with normal Airport operations. In addition, they would encourage and support other jurisdictions in the area in their efforts to do the same.

5.9.3 SUMMARY OF LAND USE IMPACTS

The Proposed Action would be compatible with the surrounding and therefore, land uses are consistent with local plans or laws related to land use and development. No impacts to land use would occur with implementation of the Proposed Action.

5.9.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

The Proposed Action would result in no land use impacts; therefore, no mitigation measures are required.

5.10 NATURAL RESOURCES AND ENERGY SUPPLY

This section presents the analysis of potential impacts to natural resources and energy supplies as a result of the No-Build Alternative and the Proposed Action. The supply of natural resources may be impacted by a construction project because the use of dirt, rock, or gravel could diminish or deplete the supply of those and other natural resources. In addition, the operation of an airport requires energy in the form of electricity, natural gas, aviation fuel, diesel fuel, and gasoline. There are two primary sources of energy consumption at an airport – aircraft operations and stationary facilities. Aircraft operations and GSE consume fuel including jet fuel (Jet A), low-lead aviation gasoline (AvGas), unleaded gasoline, and diesel fuel to operate the aircraft and power GSE. Stationary facilities use utility energy (electricity and natural gas) to provide lighting, cooling, heat, and hot water to buildings, the airfield, and parking areas. The existing electrical generation and distribution system at JFK is currently undersized for the existing demand regardless of whether the Proposed Action is undertaken. The existing electrical distribution infrastructure is also past its useful life and becoming increasingly unreliable. Due to the critical nature of electrical power, the Port Authority must ensure uninterrupted electrical supply throughout the Airport. As a result, the Port Authority has been planning an independent airport electrical upgrade project that would rehabilitate and upgrade the substations that serve the Airport and consolidate the Van Wyck and Bergen Substations. A new substation (Central Substation #2) would also be construction as part of the Proposed Action. Collectively, these substation projects are: Central Substation #1, Central Substation #2, Farmers Substation, and the Van Wyck/Bergen Substation. The substations will ensure that adequate and reliable electrical capacity will be available to the Airport. These projects are needed regardless of the No-Build Alternative or the Proposed Action for service reliability and redundancy. The Cumulative Impacts Section provides detail on the electrical system upgrade projects for the Airport.

The FAA has not established a significance threshold for natural resources and energy supply in FAA Order 1050.1F; however, the FAA considers whether the proposed action has the potential to cause demand to exceed available or future supplies of these resources.

In addition, it is the policy of the FAA (as discussed in FAA Order 1053.1, *Energy and Water Management Program for FAA Buildings and Facilities*), consistent with NEPA and CEQ Regulations, to encourage the development of facilities that exemplify the highest standards of design, including principles of sustainability.

5.10.1 NO-BUILD ALTERNATIVE

Natural Resources Demand

No new facilities would be constructed that would consume natural resources or other construction materials for the No-Build Alternative. It is expected that small amounts of these materials would be used for general maintenance activities.

Electricity Demand

There would be no increase in demand for electricity for the No-Build Alternative. No facilities or lighting would be constructed in the No-Build Alternative. Existing electricity resources would continue to power the existing facilities and accommodate the forecast demand for aircraft operations.

Natural Gas Demand

There would be no increase in demand for natural gas for the No-Build Alternative. No new facilities would be constructed that would require natural gas due to the No-Build Alternative. Natural gas resources would continue to be supplied to the existing facilities and accommodate the forecast demand for aircraft operations.

Fuel Consumption

Aviation fuel demand at the Airport is a function of the number of operations at JFK and how they operate. This includes the length of time the aircraft are operating while on the ground and during takeoff and climb out, and the fuel required for the aircraft to reach the flight destination. Aircraft fuel, typically Jet-A or AvGas, is provided to airport users by various suppliers that obtain and sell fuel through existing contracts and on an as-needed basis. No new facilities would be constructed that would increase the demand for fuel for the No-Build Alternative. Current forecasts project growth in aircraft operations at JFK and additional aircraft movements would likely increase fuel consumption. In addition to aircraft fuel, diesel fuel and gasoline are also used to power GSE and other service vehicles at JFK. The fuel requirement for GSE is roughly related to the number of aircraft operations that are serviced, which affects the number of GSE units and the amount of time in which they operate. Aircraft operations are projected to increase for the No-Build Alternative, which would result in an increase in fuel usage for GSE.

5.10.2 PROPOSED ACTION

The objective of the assessment is to determine whether the Proposed Action would have the potential to exceed the local resources or energy supply as compared to the No-Build Alternative. The FAA has not established a significance threshold for natural resources and energy supply; however, based on guidance contained in FAA Order 1050.1F, the analysis should consider situations in which the proposed action or alternative(s) would have the potential to cause demand to exceed available or future supplies of these resources.

Natural Resources Demand

There would be no increased demand for natural resources, other than construction materials, due to the Proposed Action as compared to the No-Build Alternative for operational purposes. However, as a result of implementing the Proposed Action, proposed construction activities would require natural resources such as steel, gravel, sand, aggregate, concrete, asphalt, water, and other construction materials. Detailed design of the Proposed Action is still ongoing; however, these materials are not in short supply in the Region and consumption of these materials is not expected to deplete or cause a shortage of existing supplies. No unique or rare natural resources were identified to be required for construction of the Proposed Action.

Electricity Demand

The Proposed Action would include the redevelopment of facilities in the CTA. Electricity is used to power and light the buildings and to light the parking areas. The facilities to be constructed would replace existing facilities in the CTA. The new facilities would utilize energy conservation features, including 400 Hz power at each gate, pre-conditioned air, LED apron lighting, and eGSE charging stations. Fifty percent of the proposed Redevelopment Program's energy usage would be met with renewable energy sources.[160]

Many of the proposed new terminal facilities would replace older, less efficient facilities, which would achieve a reduction in energy use per square foot of terminal area. Due to the proposed increase in square footage, an increase in energy demand would occur as described later in this section. Furthermore, it is anticipated that the New Terminal 1 (T1) and Expanded T5 would be designed to meet LEED Silver standards or better. **Table 5-8, *Sustainable Design Goals*,** presents the sustainability goals for the proposed terminal facilities.

TABLE 5-8 SUSTAINABLE DESIGN GOALS
John F. Kennedy International Airport

JFK Redevelopment Program	Port Authority Sustainable Design Project Manual	Port Authority Sustainable Infrastructure Guidelines	New Construction Achievement Level
New Terminal 1	Mandatory	n/a	LEED Silver Certifiable
Expanded Terminal 5	Mandatory	n/a	LEED BD+C Silver Certifiable
Ground Transportation Center (GTC)/JFK Central	Mandatory	n/a	Would Meet Port Authority Guidelines
Roadways	n/a	Mandatory	Would Meet Port Authority Guidelines
Utilities	n/a	Mandatory	Would Meet Port Authority Guidelines

Source: Port Authority, 2019.

The proposed new terminal facilities and associated development (roadways, apron, and parking) would require energy for lighting, heating, and cooling. Because the new facilities would utilize these sustainability elements, it can be asserted that the Proposed Action would minimize building-related energy consumption of electricity per square foot of terminal space. Further, additional energy conservation features would be incorporated into the design of the Proposed Action where feasible. Due to the total increase of terminal space, there would be an increase in electricity demand. The existing and projected electricity demand load measured for each terminal facility compared to the existing and proposed distribution capacity in kilovolt amperes (KVA) is presented in **Table 5-9, *Existing and Proposed Energy Demand within the Terminal Buildings***. The Port Authority has

[160] Renewable energy commitments made by the terminal developers were not factored into the energy usage calculations for the Redevelopment Program. This is a more conservative approach and ensures that adequate power will be provided to support all related terminal development within the CTA. Actual energy demand may be lower depending upon the types of sustainability elements that are incorporated into facility design.

plans to upgrade the Airport's electrical system with modern components to improve reliability and resiliency, and to ensure adequate power distribution capabilities are available within the CTA to meet existing and projected energy demand. Coordination between the Port Authority and ConEd is ongoing to ensure energy demands at JFK are met. Therefore, the Proposed Action is not anticipated to exceed local energy supplies.

TABLE 5-9 EXISTING AND PROPOSED ENERGY DEMAND WITHIN THE TERMINAL BUILDINGS
John F. Kennedy International Airport

Terminal Building	Existing Demand (KVA)	Existing Distribution Capacity (KVA)	Proposed Demand (KVA)	Proposed Distribution Capacity (KVA)
Existing Terminal 1	5,460	40,000	n/a	80,000
Existing Terminal 2	2,556		n/a	
New Terminal 1	n/a		22,074	
Existing Terminal 4	15,608		19,200	
Existing Terminal 5	7,256		n/a	
Expanded Terminal 5	n/a		18,126	
Existing Terminal 7	4,963		n/a	
Existing Terminal 8	14,160		15,000	
Total All Terminals	**50,003**		**74,400**	

Source: Port Authority, 2019.

The total airport-wide energy usage was estimated based on the energy load for the terminals as well as usage for other airport facilities (airfield lighting, parking areas, and other ancillary facilities) based on typical facility size loads. A comparison of the total annual estimated electricity demand for the No-Build Alternative and the Proposed Action is presented in **Table 5-10, *Comparison of Estimated Energy Consumption for the No-Build Alternative and the Proposed Action***.

Natural Gas Demand

Natural gas is used for gas-fired water heaters, kitchen equipment, and other gas-fired appliances. The facilities to be constructed would replace existing facilities in the CTA. Heating and cooling facilities at JFK use heated and chilled water from the CoGen plant, which minimizes the need for gas-powered boilers. Many of the proposed new facilities and utilities would replace older, less efficient facilities, which would achieve a reduction in natural gas that would partially offset the demand due to the total increase of terminal space. **Table 5-10** shows the total estimated annual natural gas usage. The New York region has access to adequate capacity for natural gas; therefore, the Proposed Action is not anticipated to exceed local natural gas supplies.

Fuel Consumption

No change in the number of aircraft operations would occur under the Proposed Action when compared to the No-Build Alternative. Fuel consumption is anticipated to decrease with the Proposed Action due to the use of eGSE.

Three main fuel types are utilized at the Airport, Jet-A, diesel fuel and gasoline. Jet-A is used for jet and turboprop aircraft. Consumption of Jet-A would be expected to decrease for similar gauge aircraft and airfield movements under the Proposed Action due to the reduction in taxi and delay time as less aircraft would be delayed while waiting for a gate to become available or reposition to another terminal. Diesel fuel and gasoline are used by GSE and other surface vehicles that support airport operations. Use of diesel fuel and gasoline is expected to remain constant or decrease under the Proposed Action compared to the No-Build Alternative due to the utilization of eGSE that would replace diesel-powered and gasoline-powered equipment. Further reduction in gasoline usage would occur due to the decrease in congestion on the terminal roadways and reduction in automobile idling or recirculation trips.

During construction, additional gasoline and diesel fuel would be consumed by contractors and their employees traveling to and from the Proposed Action Site as well as the on-road vehicles and non-road construction equipment required to build the project. There would also be a nominal increase in electricity consumed since construction trailers and other stationary facilities would be connected to the power grid. These increases would be temporary and would diminish as the Proposed Action nears completion. Fuel consumption would increase during construction; however, due to availability of fuel in the Region, the Proposed Action would not exceed the existing fuel supplies.

TABLE 5-10 COMPARISON OF ESTIMATED ANNUAL ENERGY CONSUMPTION FOR THE NO-BUILD ALTERNATIVE AND THE PROPOSED ACTION
John F. Kennedy International Airport

Alternative	Energy Type		
	Utility Energy		Fuel Energy
	Electricity (MWh)	Natural Gas (Mbtu)	Jet-A (tons)
No-Build Alternative	275,000	680,196	349,305
Proposed Action	432,000	1,166,331	343,263
Difference	157,000	453,464	-6,042

Notes: MWh = megawatt hours, Mbtu = Million British Thermal Units

Source: Estimated electricity & natural gas usage from JFK Redevelopment. Estimated fuel usage from AEDT based on fuel consumption, KB Environmental Sciences and Landrum & Brown, analysis 2019.

5.10.3 SUMMARY OF NATURAL RESOURCES AND ENERGY SUPPLY IMPACTS

Under the Proposed Action there would be an increase in demand for electricity and natural gas energy during both construction and implementation that would impact local supplies. There would also be an increase in demand for fuel for construction vehicles and construction materials during construction, which would impact local supplies. However, the increase in demand can be met by current capacity and existing supplies would not be depleted. Implementation of the Proposed Action would result in a reduction in demand for aircraft fuel (Jet-A) due to the decrease in airfield taxi-time. Therefore, no significant impact to natural resources or energy would occur as a result of the Proposed Action.

5.10.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

Coordination with ConEd was conducted to ensure that demand for energy would not exceed capacity. Based on information provided to the Port Authority by ConEd, sufficient electrical generating capacity is available to support the Proposed Action. No unique or rare natural resources were identified to be required for construction of the Proposed Action. Construction materials would include resources that are typically available in the New York Region and would not be expected to exceed current or future supplies. The Proposed Action does not exceed the applicable thresholds of significance; therefore, no mitigation measures are required.

5.11 NOISE AND NOISE-COMPATIBLE LAND USE

This section presents the analysis of potential aircraft noise impacts associated with the Proposed Action. The results are presented in terms of the number and type of noise-sensitive land uses affected by the Proposed Action. The years 2025 and 2030 are analyzed consistent with FAA Order 1050.1F which specifies that the first operational and five-year build out years be analyzed.[161]

The analysis was prepared using the latest version of the FAA's AEDT (Version 2d). Inputs to AEDT include the number of aircraft operations, the types of aircraft, the time-of-day operations occur, runway definition and frequency of utilization, flight tracks, and trip lengths. The AEDT calculates noise exposure for the area around the Airport and outputs contours of equal noise exposure using the Day-Night Average Sound Level (DNL) metric. For this analysis, equal noise contours for the levels of DNL 65, 70, and 75 dB were calculated and represent average-annual day conditions.

Construction-related noise generated under the Proposed Action are also analyzed and discussed.

Details of the noise analysis methodology, data and assumptions are provided in **Appendix E, *Aircraft Noise Technical Report.***

5.11.1 NO-BUILD ALTERNATIVE

No-Build Alternative (2025) Noise Exposure Contour

The 2025 No-Build Alternative Noise Exposure Contour map, showing DNL 65, 70, and 75 dB levels is presented in **Exhibit 5-2, *No-Build Alternative (2025) Noise Exposure Contour***. As shown, the 65+ DNL contour encompasses approximately 8,470 acres. Notably, the No-Build Alternative 65+DNL contour is slightly larger than the Existing Noise Exposure Contour (see Section 4.11) due to the forecasted increase in aircraft operations over this timeframe. This includes the general growth in aviation demand region wide and the expected increase in cargo operations that would occur with or without the Proposed Action. Importantly, the No-Build Alternative noise contours retain a similar shape as the Existing Conditions contour as the aircraft fleet, runway use patterns and flight tracks are expected to remain similar.

A summary listing of the residential population, housing units, and noise sensitive facilities affected by noise levels exceeding DNL 65 dB under the 2025 No-Build Alternative is provided as **Table 5-11, *No-***

[161] FAA, 2015, 1050.1F Desk Reference, Environmental Impacts: Policies and Procedures, 11. Noise and Noise-Compatible Land Use, 11.3 Environmental Consequences.

***Build Alternative (2025) Noise Exposure Contour – Noise-Sensitive Sites and Population Exposed to Noise Levels Exceeding DNL 65 DB*.**

TABLE 5-11 NO-BUILD ALTERNATIVE (2025) NOISE EXPOSURE CONTOUR – NOISE-SENSITIVE SITES AND POPULATION EXPOSED TO NOISE LEVELS EXCEEDING DNL 65 DB
John F. Kennedy International Airport

DNL LEVEL	TOTAL AREA (ACRES)	DWELLING UNITS[1]	POPULATION[1]	PLACES OF WORSHIP	SCHOOLS[2]	HOSPITALS AND RESIDENTIAL HEALTHCARE	HISTORIC RESOURCES[3]	DAY CARE AND ASSISTED LIVING	LIBRARY
DNL 65-70	5,227	10,799	30,988	19	12	7	2	14	1
DNL 70-75	1,829	722	2,120	0	0	0	0	0	0
DNL 75+	1,414	0	0	0	0	0	0	0	0
Total	**8,470**	**11,521**	**33,108**	**19**	**12**	**7**	**2**	**14**	**1**

Notes:
1. The household and population estimates provided above were developed using census block demographic data from the 2010 Decennial Census and New York City housing data. This approach provided an average number of persons per household for each individual census block, which accounted for changes in land use, housing types, and residential density within the different areas in the DNL 65 and higher contours.
2. Eight of the schools were included in the School Soundproofing Program and are compatible with DNL 65+.
3. A total of five schools and places of worship are historic sites, but not included here to avoid double counting.

Source: KB Environmental Sciences, 2019.

No-Build Alternative (2030) Noise Exposure Contour

The 2030 No-Build Alternative Noise Exposure Contour, showing DNL 65, 70, and 75 dB levels is presented in **Exhibit 5-3, *No-Build Alternative (2030) Noise Exposure Contour***. As shown, the 65+ DNL encompasses approximately 8,805 acres. This represents a small change compared to 2025 conditions, but the contour retains a similar shape as the 2025 No-Build Alternative. This is due to the forecasted increase in aircraft operations over this timeframe.

A summary listing of the predicted residential population, housing units, and other noise sensitive facilities affected by noise levels DNL 65 dB and above under the 2030 No-Build Alternative is provided in **Table 5-12, *No-Build Alternative (2030) Noise Exposure Contour – Noise-Sensitive Sites and Population Exposed to Noise Levels Exceeding DNL 65 DB***.

TABLE 5-12 NO-BUILD ALTERNATIVE (2030) NOISE EXPOSURE CONTOUR – NOISE-SENSITIVE SITES AND POPULATION EXPOSED TO NOISE LEVELS EXCEEDING DNL 65 DB

John F. Kennedy International Airport

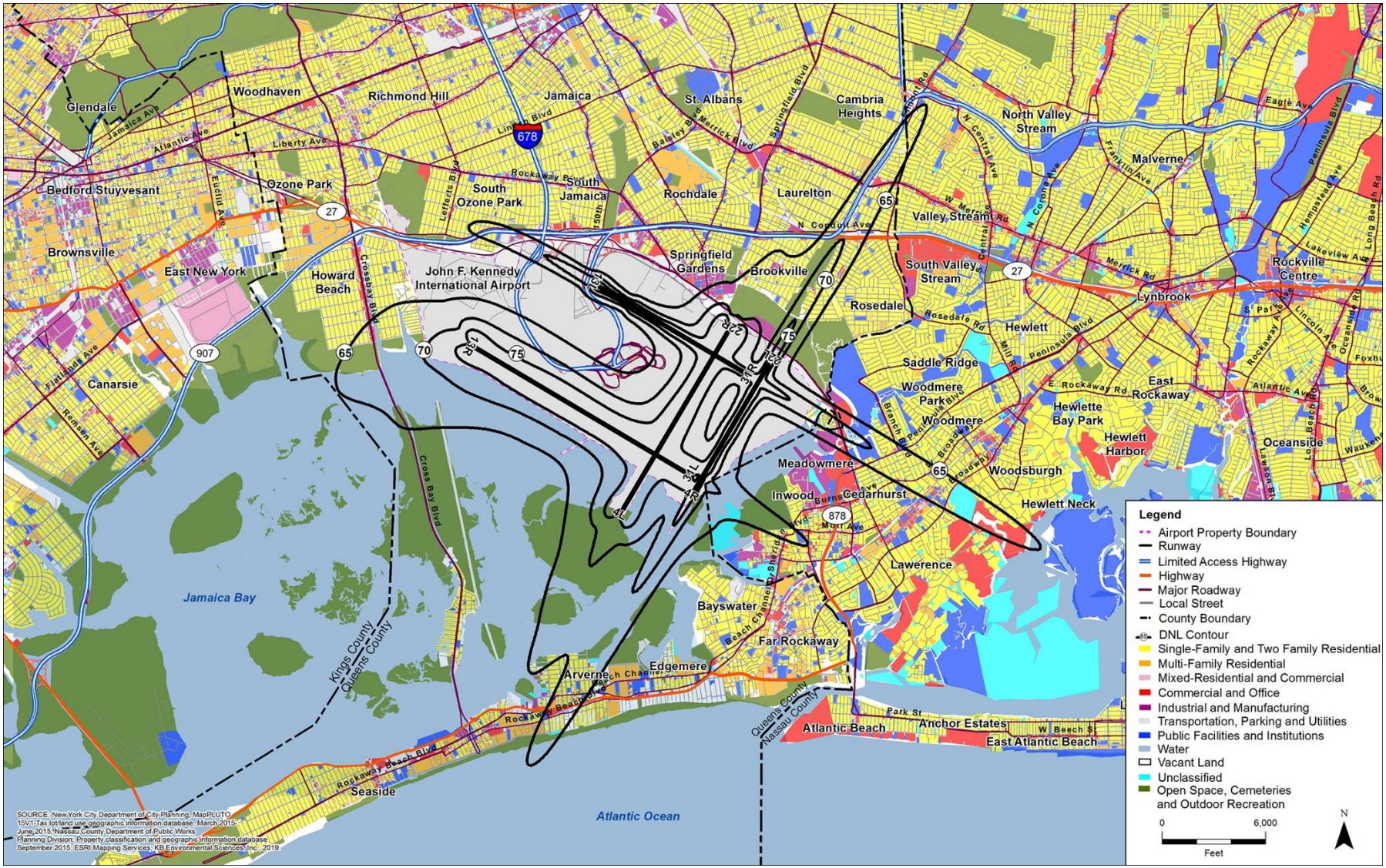
DNL LEVEL	TOTAL AREA (ACRES)	DWELLING UNITS[1]	POPULATION[1]	PLACES OF WORSHIP	SCHOOLS[2]	HOSPITALS AND RESIDENTIAL HEALTHCARE	HISTORIC RESOURCES[3]	DAY CARE AND ASSISTED LIVING	LIBRARY
DNL 65-70	5,457	12,344	35,093	20	13	7	2	15	1
DNL 70-75	1,906	767	2,257	0	0	0	0	0	0
DNL 75+	1,442	0	0	0	0	0	0	0	0
Total	8,805	13,111	37,350	20	13	7	2	15	1

Notes:
1 The household and population estimates provided above were developed using census block demographic data from the 2010 Decennial Census and New York City housing data. This approach provided an average number of persons per household for each individual census block, which accounted for changes in land use, housing types, and residential density within the different areas in the DNL 65 and higher contours.
2 Eight of the schools were included in the School Soundproofing Program and are compatible with DNL 65+.
3 A total of five schools and places of worship are historic sites, but not included here to avoid double counting.
Source: KB Environmental Sciences, 2019.

Construction Noise

Because there are no construction activities associated with the No-Build Alternative, there are no construction related noise impacts.

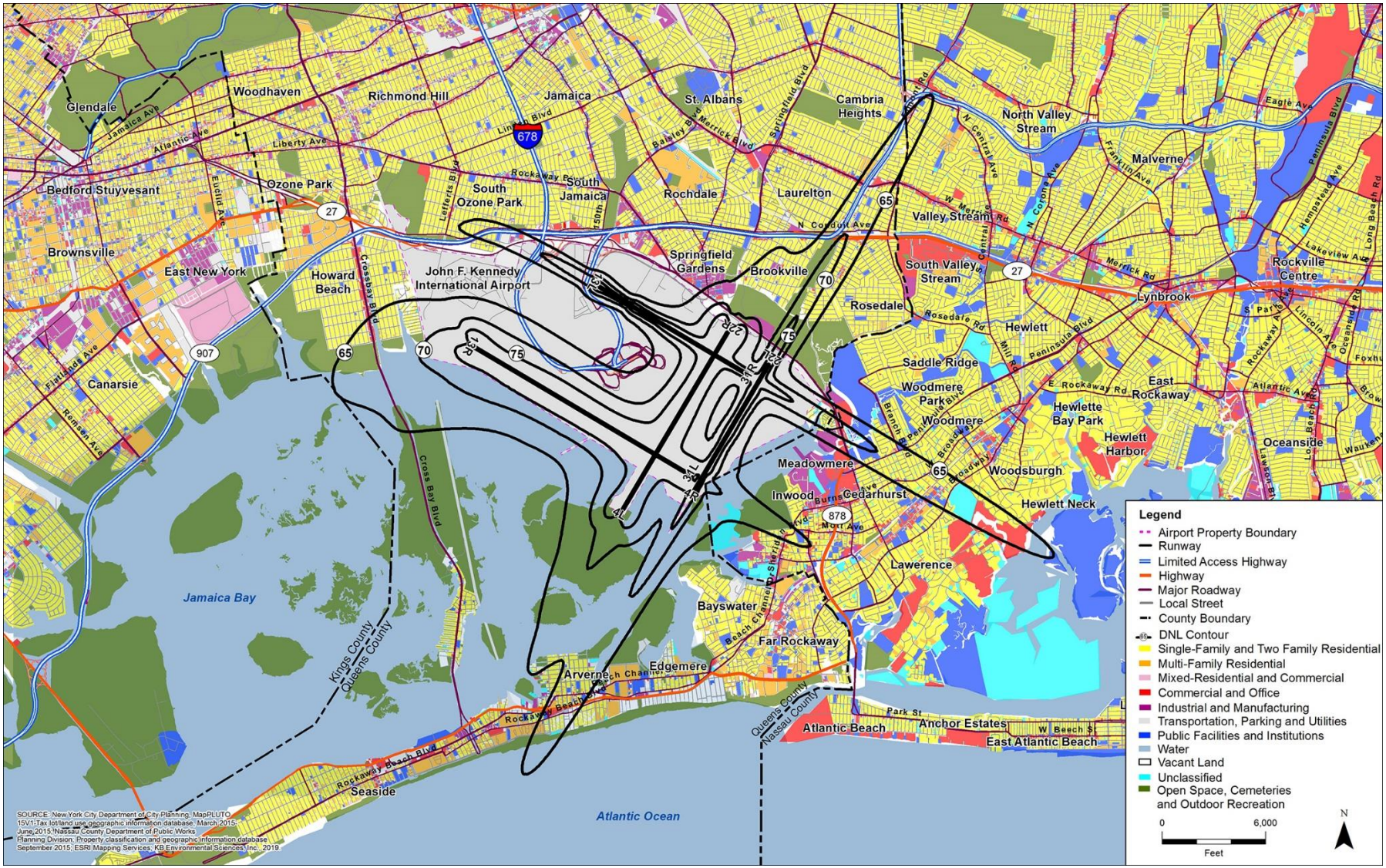
EXHIBIT 5-2 NO-BUILD ALTERNATIVE (2025) 65-75 DNL CONTOURS



Source: KB Environmental Sciences, 2019.

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EXHIBIT 5-3 NO-BUILD ALTERNATIVE (2030) 65-75 DNL CONTOURS



Source: KB Environmental Sciences, 2019.

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5.11.2 PROPOSED ACTION

According to FAA criteria, a "significant" noise impact only occurs if a noise analysis predicts (1) an increase in noise level of DNL 1.5 dB (or more) at, or above, the DNL 65 dB noise exposure contour, or (2) an impact above the DNL 65 dB level due to a DNL 1.5 dB (or greater) increase when compared to the No-Build Alternative.

Proposed Action (2025) Noise Exposure Contour

As discussed previously, the Proposed Action would not result in a change in aircraft operations, runway use, or flight tracks. Therefore, the 2025 Proposed Action Noise Exposure Contour is the same as the No-Build Alternative Noise Exposure Contour. Furthermore, the residential population and housing units affected by noise levels exceeding DNL 65 dB would be the same.

Because there is no change between the Proposed Action and the No-Build Alternative, there would also be no area of a DNL 1.5 dB increase within the DNL 65 dB contour. Therefore, no significant noise impacts would occur associated with the Proposed Action in 2025. In addition, no existing noise sensitive land uses within the DNL 65 dB would experience an increase in noise of DNL 1.5 dB or greater.

Proposed Action (2030) Noise Exposure Contour

Consistent with the explanation of noise impacts under the 2025 Proposed Action, there are no changes in aircraft operations, runway use, or flight tracks compared to the No-Build Alternative. Therefore, the 2030 Proposed Action Noise Exposure Contour would be the same as the No-Build Alternative. Furthermore, the residential population and housing units affected by noise levels exceeding DNL 65 dB would be the same.

Again, because there is no change in noise contours between the Proposed Action and the No-Build Alternative, there would be no area subject to a DNL 1.5 dB increase within the DNL 65 dB contour. Moreover, no existing noise sensitive land uses within the DNL 65 dB would be subject to an increase in noise of DNL 1.5 dB or greater. Therefore, no significant aircraft noise impacts would occur as a result of the Proposed Action in 2030.

Construction Noise

Noise levels for construction equipment were obtained from the Federal Highway Administration (FHWA)-approved Roadway Construction Noise Model (RCNM). International Standards Organization (ISO) 9613-2 methods were also used to estimate construction equipment and vehicle traffic noise levels.[162]

[162] Construction noise exposure projections were calculated using the FHWA RCNM noise emission data. The RNCM includes a database with measured noise emission of various construction machinery, and a usage percentage that accounts for the fluctuating nature of the produced noise. RCNM is meant as a screening tool for distances up to approximately 500 feet. For greater distances, a number of additional acoustical aspects need to be taken into account for reliable noise exposure projection as described in the ISO 9613-2 "Acoustics – Attenuation of Sound During Propagation Outdoors". In this report, atmospheric absorption, ground propagation attenuation, and building attenuation has been included in the projections in addition to geometric dispersion. These noise exposure projections are based on meteorological conditions that are favorable for noise propagation. Favorable wind conditions refers to wind patterns that would carry noise in the direction of the receptor.

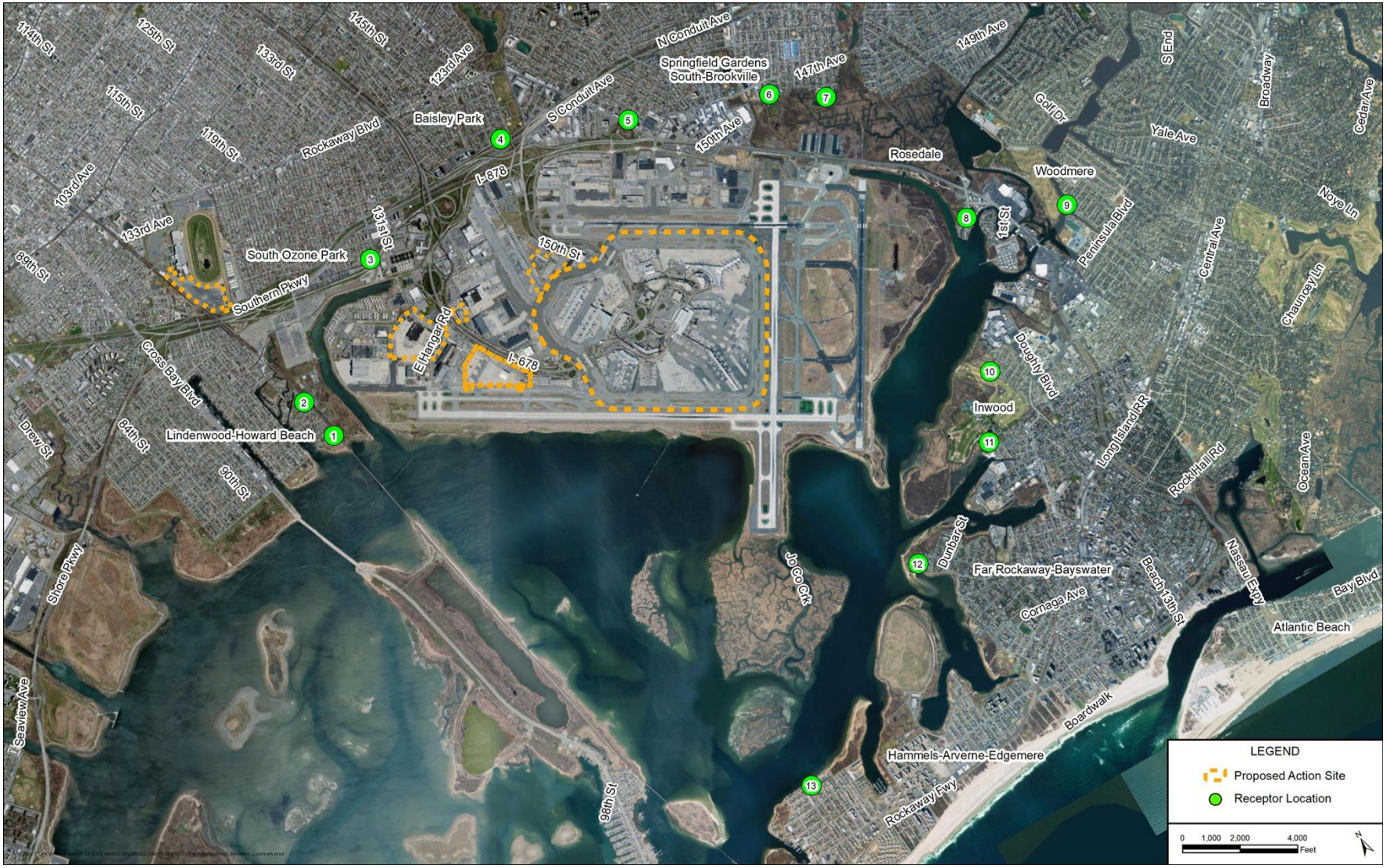
The nearest residential land uses to the Proposed Action Site were used as the receptor sites and are provided on **Exhibit 5-4, *Neighborhood Receptor Locations***. As shown, Receptor 3, the nearest receptor set to the Proposed Action Site, is located approximately 2,300 feet west of the South Construction Staging Area. Receptor 5 is located approximately 3,900 feet north of the CTA.

For this analysis, construction equipment and vehicle traffic noise were compared to existing monitored background levels at noise-sensitive sites in the vicinity of the Airport and near the closest residential land uses. The monitored background levels were obtained from the Port Authority.[163]

The current noise levels and the expected increase in noise levels at each noise-sensitive receptor location during the construction period is provided in **Table 5-13, *Construction Noise Model Predicted maximum (Lmax) and average weekday L_{EQ} Noise Levels at Select Sites***. According to NYSDOT's Noise Analysis Policy and Procedures, in New York City an impact to any sensitive receptor from construction noise would only occur when levels are above 85 decibels (dB).[164] As shown in **Table 5-13**, noise levels from construction are not expected to exceed 85 Leq. Therefore, the construction noise from the Proposed Action would not cause an impact to sensitive receptors.

[163] Monthly Noise Monitor Report for JFK, LGA, and EWR, Port Authority Aviation Department's Noise Office, February 2019.
[164] NYSDOT Environmental Procedures Manual, Chapter 3.1, § 772.19 Construction Noise, August 1998.

EXHIBIT 5-4 NEIGHBORHOOD RECEPTOR LOCATIONS



Source: Landrum & Brown, 2019

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TABLE 5-13 CONSTRUCTION NOISE MODEL PREDICTED MAXIMUM (LMAX) AND AVERAGE WEEKDAY L_{EQ} NOISE LEVELS AT SELECT SITES

RECEPTOR ID	LOCATION	MEASURED BACKGROUND DNL (dBA)	CONSTRUCTION GENERATED NOISE LEVEL						
			LMAX	AVERAGE WEEKDAY L_{eq} (dBA)					
				2020	2021	2022	2023	2024	2025
1	Howard Beach - 104th St. and 165th Ave	69.7	56.0	49.3	51.2	50.7	48.0	45.8	44.0
2	Howard Beach 104th St and Dunton Ct	67.3	46.6	39.9	41.7	41.3	38.6	36.4	34.6
3	South Ozone Park - 160th St and Old South Rd	66.3	48.5	41.8	43.6	43.2	40.5	38.3	36.5
4	Baisley Park - North Conduit Ave & 148th St	n/a	53.4	46.7	48.6	48.1	45.4	43.2	41.4
5	Springfield Gardens - Rockaway Blvd and 145th Dr	n/a	59.5	52.8	54.6	54.2	51.5	49.2	47.5
6	Springfield Gardens - 147th Ave and 224th St	70.8	53.0	46.3	48.2	47.7	45.0	42.8	41.0
7	Springfield Gardens - 148th Ave and 230th Pl	67.4	51.6	44.8	46.7	46.3	43.6	41.3	39.6
8	Rosedale - Broad Street and Bayview Ave	73.5	58.8	52.1	53.9	53.5	50.8	48.6	46.8

RECEPTOR ID	LOCATION	MEASURED BACKGROUND DNL (dBA)	CONSTRUCTION GENERATED NOISE LEVEL						
			LMAX	AVERAGE WEEKDAY L_{eq} (dBA)					
				2020	2021	2022	2023	2024	2025
9	Woodmere Park - Park Ln & Park Ct	69.8	45.9	39.2	41.1	40.6	37.9	35.7	33.9
10	Inwood - Donahue Ave & Soloff Rd	66.8	55.6	48.9	50.7	50.3	47.6	45.3	43.6
11	Inwood - Pine Rd and Walnut Rd	66.8	54.3	47.6	51.2	50.7	48.0	45.8	44.0
12	Far Rockaway / Bayswater – Mott Ave and Beacon Pl	61.2	52.8	46.1	48.0	47.6	44.8	42.6	40.9
13	Hammels-Arverne-Edgemere - Bayfield Ave	68.1	49.3	42.5	44.4	44.0	41.3	39.0	37.3

Source: Landrum & Brown, 2019

5.11.3 SUMMARY OF NOISE AND NOISE-COMPATIBLE LAND USE IMPACTS

Aircraft noise impacts associated with the Proposed Action would not change from the No-Build Alternative. Construction noise levels would not cause significant impacts to noise sensitive land uses. Therefore, there are no significant impacts to noise.

5.11.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

Noise minimization measures associated with aircraft operations are not specifically required for the Proposed Action. This is due to the findings of "no net change" in noise contours between the Proposed Action and No-Build Alternative.

However, during construction, noise minimization measures would be implemented and a Noise Control Plan prepared to minimize the potential for adverse effects on the community during the construction period. For example, construction activities would require a construction Noise Control Plan as mandated in Chapter 28, Title 15 of the City of New York Administrative Code, Citywide Construction Noise Mitigation. The Noise Control Plan would incorporate various noise control measures in accordance with the New York City Citywide Construction Noise Mitigation policy and to demonstrate compliance with the City's Noise Control Code (Local Law No. 113 of 2005). The following pile driving noise control measures are recommended:

- Reduce the impact sound of the ram hitting the pile cap by placing a resilient pad in the anvil chamber.
- Reduce the discharge sound of the hammer's air exhaust by installing a rectangular steel enclosure lined with acoustically absorptive material to provide both sound absorption and a limp mass noise barrier.
- Reduce the "ringing" noise of the steel piles by utilizing acoustical paint across the web of each pile at 4- to 6-foot intervals.
- Prohibit pile driving at night (10PM – 7AM as defined in **Appendix E: *Aircraft Noise Technical Report***).

The following additional strategies to reduce noise and vibration during construction are provided in PANYNJ's *Sustainable Infrastructure Guidelines*:

- Require all debris conveyors and containers to be lined or covered with sound absorbing materials.
- Require all pneumatic support equipment to have intake and exhaust mufflers recommended by the manufacturer.
- Require all impact devices to be equipped with acoustically attenuating shields or shrouds recommended by the manufacturer.
- Require all internal combustion equipment to have mufflers and shield paneling recommended by the manufacturer.
- Require idling time for both on-road and off-road equipment and vehicles to be limited to three minutes.
- Minimize the use of equipment that generates more than 80 db(A) of noise and use such equipment only during daylight hours (i.e., not at night in residential areas).

- Limit vibration resulting from construction equipment when work is close to tunnels, utilities, or other sensitive structures by pre-augering the foundation piles and closely monitor peak particle velocity compliance through seismograph readings.
- Use an approved sound-level meter for self-monitoring and proactively correct conditions where the noise generated by specific pieces of equipment exceeds allowable levels.
- Use noise barriers to contain noise where practicable.

In addition, it is expected that there would be minimal nighttime or weekend construction of any kind. After construction, no additional noise minimization measures are proposed.

5.12 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS

This section evaluates the potential impacts of the No-Build Alternative and Proposed Action on socioeconomic resources, environmental justice communities, and children's environmental health and safety risks.

Socioeconomics

For airport development projects, impacts on socioeconomic resources are typically associated with relocation or other community disruption, transportation, planned development, and employment.

Environmental Justice

The environmental justice analysis was conducted in accordance with the April 2019 methodology developed for this EA which was based on Executive Order 12898, U.S. DOT Order 5610.2(a), FAA Order 1050.1F, and *Promising Practices for EJ Methodologies in NEPA Reviews*, a report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee. In determining whether the Proposed Action is in compliance with applicable guidance and Orders, two factors must be considered.

1. Is the Proposed Action likely to have an adverse effect on low-income or minority populations within the study area?
2. If yes, will those adverse effects be disproportionately high in communities meeting the threshold for environmental justice populations?

The U.S. DOT defines "disproportionately high and adverse effects" on an environmental justice community as:

> "[T]he totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities."[165]

While there are no thresholds for significance related to environmental justice. FAA provides factors that should be considered when making a significance determination and these will be applied in the EA:

- If an underlying impact to the natural and physical environment that has the potential to lead to a disproportionately high and adverse impact to an environmental justice population is itself deemed significant, this may suggest that the environmental justice impact is also significant.

[165] USDOT Order 5610.2(a)

- An underlying impact that is not significant, may lead to a significant environmental justice impact if the action disproportionately impacts an environmental justice population and the underlying impact affects the environmental justice population in a unique way. Consultation with FAA and other environmental resource agencies may be required to determine if such impacts rise to a level of significance.

Children's Environmental Health and Safety Risks

Potential disproportionate risks to Children's Environmental Health and Safety were evaluated pursuant to EO 13045, as described in **Section 4.12** of this EA.

5.12.1 NO-BUILD ALTERNATIVE

Socioeconomic Impacts

Under the No-Build Alternative, there would be no new development or improvements to existing infrastructure. As such, the No-Build Alternative would have no impact on socioeconomic resources. Specifically, there would be no induced growth, community or local traffic pattern disruptions, relocation of residences or businesses, or a substantial loss in community tax base.

Environmental Justice

Under the No-Build Alternative, there would be no new development or infrastructure improvements on- or off-airport; therefore, there would no impact on environmental justice communities.

Children's Environmental Health and Safety Risks

Under the No-Build Alternative, there would be no new development or infrastructure improvements on- or off-airport; therefore, there would no impact on the environmental health or safety risks to children.

5.12.2 PROPOSED ACTION

Socioeconomic Impacts

Under the Proposed Action, no private property would be acquired, and no businesses or residences would be relocated. Structures to be demolished as part of the Proposed Action are currently vacant. Further, the Proposed Action would not disrupt or divide an established community.

The Proposed Action would result in beneficial impacts to socioeconomic resources most notably during construction, but also in the longer term, upon completion and implementation of the redevelopment program. These benefits are primarily related to job creation. At the peak of construction, it is projected that 3,081 construction-related workers would be on-site daily.[166] It has also been estimated that, in total, construction and implementation of the Proposed Action would create approximately 9,600 direct jobs and over 15,000 total jobs.[167] Long-term jobs (upon completion) would be primarily related to new amenities/concessions within the new and modified terminals (New T1 and expanded T4 and T5) including terminal concessions, maintenance, as well as additional TSA and

[166] Port Authority of New York and New Jersey
[167] New York State, Governor Andrew M. Cuomo, Governor Cuomo Announces $13 Billion Plan to Transform JFK Into a World-Class 21st Century Airport, October 4, 2018. Available online at https:/www.governor.ny.gov/news/governor-cuomo-announces-13-billion-plan-transform-jfk-world-class-21st-century-airport. Accessed March 5, 2019.

airline staff for ticketing, maintenance, and other operations. The Proposed Action would not result in a substantial loss in community tax base.

Construction of the Proposed Action would result in a short-term increase in surface traffic. A traffic analysis was performed to determine the type and extent of potential on- and off-airport construction-related traffic impacts anticipated during the peak construction phase for the Proposed Action. **Chapter 2, *Purpose and Need*** of this EA and **Appendix G, *Traffic Report*** provide additional information on the traffic analysis performed. Construction-related traffic impacts would primarily be related to:

- On-Airport
    - Reduced CTA parking supply
    - Reduced capacity at some on-airport roadways
    - Additional passenger trips on AirTrain
    - Additional passengers on on-airport and off-airport buses and vans
    - Additional truck traffic
- Off-Airport
    - Additional construction worker trips
    - Additional construction-related truck trips

As described in **Appendix G, *Traffic Report***, it is projected that at the peak of construction (Quarter 1 of 2022), 613 construction-related truck trips, 141 bus trips, and 1,974 automobile trips would occur daily. This would increase delay at several locations both on- and off-airport. The duration of the potential traffic impacts would be short, about one hour in the morning and one hour during the afternoon since construction worker trips are highly peaked. In addition, off-airport traffic impacts would primarily occur on major roadways and impacts on local roads during construction would be minimal.

To address potential adverse impacts from the increased number of vehicles during construction, minor changes in traffic operations would be incorporated at key intersections, including:

- N. Conduit Avenue and Lefferts Boulevard
- N. Conduit Avenue and 130th Street
- Nassau Expressway and Lefferts Boulevard
- Lefferts Boulevard and Aqueduct Road
- 155th Avenue and Cohancy Street
- Cross Bay Boulevard and N Conduit Avenue
- Cross Bay Boulevard and Shore Parkway N. Service Road
- Lefferts Boulevard and Pan Am Road
- N. Conduit Avenue and Rockaway Boulevard

Recommended minimization measures during construction include signal timing modifications, signal phasing revisions, lane utilization changes, and use of traffic enforcement agents. In addition, construction work shifts could be staggered, multiple construction worker parking lots and free shuttle buses to worksites would be utilized, Pan Am Road would be utilized to access the Aqueduct Parking Lot to reduce traffic on local roads, and other traffic control strategies would be implemented. Further, a public information program would be untaken to establish procedures and methods for establishing frequent dialogue with Community Board representatives and public officials and ensuring project-related information is readily available to the general public, especially during key milestones. Specific

minimization measures and locations are detailed in Sections 8 and 9 of the *Traffic Report* in **Appendix G**. The Port Authority would work closely with NYCDOT throughout the construction period to determine the need and timing of minimization measures at potentially affected locations. After construction, the proposed on-airport roadway improvements would enhance traffic flow and the off-airport intersection improvements would reduce congestion and delay, resulting in an overall benefit to traffic at and near the Airport.

Environmental Justice

As described **in Section 4.12**, ***Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks***, most Census Block groups surrounding the Airport meet the threshold for an environmental justice population. These environmental justice populations could experience adverse impacts from air quality and traffic during construction.

As detailed in **Section 5.2, *Air Quality***, the Proposed Action would not increase aircraft activity beyond forecasted levels or cause a permanent change in runway use patterns. When the Proposed Action is implemented, there would not be an increase in the total number of motor vehicles traveling to and from JFK, beyond that associated with forecasted growth. Further, based on air quality modelling of emissions during construction, NAAQS exceedances are not anticipated even during the peak period of construction and the associated increase in traffic volume (specifically in 2022). Therefore, the operation of the Proposed Action would only cause temporary, non-significant impacts to air quality in the environmental justice communities. Upon completion of the construction activities (post 2025), traffic congestion would be improved compared to current conditions, resulting in beneficial impacts to air quality in nearby neighborhoods. Air Quality impacts are detailed in **Appendix B, *Air Quality Technical Report***.

While the surrounding communities may experience the adverse traffic impacts disproportionately, the impacts would not be significant and only occur during construction. Upon completion, the off-airport intersection improvements would improve circulation and congestion near the Airport, resulting in an overall benefit to nearby populations.

Based on the foregoing, the Proposed Action would not result in significant adverse impacts on environmental justice populations near the Airport (i.e., within the environmental justice study area).

Children's Environmental Health and Safety Risks

Based on a review of available data, the Proposed Action would not result in an elevated risk to health or safety concerns for children. While approximately 22 percent of the population within the study area are children, the only environmental resources with the potential to impact areas are socioeconomic resources (which would not affect the environmental health and safety of children), air quality, and traffic.

As discussed previously, implementation of the Proposed Action would result in beneficial impacts to traffic and air quality. During construction, minimization measures would be implemented to reduce potential traffic and air quality impacts, reducing the potential for environmental health and safety risks to children. There are 29 schools located within the study area. Increases in traffic associated with construction of the Proposed Action would be focused at major intersections near the Airport and on surrounding highways and conduit roads, away from most of the schools. Where traffic increases could occur near schools, minimization measures would be implemented to ensure the safety of children

travelling to and attending those schools. Therefore, the impact to children attending schools within the study area would not be significant.

As set forth in **Section 5.2, *Air Quality***, even during construction, when emissions would peak (specifically in 2022), air quality modelling results demonstrate there would not be any expected NAAQS exceedances as a result of traffic volume increases under worst-case conditions. Upon completion of the construction activities (post 2025), traffic congestion would be improved compared to current conditions, resulting in beneficial impacts to air quality in nearby neighborhoods.

Based on the foregoing, the Proposed Action would not result in a significant adverse impact on children's environmental health and safety risks.

5.12.3 SUMMARY OF SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS IMPACTS

No induced growth, relocation of residences, or relocation of off-airport businesses would occur as part of the Proposed Action. Temporary impacts would occur off-airport due to construction-related traffic, though minimization measures would be implemented to reduce potential for impacts and the overall impacts would not be significant. Traffic impacts would be most noticeable along major roads, Airport intersections, and highways to be used by construction vehicles, workers, and equipment. Traffic impacts on local roadways would be less affected. Impacts to traffic and air quality during construction would not be significant, either when considered alone or cumulatively, and after construction, impacts from air quality and traffic would be beneficial. The Proposed Action would result in a beneficial economic impact due to the creation of jobs during and after construction. Therefore, no significant impact to socioeconomics, environmental justice or children's environmental health and safety risks would occur.

5.12.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

To minimize the potential surface transportation impact, traffic on local roadways would be maintained during construction activities using measures such as flaggers, arrow boards, and traffic control devices to reduce any potential congestion on the roads. A construction management plan would be prepared which, based on the selected contractor(s) haul plan, would specify hours of operation, haul routes, and similar controls. It is expected that such a plan would be consistent with normal contracting practices. Temporary impacts to off-airport traffic would occur during construction of the Proposed Action. Minimization measures would be implemented, such as signal timing modifications and lane utilization changes, to prevent LOS impacts during construction.

5.13 VISUAL EFFECTS

This section presents the analysis of potential visual effects, including impacts related to light emissions and visual resources and visual character, as a result of the No-Build Alternative and the Proposed Action. Visual effects include the extent to which a proposed action would produce light emissions that create annoyance or interfere with activities, or contrast with, or detract from, the visual resources and/or the visual character of the existing environment.

Based on FAA Order 1050.1F, light emission impacts are typically related to the extent to which lighting or glare associated with the Proposed Action or alternative(s) would create an annoyance for people in the vicinity; would interfere with their normal activities including work and recreation; or would contrast

with or detract from the visual resources and/or the visual character of the existing environment. Visual resources include buildings, sites, traditional cultural properties, and other natural or manmade landscape features that are visually important or have unique characteristics. Visual character refers to the overall aesthetics of the existing landscape.

There are no Federal special purpose laws or requirements specific to light emissions and visual effects. Although other special purpose laws, such as the NHPA or Section 4(f) of the USDOT Act have specific provisions for visual impacts to protected resources. In order to determine the potential visual effects, the Proposed Action is compared to the No-Build Alternative to determine if there is a potential for annoyance and adverse impacts.

5.13.1 NO-BUILD ALTERNATIVE

Light Emissions

There would be no change to light emissions under the No-Build Alternative.

Visual Resources and Visual Character

There would be no change to the existing visual resources or visual character under the No-Build Alternative.

5.13.2 PROPOSED ACTION

Light Emissions

The Proposed Action would result in a redevelopment of facilities in the CTA, which would involve a reconfiguration of structures and light sources within the Proposed Action Site on Airport property. The Proposed Action Site is surrounded by Airport-related uses. However, due to the existing light emissions at JFK the light emissions from the Proposed Action are not expected to be noticeably different from the Airport's existing lighting and would not cause annoyance or disrupt normal activities of the surrounding community. Therefore, lighting from the Proposed Action when compared to the No-Build Alternative would not significantly increase the overall light emissions due to their type, intensity, and distance from residential areas.

Visual Resources and Visual Character

The Proposed Action would result in a redevelopment of facilities in the CTA, which would involve a reconfiguration of structures within the Proposed Action Site on Airport property. See **Exhibit 5-5, *Proposed Action Renderings***. The land use in the immediate vicinity of the Proposed Action Site consists of commercial and industrial land uses.

The Proposed Action would not contrast with, or detract from, the visual resources and/or the visual character of the surrounding area. The nearest residential land uses to the Proposed Action Site are approximately 2,000 feet to the west. Other nearby residential areas are approximately 3,900 feet to the north. The Proposed Action would not significantly alter, contrast, or obstruct the existing views from residential areas due to the distance and obstacles in the way. In addition, the Proposed Action is similar in character to the existing CTA and would not result in a significant change to the surrounding area's visual character. Therefore, the Proposed Action would not result in significant impacts to visual resources and visual character.

5.13.3 SUMMARY OF VISUAL EFFECTS IMPACTS

Minor changes in lighting and views would occur within the Airport property under the Proposed Action. However, no changes to visual setting or light intensity would occur to residential areas. Therefore, the Proposed Action would not result in significant visual effects.

5.13.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

The Proposed Action would have no significant impact on visual effects; therefore, no mitigation measures are required.

EXHIBIT 5-5 PROPOSED ACTION RENDERINGS

Proposed New Terminal 1



Proposed Expanded Terminal 5



4/23/2019 Y:\JFK\Redevelopment EA\E-LB Work\2-GIS\MXD\1-DRAFT-JPEG\ 5-4_Proposed Action Renderings.mxd

Source: Port Authority, 2019.

5.14 WATER RESOURCES

5.14.1 NO-BUILD ALTERNATIVE

Wetlands

No physical development would occur under the No-Build Alternative and there are no wetlands in the Proposed Action Site. Therefore, no direct or indirect impacts to wetlands would occur.

Floodplains

No physical development would occur under the No-Build Alternative and there are no floodplains in the Proposed Action Site. Therefore, no impacts to floodplains would occur.

Surface Water

No physical development would occur under the No-Build Alternative and there are no surface water resources in the Proposed Action Site. Therefore, no direct impacts to surface water and no indirect impacts to Jamaica Bay or its tributaries would occur.

Groundwater

No physical development would occur under the No-Build Alternative. Therefore, no impacts to groundwater would occur.

5.14.2 PROPOSED ACTION

Wetlands

There are no freshwater or tidal wetlands in or directly adjacent to the Proposed Action Site. The Proposed Action Site is more than 500 feet from tidal wetlands associated with Jamaica Bay and would not directly impact this resource. Further, given the capacity of existing stormwater management systems at the Airport and proposed measures included in the Proposed Action to minimize impacts to existing water resources, such as a SWPPP, SPDES compliance, and sustainability measures, the Proposed Action would not result in noticeable indirect impacts on wetland resources. Measures to reduce potential for impact water resources, including wetlands, that have been incorporated into Proposed Action are described in more detail in the Surface Water impact analysis below."

Floodplains

The Proposed Action Site is outside of and elevated above the 100-year floodplain. Therefore, no direct adverse impact to floodplains would occur as a result of the Proposed Action. Potential sea level rise would be considered in future infrastructure and facility design in the Proposed Action Site, as needed. The Proposed Action will be designed and constructed so that all critical operational and design elements comply with the PANYNJ *Climate Resilience Design Guidelines*.

The redevelopment of facilities in the CTA would require an additional 5.9 acres of impervious surfaces. This is due to relocation of taxiway exits and paving areas to be used for construction staging. Based on consultation with the Port Authority, the capacity and condition of the existing stormwater management system has been determined adequate to handle the increased runoff volume attributed to increased impervious surfaces from the Proposed Action. There would be no adverse impacts to receiving surface water resources and compliance with JFK's existing SPDES permits will be

maintained. Therefore, no indirect adverse impacts to floodplains are anticipated due to the implementation of the Proposed Action.

Surface Water

The Proposed Action would result in an increase in impervious surface associated with the new pavement that is part of the Proposed Action. This new pavement is estimated to be 5.9 acres of the 4,930-acre footprint of the Airport, or 0.1 percent of the entire Airport. The new pavement is not one large area but would be distributed throughout the Airport at various sites, with most of the new pavement near the north construction staging area and the North Hardstand Area. The remaining new impervious surface would be distributed among the various areas associated with taxiway realignment. Although the overall impervious surface area would be increased with the Proposed Action, the impervious areas are not connected, and stormwater can infiltrate the existing grassed infield areas and other vegetated spaces within the Proposed Action Site. Given the quantity of new pavement compared to the overall 4,930-acre footprint of the Airport, the increase in stormwater discharge over existing levels is anticipated to be relatively small. It is anticipated that the Airport's existing stormwater system has adequate capacity to accommodate this minimal increase in runoff from the 0.1 percent increase in paved area.

Any additional stormwater flows would be collected and treated on-site by the Airport's existing stormwater collection and management system and would not add additional stormwater discharges to receiving waters. Overall, the quality and quantity of stormwater that leaves the Airport property would not be changed by the Proposed Action.

Potential stormwater related impacts could be mitigated by adhering to the SWPPP. The SWPPP would be prepared with sound engineering practices and be consistent with SPDES and NYSDEC requirements. During excavation and construction, any groundwater recovered during dewatering would be monitored, treated, and discharged to existing infrastructure in accordance with FAA policies and the Airport's BMP requirements. If dewatering is necessary, pumps would not be allowed to discharge directly into a watercourse or wetland. BMPs would be incorporated into the Proposed Action design to minimize erosion and sedimentation (E&S) during construction of the Proposed Action and after the Proposed Action has been built. All E&S controls will be installed prior to land disturbing activities, to ensure the reduction of sedimentation and pollutants in receiving waters. LID approaches would be included in the Proposed Action design to the extent practicable to reduce runoff, promote groundwater recharge and minimize post-construction impacts to water quality.

Additionally, as part of the Port Authority's commitment to environmental stewardship, stormwater capture systems at the new terminals and glycol recovery systems at aircraft deicing facilities would be incorporated into the design where feasible. Stormwater capture systems to be installed at the Expanded Terminal 5 (T5) would be capable of reducing stormwater runoff at the terminal by 50 percent. A glycol recovery system would be installed in the South and North Terminal Developments, South and North Hardstand Area, and T4 expansion would recover at least 60 percent of the annual volume of deicing fluid applied to aircraft. There are no surface water features in the Proposed Action Site. Jamaica Bay, Bergen Basin, Thurston Basin, and Head of Bay are adjacent to the Airport but are at least 500 feet from the Proposed Action Site. Thurston Basin and Head of Bay are approximately 4,000 feet east of the CTA and Bergen Basin is approximately 1,600 feet northwest of the South Construction Staging Area, at its nearest point. As detailed in the wetlands section above, the Proposed Action would include the installation of stormwater conveyance facilities to collect and treat stormwater

flows within the Proposed Action Site before entering waterways. The measures taken to reduce stormwater runoff impacts to Jamaica Bay are discussed in the Coastal (Section 5.5.2) Wetlands section (above) of this EA. Based on the foregoing, the Proposed Action would have no direct adverse impact on surface water and is unlikely to result in an indirect adverse impact on this resource.

Groundwater

The Proposed Action Site is in a well-developed area with public water available. As noted in **Chapter 4, *Affected Environment*, Section 4.14, *Water Resources***, there are no drinking water wells or agricultural wells within the Proposed Action Site. Further, construction and operation of the Proposed Action would adhere to applicable regulations related to spill prevention and control to prevent spills from causing significant adverse impacts to groundwater. Therefore, no adverse impacts to groundwater are anticipated to result from the Proposed Action.

5.14.3 SUMMARY OF WATER RESOURCES IMPACTS

The Proposed Action would have no direct impact on wetlands, floodplains, surface water or groundwater. The potential for indirect impacts exists due to increased impervious surface areas, however, given the existing and proposed stormwater management measures, the Proposed Action would not result in noticeable adverse impacts to water resources. Therefore, the Proposed Action would not result in significant adverse impacts on water resources.

5.14.4 REDUCTION, AVOIDANCE, AND MINIMIZATION MEASURES

The Proposed Action is not anticipated to result in direct or indirect impacts on wetlands, floodplains, surface water or groundwater. The Proposed Action includes elements to minimize and avoid potential indirect adverse impacts to water resources, including the incorporation of LID and sustainability elements and adherence to applicable regulations and BMPs. Therefore, mitigation is not required. Minimization and avoidance measures included in the Proposed Action are described in Section 5.14.2.

5.15 CUMULATIVE IMPACTS

Even when impacts are determined to be individually insignificant, the impacts can be collectively significant over time. The CEQ Regulations define a cumulative impact as

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (see 40 CFR § 1508.7).

The CEQ's guidance document *Considering Cumulative Effects under the National Environmental Policy Act* further specifies that "each resource, ecosystem, and human community must be analyzed in terms of its ability to accommodate effects, based on its own time and space parameters." In accordance with CEQ and FAA guidance, this section describes the past, present, and reasonably foreseeable future actions that could impact the same environmental resources as the Proposed Action.

5.15.1 DEFINING THE CUMULATIVE IMPACT STUDY AREA AND METHODOLOGY

A five-step process was implemented to assess potential cumulative impacts. These steps are listed and briefly described below:

1. Identify Proposed Action impacts (refer to other sections of this EA)
2. Define a geographic/spatial boundary
3. Define a temporal boundary
4. Identify past, present, and reasonably foreseeable future projects within the defined spatial and temporal boundaries
5. Conduct the impact analysis

Identify Proposed Action Impacts

Direct and indirect impacts from the Proposed Action for each environmental resource category are described in detail in previous sections of this EA. This analysis only assesses the overall cumulative impact for those resources that would be noticeably impacted by the Proposed Action because those resources not noticeably impacted by the Proposed Action would not contribute to the overall cumulative impact. The Proposed Action would have no noticeable impact on biological resources, climate, coastal resources, land use, noise, visual resources, or water resources. The Proposed Action's contribution to cumulative impacts on air quality; Section 4f; historical, architectural, archaeological, and cultural resources; natural resources and energy supply; and socioeconomics, environmental justice, and children's health and safety risks is described in Section 5.15.2 of this EA.

Define a Geographic/Spatial Boundary

As described in the FAA Order 1050.1F Desk Reference, the spatial boundary for cumulative impacts analysis should be the same as that defined for each resource category included in the environmental consequences chapter. The spatial boundary for impact assessment may be different for each resource category. In accordance with FAA requirements, known past, present, and reasonably foreseeable future actions within the Proposed Action Site and surrounding area were identified and are considered in this EA. The Proposed Action Site which serves as the geographic study area for most environmental resource categories is confined to the Airport property and is the focus of this cumulative impact analysis. Additionally, off-site projects were identified and considered in areas that could be impacted by the Proposed Action in the short-term (i.e., the Resorts World Casino/Aqueduct Racetrack and area roadways that could experience changes in traffic patterns as a result of the Proposed Action).

Define a Temporal Boundary

CEQ's memorandum, *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis*, was used to determine the relevance of past actions for the cumulative impact analysis contained herein. The temporal boundary for past actions for this cumulative impact assessment was determined to be the past five years because it is assumed that those projects will have already been constructed and are operational. Any projects older than five years were not considered relevant because impacts caused by those projects have either been mitigated or are included in the baseline condition for the Proposed Action. Present actions are those that are occurring at the same general time as the Proposed Action, which for this EA, include actions that were either completed in 2018 or that are currently under construction. Reasonably foreseeable future actions are planned or programmed projects that may affect projected impacts of the Proposed Action and are not remote or speculative. Per USEPA guidance, the length of time for a cumulative impacts analysis should extend as long as the

effects may singly, or in combination with other anticipated effects, be significant on the resources of concern.[168] For this EA, reasonably foreseeable future actions are those planned for a construction start date from 2020 through 2025 (the construction period for the Proposed Action) plus one year thereafter to account for any residual effects (2026). This timeframe is long enough to identify potential future impacts, yet near enough so as not to be too remote or speculative when combining with the impacts of the Proposed Action to ensure that realistic predictions of projects and impacts can be made.

Identify Past, Present, and Reasonably Foreseeable Future Actions

Past and present projects within the spatial and temporal boundaries defined above, and their associated resource impacts, were identified through research and review of existing available federal Categorical Exclusions (CEs), EAs and EISs or other available project-specific permitting or environmental compliance documentation. Reasonably foreseeable future actions are those projects that are either planned and/or programmed and were identified based on a review of existing planning documents covering the geographic boundary defined above, or through consultation with development agencies.

Past Actions

Demolition of Hangars 3, 4, & 5

This project included the demolition of Hangars 3, 4, and 5 within the North Cargo Area at JFK. These hangars were deemed obsolete and located north of Runway 13L/13R and Taxiway C. Each of these hangars was an outdated three-bay structure that occupied approximately 300,000 square feet of floor space. The FAA made a determination that the demolition of Hangars 3, 4, and 5 qualified for a CE to comply with NEPA. The CE determined that during construction, project-related emissions would be below applicable *de minimis* levels and that the project would have no impact on air quality or climate once constructed. The project also was determined to be consistent with the State Coastal Zone Management Plan. Upon completion, the project would have no impact on environmental resources. The FAA, therefore, made a formal Environmental Finding on July 8, 2014 approving demolition of Hangars 3, 4, and 5.

Runway 4L/22R Rehabilitation Project

This past project included mill and overlay of the full length of Runway 4L/22R to maintain the runway in a state-of-good-repair. Also included as part of the project was the rehabilitation of Taxiways E and J, and the improvement of Taxiways F and H. The Port Authority completed an EA under NEPA for this project in early 2017. The EA evaluated the potential for the project to impact environmental resources including (without limitation) air quality, noise impacts, and impacts to 4(f) resources. No significant impacts were identified, and the FAA issued a FONSI/ROD in March 2014. Construction was completed in November 2017.

Reconfiguration of Taxiways F and H

This project involved the construction of portions of Taxiways F and H which were realigned as part of this project to improve airfield efficiency. Portions of existing pavement of Taxiways F and H were removed and replaced with new realigned pavement to meet the Airplane Design Group (ADG) VI standard width of 82 feet. This realignment created new exit locations from Runway 4R/22L to reduce

[168] U.S. Environmental Protection Agency, Consideration Of Cumulative Impacts In EPA Review of NEPA Documents, May 1999.

runway occupancy times and increase efficiency. The project also included new infiltration trenches to meet stormwater management requirements and replaced taxiway lighting with LED fixtures. The Port Authority prepared an EA which identified no significant impacts. The EA identified that the project would result in short-term (during construction) impacts that are common during construction of a pavement project: air emissions associated with construction equipment, solid waste generated during construction, and stormwater runoff during construction. Emissions of criteria pollutants from construction were determined to be below applicable *de minimis* levels. Solid waste recycling requirements of the Port Authority were identified to limit the volume of construction waste to be disposed. Best management practices were identified to limit stormwater runoff. The project was determined to be consistent with the State Coastal Zone Management Plan. The FAA agreed with the findings of the EA and issued a FONSI in February 2017.

Rehabilitation of Taxiways Q, QG and Restricted Vehicle Service Road

This project involved a mill and asphalt concrete overlay with improvements to airfield lighting, signage, markings and drainage of the following JFK taxiways and service road:

- Taxiway Q, parallel to Runway 13R/31L, from Runway 13R to the west, to Taxiway N to the east;
- Taxiway QG from end to end; and
- Restricted Vehicle Service Road section parallel to and adjacent to Taxiway Q.

Taxiway Q is a vital connection for aircraft departing on Runway 13R or arriving on Runway 31L. Taxiway QG provides access to and from hangars and cargo facilities at the southwest section of JFK. This rehabilitation project also included fillet widening at five adjacent intersections and was approved as a categorical exclusion. Construction began in September 2017 and was completed in the Fourth Quarter 2018.

Removal of Infrared Deicing Facility

The Infrared Deicing Facility was removed because it was obsolete and no longer used for aircraft deicing. The Infrared Deicing Facility was an aluminum modular structure. The removal of the structure allowed for additional aircraft parking and increased fleet flexibility at the site. The FAA made a determination that the demolition of the Infrared Deicing Facility qualified for a CE to comply with NEPA. The disassembly of the Infrared Deicing Facility is complete.

JFK TWA Flight Center Hotel

This project involved the redevelopment and conversion of the former TWA Flight Center at T5 into a new airport hotel. This project included the rehabilitation, restoration, and repurposing of the historic TWA Flight Center and the construction of two new guest room buildings adjacent to the sides of the TWA Flight Center. It entailed demolition of non-historic elements on the project site, and preservation of the TWA Flight Center that was designed by Eero Saarinen and opened in 1962. An EA was prepared for this project. The EA found that no long-term adverse impacts would occur from construction of the hotel, however, beneficial impacts would occur both during construction and over the long-term by increasing employment opportunities and expenditures on local services. The FAA issued a FONSI/ROD on August 29, 2016. No permanent significant impacts were identified. Construction has been completed.

Resorts World Casino Hotel

This project includes the construction of a new 400-room hotel at the site of the existing Resorts World casino at Aqueduct Racetrack.[169] This is a private development but underwent environmental review under the New York State Environmental Quality Review Act (SEQRA). As a result of this evaluation, in January 2018 the New York State Gaming Commission, the lead agency, found that the project would not have a significant adverse environmental impact. Short-term (during construction) adverse impacts likely included air quality, noise, and traffic, with increased consumption of natural resources and energy and increased generation of hazardous materials and solid waste. In both the short and long-term, it is expected that the project would beneficially impact socioeconomic resources through job creation and would also add to the tax base through expanded operation of the casino and the new hotel. Construction has been completed.

Rehabilitation of Runway 13L/31R

This project involved the reconstruction of Runway 13L/31R and the reconfiguration of connected taxiways to achieve ADG VI design standards. Runway 13L/31R was in need of rehabilitation to maintain operability of the runway. The runway was reconstructed in concrete and the width increased to 200 feet. A new high-speed taxiway was also constructed. Taxiways U and V were realigned to allow the A380 to land on Runway 31R. An EA was prepared for this project that evaluated the potential for the project to impact environmental resources both during construction and upon completion. No significant impacts were identified as a result of this assessment. The FAA issued a FONSI in November 2018. Construction has been completed.

Present Actions

Fuel Tank Installation

This project includes the installation of two 3.4 million gallon above-ground tanks for the storage of jet fuel at the tank farm on the western side of JFK. An EA was prepared for the project that found no long-term significant impacts as a result of installation of the fuel tanks. Short-term impacts to hazardous materials and solid waste and air quality, from construction emissions, were identified. The FAA agreed with the finding of no significant impact and issued a FONSI in April 2018. Construction started during the summer of 2018 and is anticipated to be completed by the summer of 2020.

North Cargo Redevelopment

This project involves the construction of cargo facilities within the North Cargo Area of Cargo Zone D at JFK. The Phase 1 of the project includes demolition of existing Buildings 259, 260, and 261, and the construction of a new cargo building and apron on the site. The project also includes reconstruction of Taxiways CA / CB to meet ADG VI standards. Reconstruction of Taxiways CA / CB is ongoing and construction of Phase 1 of the cargo development is expected to begin in mid-2019. Construction of Phase 1 and the reconstruction of Taxiways CA/ CB will be substantially completed by the first quarter of 2020. Construction of Phase 2 is expected to occur within the same timeframe as this Proposed Action. The Port Authority prepared an EA for this project. The EA found that this project would result in minor short-term impacts to air quality, natural resources, and noise during construction. Operation of

[169] Resorts World Casino New York City, Press Release: Resorts World Casino New York City Breaks Ground on New 400-Room Hotel as Part of $400 Million Expansion, July 13, 2017. Online at: https://www.rwnewyork.com/images/Expansion_Press_Relase_.pdf. Accessed April 30, 2019.

the new development would result in minor impacts to energy demand. No significant impacts were identified, and the FAA issued a FONSI in January 2019.

Van Wyck Expressway Capacity and Access Improvements

The Van Wyck Expressway Capacity and Access Improvements project includes activities to increase capacity on the Van Wyck Expressway between the Kew Gardens Interchange and JFK Airport. The purpose of this project is to provide an additional vehicular travel lane on the Van Wyck Expressway in each direction between JFK and the Kew Gardens Interchange, address geometric and operational deficiencies of the Van Wyck Expressway exit/entrance ramps within the identified project limits, and to address structural deficiencies on the bridges on or crossing over the VWE within the project limits. The NYSDOT prepared, and FHWA issued, a Final EIS (FEIS) for this project. Both NEPA and SEQRA reviews for the Van Wyck Expressway Capacity & Access Improvements project are complete. The FEIS identified impacts from construction to the following categories: land use, road closures, community disruption, noise, historic bridges, visual effects, air quality, and temporary effects to traffic during construction, including lane narrowing, lane shifts, and nighttime and off-peak lane closures.[170] Potential long-term impacts to stormwater, biological resources, historic resources, visual resources, and air quality have been identified, however, none have been determined to be significant. Additionally, long-term beneficial impacts to surface transportation and socioeconomics have been identified. Construction is expected to begin in 2020 and is anticipated to be completed in 2025.

West Hardstand Development

The proposed project will demolish existing Hangars 15 and 16. These hangars are over 50 years old and were originally designed to support air cargo (Hangar 15) and aircraft maintenance functions (Hangar 16) that have not occurred at JFK in this area of the Airport for the past decade. These obsolete structures are vacant and unusable due to age and condition. As these hangars cannot be leased due to their deteriorated condition, the Port Authority is forced to expend resources in terms of staff labor and expenses to maintain these facilities for safety purposes. These hangars are proposed to be demolished, and the former hangar area will then be reconstructed and converted to an aircraft hardstand parking area. This project is not expected to result in significant adverse impacts on environmental resources once completed. In the short-term (during construction), the project could result in adverse impacts including increases in emissions related to construction equipment, hazardous materials and solid waste generation, and stormwater runoff. It is not anticipated that these impacts would be significant. The West Hardstand Development is subject to an independent NEPA review and a draft CE document was submitted to the FAA for review and concurrence in October 2019. The proposed project is expected to begin in 2020.

Reasonably Foreseeable Future Actions

As part of the planning process for each of the Reasonably Foreseeable Future Actions listed below, a separate NEPA analysis will be conducted pursuant to FAA requirements.

Rehabilitation of Taxiways A and B North

This project would rehabilitate the existing Taxiways A and B at JFK from Taxiway TB to Taxiway EA, approximately 1 mile in length. The project will mill the existing asphalt pavement and place new

[170] New York State Department of Transportation, Van Wyck Expressway Capacity and Access Improvements to JFK Airport Project Final EIS, August 2019.

asphalt in kind. Construction would occur from the Second Quarter 2024 to the Third Quarter 2026. It is anticipated that the project would result in short-term construction impacts, including temporary air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. However, given the nature of the project, it is anticipated that there would be no long-term impacts.

Taxiway K4 Extension

This project, originally identified as a delay reduction initiative, includes an approximately 3,650 feet extension of Taxiway K4 south of Runway 31L at JFK to meet ADG VI standards and improve airfield efficiency by removing operations from congested Taxiways 'A' and 'B' and reducing runway occupancy times. It is anticipated that this project will undergo a separate NEPA analysis pursuant to FAA requirements. Construction would occur from the Third Quarter 2021 to the Third Quarter 2024. It is anticipated that the project would result in short-term construction impacts, including temporary increases in air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. Potential adverse impacts to wetlands and coastal resources may result due to the project's proximity to the shoreline. However, it is anticipated that the project may result in long-term air quality and climate benefits as a result of the aircraft delay reduction. The Taxiway K4 Extension project is independent from all other proposed improvements to JFK; therefore, it is anticipated that this project will undergo a separate NEPA analysis pursuant to FAA requirements.

Rehabilitation of Taxiways W and CE

This project would rehabilitate approximately 600 feet in length of existing Taxiways W and CE at JFK by milling the existing asphalt pavement and placing in kind asphalt. The rehabilitation should alleviate any pavement degradation caused by continuous current and future operations. Construction would occur from the Second Quarter 2020 to the Third Quarter 2021. It is anticipated that the project would result in short-term construction impacts, including temporary air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. However, given the nature of the project, it is anticipated that there would be no long-term impacts.

High/Low Pressure Water Distribution

This project includes upgrades to the water distribution system which are outside the limits of the terminal developers' work scope and are identified as state-of-good-repair initiatives. The project will replace existing control and monitoring devices such as valves and flow meters with modern components. Construction would occur from the Fourth Quarter of 2023 to the Second Quarter of 2027.

It is anticipated that the project would result in short-term construction impacts, including temporary air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. However, it is anticipated that there would be no long-term impacts because this project would upgrade existing utilities along already established utility corridors.

Terminal 8 Improvements

This project includes expansion of T8. The improvements to T8 would involve building two new widebody gates and four new aircraft hardstand parking positions on the east side of the Terminal (Concourse B); and reconfiguring existing regional jet gates on Concourse C. The project includes the companion reconfiguration of the headhouse and concourse interiors. The reconfiguration includes upgrades to checked baggage screening lanes, improved circulation areas, expanded seating areas,

airline lounge areas, and an additional bag claim unit. It would add 53,200 square feet of new space within the headhouse and Concourse C, and 73,300 square feet of existing space would be refurbished. The total square footage of airside pavement work to support the new gates, aircraft hardstand parking positions and a new taxilane to access the site is approximately 700,000 square feet. A glycol recovery system would be installed capable of capturing 60 percent of annual volumes of deicing fluid. The proposed T8 improvements do not include changes to the circulation roadways, curb frontages or parking facilities. It is anticipated that the project would result in short-term construction impacts, including temporary air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. Furthermore, the existing building area is 1,497,000 square feet and this proposed project would add 53,200 square feet representing a relatively minor 3.5 percent increase in the building area. However, it is anticipated that long-term impacts may be beneficial because of the potential increase in airfield operational efficiency and the potential for incorporation of energy conservation features into the terminal expansion. The Terminal 8 Improvements project is a separate and independent project from the JFK Redevelopment Program projects included in this EA, and therefore subject to an independent NEPA review. An EA was prepared for the project and distributed for public review. The FAA issued a FONSI/ROD on October 28, 2019. Construction is expected to begin in 2020 and be completed in fourth quarter 2022.

JFK Electrical System Upgrade Project

This project includes an upgrade to the electrical distribution system at JFK to enhance and replace equipment that has exceeded its service life. This project would upgrade four electrical substations that are part of the Airport's electrical power distribution system to enhance resiliency and provide modern monitoring and control capability. This project would also address existing capacity deficiencies to allow the system to safely accommodate peak period demand and provide more redundancy by allowing the Airport to receive electrical power from multiple substations. This type of equipment is directly linked to the safety and reliability of the electricity supply on-airport. Due to the small size of these facilities, it is anticipated that no long-term impacts would occur as a result of their implementation. Short-term air quality impacts may be expected due to construction activities but are anticipated to be minimal due to the small size of the proposed facilities. Replacement of existing and obsolete substations includes the following:

Central Substation #1 Upgrades

This project includes the replacement of switchgear equipment and appurtenances in Central Substation #1. The project would include the replacement of existing switchgear within the confines of the existing facility in an effort to upgrade and eliminate obsolete and failing infrastructure. This project would occur from the First Quarter of 2021 to the First Quarter of 2025.

Farmers Substation

Initial planning is underway for the comprehensive replacement of the existing and obsolete, 40-year-old Farmers Substation at JFK. The substation does not currently meet applicable safety and utility standards. As such, a new Farmers Substation would be approximately 20,000 square feet. The new substation would be located on a paved lot and would be erected proximate to the existing facility and the circuitry would be off-loaded to the new substation once complete. Construction would occur from the First Quarter of 2021 to the First Quarter of 2025.

Van Wyck/Bergen Substation Replacements

This project would replace the existing and obsolete Bergen and Van Wyck Substations with a new, single Bergen 5KV Substation of approximately 13,000 square feet. The existing Bergen Substation is 45 years old while the Van Wyck Substation is over 60 years old. This project would include the installation of new switchgears, feeders, and associated electrical equipment within a new concrete building envelope. Following completion of construction of the new Bergen Substation, the existing Bergen and Van Wyck Substations would be decommissioned and demolished. This project would occur from the First Quarter of 2021 to the First Quarter of 2025.

Kennedy International Airport Cogeneration Facility 1.5 Upgrade

This project includes upgrades to the CoGen facility at JFK. The project is expected to be facilitated by the operator of the facility, Calpine Corporation. The initial phase of the project provides for equipment replacement such as a cooling tower, electric chiller, condenser pumps, and chilled water pumps. Since this project includes work within the existing facility, it is anticipated that no long-term impacts would occur as a result of their implementation. Short-term air quality impacts may be expected due to construction activities, such as increased emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply, but any impacts are anticipated to be minimal due to the small size of the proposed facilities. This project would occur from the Third Quarter of 2020 to the Second Quarter of 2022.

Rehabilitation of Taxiways A and B East and South

This project would rehabilitate the existing Taxiways A and B at JFK from Taxiway N to Taxiway EA for approximately 2 miles in length. The project will perform milling of the existing asphalt pavement and placing in kind asphalt. It is anticipated that this project will undergo a separate NEPA analysis in accordance with FAA requirements. Construction would occur from the First Quarter of 2020 to the First Quarter of 2023. It is anticipated that the project would result in short-term construction impacts, including temporary air quality emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply. However, given the nature of the project it is anticipated that there would be no long-term impacts.

AirTrain Capacity Enhancement & Infrastructure Expansion

To accommodate existing and forecasted demand, the Port Authority will add capacity to the existing AirTrain system at JFK. The proposed AirTrain enhancement project will consist of the design, procurement, manufacturing, testing, commissioning and delivery of 15 new AirTrain vehicles between 2020 and 2022. In order to accommodate the additional AirTrain cars, the project will also include modifications to the AirTrain maintenance yard by constructing a 10,000 square foot extension to the existing maintenance building and modifications and upgrades to the automatic train control system. Construction would occur from the Second Quarter of 2020 through the Fourth Quarter of 2022. Due to the limited size of the building and the components, it is anticipated that no long-term impacts would occur as a result of their implementation. Short-term air quality impacts may be expected due to construction activities such as increased air emissions and the generation of hazardous materials and solid waste, and use of natural resources and energy supply, but are anticipated to be minimal due to the small size of the proposed facilities.

Ground Based Augmentation System

The ground-based augmentation system (GBAS) is a proposed equipment installation project at JFK, which is expected to be installed in 2021. This proposed project is expected to increase the accuracy of approaches to all JFK runways, and has several advantages over the current instrument landing system (ILS). The GBAS consists of an antenna approximately 20 feet in height, mounted to a concrete base measuring approximately 8 feet X 8 feet square. The GBAS is proposed to be located in the airfield, between Runway 4L-22R and Runway 4R-22L. It is anticipated that this project will undergo a separate NEPA analysis in accordance with FAA requirements. Due to the small size of the concrete base for the GBAS, it is anticipated that no long-term impacts would occur as a result of their implementation. Short-term air quality impacts may be expected due to construction activities, such as increased air emissions and the generation of hazardous materials and solid waste and use of natural resources and energy supply but are anticipated to be minimal due to the small size of the proposed GBAS.

A general location of these projects that have a defined construction area are shown on **Exhibit 5-6, *Past, Present, And Reasonably Foreseeable Future Projects.***

EXHIBIT 5-6 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS



MAP ID	ACTION TYPE	ACTIONS
1	Past	Demolition of Hangars 3, 4, & 5
2	Past	Runway 4L/22R Rehabilitation Project
3	Past	Reconfiguration of Taxiways F and H
4	Past	Rehabilitation of Taxiways Q, QG and Restricted Vehicle Service Road
5	Past	JFK TWA Flight Center Hotel
6	Past	Removal of Infrared De-Ice Facility
7	Past	Resorts World Casino Hotel
8	Present	North Cargo Redevelopment
9	Present	Fuel Tank Installation
10	Past	Rehabilitation of Runway 13L/31R
11	Present	Electrical System Upgrades
12	Present	Van Wyck Expressway Capacity and Access Improvements
13	Present	West Hardstand Development
14	Reasonably Foreseeable Future	GBAS
15	Reasonably Foreseeable Future	Rehabilitation of Taxiways A and B North
16	Reasonably Foreseeable Future	Taxiway K4 Extension
17	Reasonably Foreseeable Future	Rehabilitation of Taxiways W and CE
18	Reasonably Foreseeable Future	Terminal 8 Headhouse and Concourse Reconfiguration and Expansion
19	Reasonably Foreseeable Future	Kennedy International Airport Cogeneration Facility 1.5 Upgrade
20	Reasonably Foreseeable Future	Rehabilitation of Taxiways A and B East and South
21	Reasonably Foreseeable Future	AirTrain Capacity Enhancement & Infrastructure Expansion

Source: Landrum & Brown, 2019

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5.15.2 CUMULATIVE IMPACT ANALYSIS

A cumulative impact assessment was conducted only for those resources that would be directly or indirectly impacted by the Proposed Action. If an environmental resource is not impacted by the Proposed Action, then, while there may be an overall cumulative impact in the study area, the Proposed Action would not contribute to the overall cumulative impact on that resource. Those resources that could be impacted by the Proposed Action, and therefore, would contribute to the overall cumulative impact (whether adversely or beneficially) are discussed below. The assessment was conducted by (1) adding the Proposed Action's impacts to any such impacts associated with the past, present, and reasonably foreseeable future actions, and (2) comparing that cumulative impact to the significance thresholds from FAA Order 1050.1F and the Desk Reference. The threshold used for identifying whether significant cumulative impacts occur is the same as those identified in the previous sections of Chapter 5 for each individual resource.

Air Quality

As detailed in **Section 5.2, *Air Quality***, the Proposed Action would not increase aircraft activity beyond forecasted levels or cause a permanent change in runway use patterns. The Proposed Action also would not cause an increase in the total number of motor vehicles traveling to and from JFK beyond that associated with forecasted growth. However, the Proposed Action would generate air emissions associated with construction activities, alter surface traffic movements in the CTA, and change aircraft taxi/delay times on the airside. Based on this information, and the detailed analysis summarized in **Section 5.2**, ***Air Quality***, the Proposed Action has been shown to be *de minimis* under the CAA General Conformity Rule.[171] This outcome applies to all five construction years (2020 to 2025) and all pollutants for which the JFK area is designated as Nonattainment (O_3) and maintenance (CO and $PM_{2.5}$). Therefore, the Proposed Action complies with the General Conformity Rule, and thereby conforms with the New York SIP. The Proposed Action-related emissions are not anticipated to cause an exceedance of any of the NAAQS, delay the attainment of any NAAQS, or worsen an existing violation of any NAAQS.

Several past and present projects within the study area have resulted in adverse impacts on air quality, however, none of these projects, individually have resulted in significant adverse impacts. Further, in the case of past and most of present projects, the air quality impacts were associated with construction and are no longer contributing to the overall cumulative impact. The exception is the Van Wyck Expressway Capacity & Access Improvements project, which could result in adverse impacts to air quality due to increased vehicular use. This potential impact would not be significant, according to the Van Wyck FEIS. Both NEPA and SEQRA reviews for the Van Wyck Expressway Capacity & Access Improvements project are complete. FHWA issued a combined FEIS and Record of Decision (ROD) on August 30, 2019. Construction is expected to begin in 2020 and is anticipated to be completed in 2025. It is anticipated that reasonably foreseeable future actions would result in adverse air-quality impacts during construction at a minimum. Since the construction of some present and all of the reasonably foreseeable future actions would overlap with the Proposed Action, these represent the majority of the cumulative impacts. Construction periods for the "present" projects considered in this cumulative impact analysis, such as the North Cargo Development and the Fuel Tank Installation are projected to overlap with the construction period for the Proposed Action for less than a year, and likely less than 6 months,

[171] 40 CFR 93 § 153 defines *de minimis* levels, that is, the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas.

further lessening the overall cumulative impact. While there are several reasonably foreseeable future projects that would be constructed simultaneous to the Proposed Action, many are small with short anticipated construction periods, limiting the length of time for a cumulative air quality impact.

Based on the foregoing, the Proposed Action would contribute to the overall cumulative air quality impact during construction due to increased emissions associated with construction activities. This contribution could be noticeable when considered in conjunction with other past, present, and reasonably foreseeable future actions; however, it is not anticipated that the overall impact would be significant given that not all projects will be constructed at the same time and mitigation and minimization measures would be implemented to reduce overall impact of both Proposed Action and other projects. In the long-term, the Proposed Action is not likely to noticeably contribute to an overall cumulative air quality impact. In fact, as described in **Section 5.2**, ***Air Quality***, the Proposed Action is likely to provide an air quality benefit through a reduction in aircraft and motor vehicle emissions due to the planned improvements to the CTA taxiway and apron areas and efficiencies associated with the Airport's on-site roadway network.

Department of Transportation, Section 4(f) Resources

As detailed in Section 5.6, there are no parks or recreation areas within any areas that may be directly affected by the Proposed Action through permanent incorporation or temporary occupancy. Moreover, there would be no constructive use of any parks or recreation areas as a result of the Proposed Action.

A few past and present projects within the study area have resulted in adverse impacts on Section 4(f) resources. However, none of these projects, individually have resulted in significant adverse impacts. Specific projects include the Runway 4L/22R Rehabilitation Project and JFK TWA Flight Center Hotel. Section 4(f) impacts associated with these projects are related to off-site resources (for the runway rehabilitation project) due to alterations in noise contours and to the TWA Flight Center itself which is a Section 4(f) resource. While it is still unknown, given that NEPA analysis has not yet been conducted for reasonably foreseeable future actions, it is not anticipated that currently proposed future projects would impact Section 4(f) resources.

Pending NY SHPO coordination, it can be assumed that for the reasons presented herein, the overall cumulative impact of the Proposed Action combined with those associated with past, present, and reasonably foreseeable future actions would not result in a significant impact on Section 4(f) resources.

Hazardous Materials, Solid Waste, and Pollution Prevention

As detailed in Section 5.7 of this EA, demolition activities associated with the Proposed Action would result in a temporary increase in solid waste and hazardous materials generated at the site; however, these materials would be properly disposed of in accordance with applicable regulations and guidelines. Additionally, pollution prevention measures would be enforced to ensure that the Proposed Action would not contribute to existing contamination in the area.

Several past and present projects within the study area have resulted in adverse impacts on hazardous materials, solid waste and pollution prevention, however, none of these projects, individually have resulted in significant adverse impacts. Further, in the case of past projects and most of the present projects, these impacts were associated with construction and are no longer contributing to the overall cumulative impact. Present projects considered in this analysis have/will result in both short-term and

long-term impacts on hazardous materials, solid waste, and pollution prevention of varying degree. For example, while spill prevention and other measures would be in place to avoid adverse impacts, the Fuel Tank Installation which is specifically designed to hold a hazardous material, has a greater potential for impact in the long term than the Rehabilitation of Runway 13L/31R, which produced an increased quantity of hazardous materials and solid waste during construction, but is not likely to have a noticeable impact on the resource in the long-term. It is anticipated reasonably foreseeable future actions would result in adverse impacts on hazardous materials, solid waste, and pollution prevention during construction at a minimum. Many of the projects considered in the present category of this analysis would be completed before construction of the Proposed Action begins. Construction periods for other present projects considered in this cumulative impact analysis, such as the North Cargo Development and the Fuel Tank Installation are projected to overlap with the construction period for the Proposed Action for less than a year, and likely less than 6 months, further lessening the overall cumulative impact. While there are several reasonably foreseeable future projects that would be constructed simultaneous to the Proposed Action, many are small with short anticipated construction periods, limiting the length of time for a cumulative impact on hazardous materials, solid waste and pollution prevention.

Future projects such as the JFK Electrical System Upgrade Project and Kennedy International Airport Cogeneration Facility 1.5 Upgrade would use and store hazardous materials in the long-term, but it is anticipated that measures would be implemented to ensure any potential impacts would be limited. Prior to construction of these future projects a NEPA compliance document would be prepared, including consideration of the cumulative impacts of those projects in conjunction with this Proposed Action and other projects.

While the Proposed Action would contribute to the quantity of hazardous materials and solid waste generated during construction, upon completion there would be no noticeable increase in hazardous materials or solid waste generation or pollution. When considered in conjunction with other past, present, and reasonably foreseeable future actions, the Proposed Action could contribute to the short-term (during the construction period) cumulative impact due to hazardous materials and solid waste generation, however this impact would be minimal. Moreover, a long-term cumulative impact is not anticipated. In either case, the overall cumulative impact would not be significant.

Historical, Architectural, Archaeological, and Cultural Resources

A few present projects within the study area have resulted in adverse impacts on historical, architectural, archaeological, and cultural resources, however, none of these projects, individually have resulted in significant adverse impacts. Specific projects include the JFK TWA Flight Center Hotel, the Rehabilitation of Runway 13L/31E, and the North Cargo Redevelopment. Impacts associated with these projects are related to the TWA Flight Center itself which is listed on the NRHP. While it is still unknown, given that NEPA analysis has not yet been conducted for reasonably foreseeable future actions, it is not anticipated that currently proposed future projects would impact historical, architectural, archaeological, and cultural resources. Prior to construction of these future projects a NEPA compliance document would be prepared, including consideration of the cumulative impacts of those projects in conjunction with this Proposed Action and other projects.

The analysis conducted for this EA concluded there would be no adverse effects to archaeological resources as a result of the Proposed Action. NY SHPO has concurred with this finding. Consultation

with consulting parties is ongoing regarding potential effects to archaeological resources. The assessment of cumulative impacts to historic architectural resources will be made in consultation with the NY SHPO and consulting parties.

Natural Resources & Energy Supply

As described in **Section 5.10** of this EA, the Proposed Action would result in an increase in demand for electricity and natural gas energy during construction and implementation of the Proposed Action, which would impact local supplies. There would also be an increase in demand for fuel for construction vehicles and construction materials during construction, which would impact local supplies. However, the increase in demand could be met by current capacity and existing supplies will not be depleted. As such, the Proposed Action would result in an adverse impact on natural resources and energy supply during construction, but this impact would not be significant. While the proposed facilities upon completion would be larger than those existing, they would be more energy efficient and incorporate LEED elements and the overall impact on natural resources and energy supply would be negligible.

Several past projects and one present project (North Cargo Redevelopment) within the study area have resulted in adverse impacts on natural resources and energy supply, however, none of these projects, individually, have resulted in significant adverse impacts on this resource. Further, impacts on natural resources and energy supply for the past projects and most of the present projects were primarily associated with construction activities and while they have removed natural resources from overall supplies they are no longer continuing to the overall cumulative impact. Many of the projects considered in the present category of this analysis would be completed before construction of the Proposed Action begins. Construction periods for other present projects considered in this cumulative impact analysis are projected to overlap with the construction period for the Proposed Action for less than a year, and likely less than 6 months, further lessening the overall cumulative impact. While there are several reasonably foreseeable future projects that would be constructed simultaneous to the Proposed Action, many are small with short anticipated construction periods, limiting the overall impact on cumulative impact on natural resources and energy. Reasonably foreseeable future projects such as the JFK Electrical System Upgrade Project and Kennedy International Airport Cogeneration Facility 1.5 Upgrade would benefit existing energy supplies in the long-term and improve reliability of the electrical system at JFK. Other future projects, such as the T8 improvements would likely result in beneficial impacts to energy resources by incorporating energy conservation measures. Future projects such as the Rehabilitation of Taxiways A and B East and South would likely result in an adverse impact on natural resources and energy supply in connection with construction activities but would have no long-term impacts on these resources. Prior to construction of these future projects a NEPA compliance document would be prepared, including consideration of the cumulative impacts of those projects in conjunction with this Proposed Action and other projects.

During construction, the Proposed Action would noticeably contribute an adverse impact on natural resources and energy supply. However, given the capacity of existing supplies and the nature of other projects, which primarily benefit natural resources and energy supply or only adversely impact those resources during construction, the overall cumulative impact would not be significant.

Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

As described in **Section 5.12** of this EA, no induced growth, relocation of residences, or relocation of off-airport businesses would occur as part of the Proposed Action; there would be no substantial loss in

community tax base, and there would be no impacts to environmental justice populations or children's health and safety. However, the Proposed Action would create jobs both during and after construction, resulting in a beneficial economic impact.

Temporary impacts to off-airport traffic would occur during construction of the Proposed Action, resulting in modified circulation off-airport, mostly related to construction worker trips, delivery trucks, and construction vehicles. However, given the urban nature of area surrounding the Airport, and the limited during of the traffic increases (one hour in the morning and one hour in the evening), there should not be a noticeable adverse impact on the surrounding communities. Further, temporary minor changes in traffic operations (i.e., signal timing modifications, signal phasing revisions, and lane utilization changes) would be implemented to further reduce adverse impacts related to traffic.

None of the past projects have resulted in long-term adverse impacts on traffic or other socioeconomic resources. However, these projects created jobs in the short-term (during construction). Since these projects have been completed, the contribution of past projects to the overall cumulative socioeconomic impact is no longer occurring. Construction of other present and reasonably foreseeable future projects would also have the potential to benefit socioeconomic resources through job creation in the short-term. Projects such as the TWA Flight Center Hotel and the Resorts World Hotel will result in long-term beneficial impacts on socioeconomic due to job creation and contributions to the tax base.

Present and reasonably foreseeable future projects would also contribute to traffic impacts at and near the Airport in both the short-term (during construction) and long-term. Specifically, some projects would alter traffic patterns and volume along the same routes and during the same construction timeframe as the Proposed Action, including the Van Wyck Expressway Capacity and Access Improvements project and the Resorts World Casino Hotel project. The Van Wyck Expressway Capacity and Access Improvements project would provide increased capacity by constructing an additional vehicular travel lane, and addressing operational, geometric, and structural deficiencies on the Van Wyck Expressway between the Kew Gardens Interchange and JFK. Both the NEPA and SEQRA reviews for the Van Wyck Expressway Capacity and Access Improvements project are complete. FHWA issued a combined FEIS and ROD on August 30, 2019. Construction is expected to begin in 2020 and is anticipated to be completed in 2025. The FEIS for this project, prepared by NYSDOT, identified temporary effects to traffic during construction, including lane narrowing, lane shifts, and nighttime and off-peak lane closures.[172] The Resorts World Casino Hotel is expected to fully open in 2020. Operation of the hotel is expected to increase traffic due to patrons and workers at the hotel. Peak travel periods for hotel employees and guests would not overlap with the peak travel period for construction workers on the Proposed Action.

Based on the foregoing, the Proposed Action could noticeably contribute to the cumulative impact on socioeconomic resources. This contribution would be most noticeable during construction when traffic patterns would be modified, and traffic volumes could incrementally increase, and when the Proposed Action would most beneficially contribute to the job base. In the long-term, the Proposed Action would beneficially contribute to the overall cumulative impact on socioeconomic resources due to job creation. Long-term jobs (upon completion) would be primarily related to new amenities/concessions within the new and modified terminals (New T1 and expanded T4 and T5) including restaurants, bars and shops

[172] New York State Department of Transportation, Van Wyck Expressway Capacity and Access Improvements to JFK Airport Project Draft Design Report / Final EIS, August 2019.

as well as additional TSA and airline staff for ticketing, maintenance, and other operations. When the Proposed Action is considered in conjunction with other past, present, and reasonably foreseeable future actions, the overall impact on socioeconomic resources would not be significant, and from a job-creation perspective would be beneficial.

6 PUBLIC OUTREACH

In accordance with NEPA and the CEQ regulations, the Port Authority has and will continue to involve the public in the decision-making process for this Proposed Action. The Port Authority is committed to ensuring that stakeholders are informed about this Proposed Action and its benefits and potential impacts.

6.1 AGENCY COORDINATION

Applicable agency coordination correspondence is provided in the appendices. Agency coordination was initiated through letter correspondence with the following agencies:

6.1.1 FEDERAL AGENCIES

U.S. Environmental Protection Agency Region 2
Peter D. Lopez
Regional Administrator
U.S. Environmental Protection Agency
Region 2
290 Broadway
New York, NY 1007-1866

U.S. Fish and Wildlife Service Region 5
Steve Sinkevich
Senior Fish and Wildlife Biologist
Long Island Field Office
U.S. Fish and Wildlife Service
340 Smith Road
Shirley, NY 11967-2258

6.1.2 STATE AGENCIES

New York State Department of Environmental Conservation
Steve Zahn
Regional Director
Region 2 Long Island City Office
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101-5401

New York State Department of State
Jeffrey Zappieri
Supervisor, Consistency Review Unit
Office of Planning and Development
New York Department of State
Suite 1010
One Commerce Plaza
99 Washington Avenue
Albany, NY 12231-0001

New York State Office of Parks, Recreation, and Historic Preservation
Olivia Brazee
Historic Site Restoration Coordinator
New York State Office of Parks, Recreation and Historic Preservation
Peebles Island Resource Center
One Delaware Ave North
Cohoes, NY 12047

6.1.3 CITY AGENCIES

New York City Landmarks Preservation Commission
Gina Santucci
Environmental Review Department
Municipal Building
1 Centre Street, 9th Floor North
New York, NY 10007

6.2 COMMUNITY ADVISORY COUNCIL

The JFK Redevelopment Community Advisory Council was formed in 2018. It was established to provide a single platform where the community, terminal developers, and Port Authority could work collaboratively to share information and address community concerns as it pertains to the Redevelopment Program. The 45-member advisory council is composed of elected officials, community boards, civic organizations, and faith-based community leaders. Three members of the Port Authority serve in an ex-officio capacity. The public is notified of meetings through email and an online posting at www.anewjfk.com, a website dedicated to the redevelopment program. Meeting minutes are posted online following the meeting. There is a dedicated email for the program at jfkredevelopment@panynj.gov.

The advisory council has four committees: Career/Workforce Development, Business Development, Environmental Stewardship, and Education Committees. Meetings are held quarterly and are open to the public. The Environmental Stewardship Committee is composed of members of the JFK Redevelopment Advisory Council who discuss environmental issues related to the Redevelopment Program and JFK generally. All Environmental Stewardship Committee meetings are open to the public. Minutes are shared with committee members within days of the meeting. These minutes are also shared with the full advisory council at the quarterly meetings. The Port Authority accepts any comments and/or questions from the public in person or by comment card at the quarterly advisory council meetings.

6.3 PUBLIC OUTREACH

The Port Authority published a local Notice of Availability and Request for Comment on the Draft EA in the following local newspapers: *Daily News* (Queens), *Greek National Herald*, *Newsday*, and *Sing Tao Daily,* and weekly papers (*El Especialito*, *Queens Chronicle*, *Queens Courier*, *Queens Gazette*, *Queens Ledger*, and *Queens Times Ledger*). Copies of proofs of publication of the newspaper notice announcing the availability of the draft EA and opportunity for public comment will be provided in the appendices to the Final EA.

The following information is the notice of availability and request for comment to the Draft EA:

PORT AUTHORITY OF NY & NJ

NOTICE OF AVAILABILITY and REQUEST FOR COMMENT
DRAFT ENVIRONMENTAL ASSESSMENT
JFK Redevelopment Program
John F. Kennedy International Airport, Jamaica, New York

In accordance with the National Environmental Policy Act (NEPA), notice is hereby given that copies of a Draft Environmental Assessment (EA) for the proposed John F. Kennedy International Airport Redevelopment Program at John F. Kennedy International Airport (JFK) are available for public review and comment at the following locations:

The Port Authority of NY & NJ
John F. Kennedy International Airport
General Manager's Office
Building 14, 2nd Floor
Jamaica, NY 11430
Hours: 8:00 am to 4:00 pm

The Port Authority of NY & NJ
Aviation Department
4 World Trade Center, 18th Floor
New York, NY 10007
Attn: Kathryn Lamond
Hours: 9:00 am to 5:00 pm

JFK Redevelopment Community
Information Center
144-33 Jamaica Ave.
Jamaica, NY 11435
Hours: 9:00 am to 4:00 pm

The Draft EA document for this project will be available at these locations until the close of the comment period, which is 5:00 PM on Friday, February 7, 2020. If you intend to view the document at the locations above, please contact Kathryn Lamond at klamond@panynj.gov to schedule an appointment at least one day before your visit. A copy of the Draft EA may also be viewed online at: https://www.panynj.gov/studies-reports

The Draft EA responds to all of the requirements of the Federal Aviation Administration for preparation of an EA under NEPA. The Port Authority of New York & New Jersey (Port Authority) is inviting the public to submit, in writing, comments on the Draft EA prepared for the JFK Redevelopment Program. The Port Authority is accepting comments on this Draft EA document until the official comment period closes on Friday, February 7, 2020. Comments must be received by 5:00 PM on Friday, February 7, 2020, in order to be considered. Written comments on the Draft EA can be sent directly to Kathryn Lamond of the Port Authority, 4 World Trade Center, 18th Floor, New York, NY 10007. Additionally, comments may be emailed to JFKEA@panynj.gov with the subject heading "JFK Redevelopment Program." If you have any questions about this notice, please email Kathryn Lamond at klamond@panynj.gov.

Information Sessions

Information regarding this program, an opportunity to ask questions about the program, and an opportunity to provide written comments will be available through Information Sessions. The details of the dates, times, and locations of the Information Sessions are listed below.

DATE: Tuesday, January 21st, 2020
TIME: 6:00PM – 9:00PM
LOCATION: Cradle of Aviation Museum
Charles Lindbergh Blvd
Garden City, NY 11530
Phone: (516) 572-4111

DATE: Wednesday, January 22nd, 2020
TIME: 6:00PM – 9:00PM
LOCATION: Robert Ross Johnson Family Life Center
172-17 Linden Blvd
St. Albans, NY 11434
Phone: (718) 657-8282

DATE: Thursday, January 23rd, 2020
TIME: 6:00PM – 9:00PM
LOCATION: Hilton JFK Airport
144-02 135th Ave
Jamaica, NY 11436
Phone: (718) 659-0200

DATE: Wednesday, January 29th, 2020
TIME: 6:00PM – 9:00PM
LOCATION: Challenge Charter School
15-26 Central Ave
Far Rockaway, NY 11691
Phone: (718) 327-4040

Sign language and translation services can be made available at the Information Sessions. If you are in need of assistance or require a reasonable accommodation, contact Kathryn Lamond at klamond@panynj.gov at least ten (10) days prior to the Information Sessions.

7 LIST OF PREPARERS

The Port Authority of New York and New Jersey

- Jane Herndon – Manager, Environmental Programs, Aviation Department
- Patty Clark – Chief Aviation Strategy Officer
- Kathryn Lamond, P.E. – Environmental and Sustainability Specialist

Avion Solutions Group

- Peter Byrne, Director

Landrum & Brown, Incorporated

- Rich Barone – EA Reviewer
- Chris Sandfoss, AICP – Environmental Analysis
- Rob Adams – EA Reviewer
- Sarah Potter – EA Reviewer
- Chris Babb – EA Reviewer
- Matt Lee – Alternatives Analysis
- Clint Laasar – Alternatives Analysis
- Gabriela Elizondo – Environmental Analysis
- Jordie Bacon – Environmental Analysis
- Vasanth Shenoy – Traffic Analysis
- Phil Gwiner – Traffic Analysis
- Steve Carver – Traffic Analysis
- Eric Seavey – Construction Noise Analysis
- Chuck Lang – Land Use and Geographic Information Systems

Fitzgerald and Halliday, Inc

- Ron Gautreau – Biological, Water & Coastal Resources
- Stephanie Dyer-Carroll, AICP – Cultural Resources
- Lucas Karmazinas – Cultural Resources
- Kristen Ahlfeld – Environmental Analysis Reviewer
- Paul Stanton – Environmental Analysis Reviewer
- Dan Hageman – Environmental Analysis Reviewer
- Josh Weiss – Geographic Information Systems/Graphics

KB Environmental Sciences, Inc.

- Mike Kenney – Air Quality and Climate Analysis
- Robert Gross – Air Quality Analysis
- Paolo Pringle – Air Quality Analysis
- Mike Alberts – Noise Analysis

Matrix New World Engineering, Inc.

- Kim Threlfall – Environmental Analysis and EA Reviewer

Mott MacDonald NY, Inc.

- Jennifer Kohlsaat – QA/QC
- Rebecca Gallas – QA/QC
- Kevin Koch, PE, LSRP – QA/QC
- Robert Lin, PWS – QA/QC
- Aileen Mayhew, PE – QA/QC
- Elizabeth Thompson, AICP – QA/QC
- Meg Thornton, PMP, RPA – QA/QC

8 REFERENCES

- Federal Aviation Act of 1958 recodified as 49 United States Code (U.S.C.) §§4010 et seq.
- Aviation Safety and Noise Abatement Act of 1979, 49 U.S.C. §§47501 et seq.
- The Airport and Airway Improvement Act of 1982, 49 U.S.C. §47108, as amended
- P.L. 91-190, 42 U.S.C. 4321, et. seq., National Environmental Policy Act (NEPA), 1969, Section 102(2)(c)
- The Department of Transportation Act, 49 U.S.C., §303 (formerly Section 4(f))
- Land and Water Conservation Fund Act of 1965, 16 U.S.C. §§4601 et seq.
- Coastal Zone Management Act of 1972, as amended through Pub. L. No. 109-58, the Energy Policy Act of 2005, Codified at 16 U.S.C. § 1452
- 49 U.S.C., §40114, as amended (codifying Public Law 103-272, Section 1(e), 1994) (Reports and Records)
- 49 U.S.C., §§47101 et seq. (codifying Public Law 103-272, Section 1(e), 1994) (Airport Improvement)
- National Historic Preservation Act, 16 U.S.C. §470(f), as amended
- 36 Code of Federal Regulations (CFR) Part 800, Advisory Council on Historic Preservation
- Archaeological and Historic Preservation Act, 16 U.S.C. §469(a)
- Archaeological Resource Protection Act, 16 U.S.C. §§470 et seq.
- Farmland Protection Policy Act, 7 U.S.C. §73, and implementing regulations at 7 CFR §658
- Federal Facilities Compliance Action, 42 U.S.C. §6961
- Hazardous Materials Transportation Act of 1975, 49 U.S.C. §§5101 et seq.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Community Environmental Response Facilitation Act of 1992, 42 U.S.C. §§9601 et seq.
- Resource Conservation and Recovery Act of 1976, as amended by the Solid Waste Disposal Act of 1980, 42 U.S.C. §§6901 et seq.
- Clean Air Act, 42 U.S.C. §7401, et seq., and implementing regulations at 40 CFR Parts 51 and 93
- Clean Water Act, 33 U.S.C. §1251 et seq.
- 33 CFR Parts 320-330, Regulatory Programs of the Corps of Engineers
- Endangered Species Act, 16 U.S.C. §§661 et seq., as amended
- Magnuson-Stevens Fishery Conservation and Management Act of 1976, 16 U.S.C. §§1801 et seq., as amended
- Migratory Bird Treaty Act, 16 U.S.C. §§703 et seq.
- Energy Independence and Security Act, 42 U.S.C. §§17001 et seq.
- Executive Order 11990, Protection of Wetlands
- Executive Order 11988, Floodplain Management

- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Council on Environmental Quality (CEQ) regulations codified at 40 CFR 1502.14
- Guidance Regarding NEPA Regulations, CEQ, 48 Federal Register 34263 (July 28, 1983)
- U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA). Order 5050.4C – NEPA Implementing Instructions for Airport Actions. Washington, DC. April 28, 2006.
- USDOT, FAA. Order 1050.1F - Environmental Impacts: Policies and Procedures. Washington, DC. July 16, 2015.
- FAA, 1050.1F Desk Reference, July 2015
- U.S. Environmental Protection Agency (USEPA), 40 CFR Part 81, Section 81.13, New Jersey-New York-Connecticut Intrastate Air Quality Control Region (December 23, 1980).
- Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act, 74 Fed Reg. 66495 et seq. (2009)
- USDOT Order 5610.2, Environmental Justice in Minority Populations and Low-Income Populations, was issued on April 15, 1997. Order 5610.2(a), USDOT Updated Environmental Justice Order, was issued on May 2, 2012
- U.S. Geological Survey, Prepared in cooperation with the New York State Department of Environmental Conservation, Division of Water Resources; Ground-Water and Geohydrologic Conditions in Queens County, Long Island, New York; 2001
- USEPA; Sole Source Aquifers for Drinking Water; Online at: https://www.epa.gov/dwssa, Accessed April 2, 2018
- U.S. Army Corps of Engineers Wetlands Delineation Manual, January 1997
- USEPA, Nonattainment Status for Each county by Year for New York, (Current as of March 31, 2018). Accessed on 4/2/2018 via http://www.epa.gov/airquality/greenbook/anayo_ny.html
- FAA, Aviation Emissions and Air Quality Handbook Version 3 Update 1, January 2015
- FAA Advisory Circular (AC), Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control, AC 150/5370-10G (July 21, 2014)
- Order 5610.2a, USDOT Updated Environmental Justice Order, April 4, 2011
- A Vision Plan for JFK, Recommendations for a 21st Century Airport for the State Of New York, January 4, 2017
- Environmental Assessment & USDOT Section 4(f) Evaluation; TWA Flight Center Hotel Project, John F. Kennedy International Airport, Queens, New York; Final, July 2016
- Federal Emergency Management Act, Region II Coastal Analysis and Mapping, Online at http://www.region2coastal.com/abfe-map-updates, Accessed April 10, 2018
- New York City Department of Planning, The New York City Waterfront Revitalization Program, June 2016.

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