DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT
RECORD OF DECISION

Location
LaGuardia Airport (LGA)
Queens, New York

Introduction
This Finding of No Significant Impact/Record of Decision (FONSI/ROD) sets out the Federal Aviation Administration's (FAA) consideration of environmental and other factors for Airport Layout Plan (ALP) approval and federal financial assistance for the East Side Reconfiguration Project at LaGuardia Airport (LGA). This FONSI/ROD is based on the Final Environmental Assessment (EA) for *East Side Reconfiguration at LaGuardia Airport* prepared by the Port Authority of New York and New Jersey (PANYNJ), dated May 2017.

Project Description
The Proposed Action involves the following:

- Demolition of Terminals C and D and construction of a new consolidated single headhouse with four concourses and 37 contact gate positions;
- Construction of two ramp control towers incorporated into Concourses E and F;
- Demolition of Building 99;
- Reconfiguration of the airside apron around Terminals C and D, to create dual (two-way) Taxilanes between the concourses and include Restricted Vehicle Service Roads (RVSR), an Air Operations Area (AOA) service road, a Ground Service Equipment (GSE) fuel island, and four Remain Overnight (RON) aircraft parking positions;
- Construction of six hardstand aircraft deicing positions within the apron, including the installation of a deicing fluid collection system;
- Absorption of a portion of the current (movement area) Taxiway M into (non-movement area) Taxilane M on the leasehold of Delta Air Lines (Delta);
- Relocating the RVSR to the north;
- Extension of the pole height of the Low Level Windshear Alert System (LLWAS) Site #4 to 150 feet to prevent interference with the landside connector;
- Reconfiguration of the existing arrival and departure roadways directly in front of the new terminal to support the shifting of the terminal building south toward the Grand Central Parkway;
- Construction of two-level terminal roadway frontage (at-grade frontage at the arrivals level and elevated frontage at the departures level) with multiple drop-off/pick-up and bypass lanes for both private and commercial vehicles;
- Expansion of the East Garage to 2,000 parking spaces to mitigate the loss of parking within parking lots P4 (600 spaces) and P5 (850 spaces);
- Connection of the expanded parking garage and the new terminal via a pedestrian bridge;
- Construction of a two-level taxi and for-hire vehicle staging lot located east of the proposed headhouse that would accommodate approximately 300 vehicles and a temporary, 300-space taxi hold lot in the unused grassy space between the roadways in

front of the previously approved Central Terminal Building (CTB) Redevelopment Program;
- Construction of a unifying roof element that would cover the headhouse, a portion of the existing East End Substation (EES), and landside connector; and
- Construction of a new electrical substation on the roof of Concourse G of the proposed terminal, sized to meet the predicted additional load of this Proposed Action, at 12 megavolt ampere (MVA) or less.

This Proposed Action would not change any other portions of the airfield runways or taxiways.

Proposed Agency Actions

The FAA actions involved in the implementation of the Proposed Action include the following:

a. Unconditional Approval of "Pen and Ink Change" Revision No. 14 to the LGA ALP to reflect the East Side Reconfiguration at LGA, pursuant to 49 U.S.C. §40103(b) and §47107(a)(16); and determination and approval of the effects of this project upon the safe and efficient utilization of navigable airspace pursuant to 14 C.F.R. Parts 77 and 157 and 49 U.S.C. §44718;

b. Determination under 49 U.S.C. §§40101(d)(1) and 47105(b)(3) as to whether the Proposed Action maintains and enhances safety and security, and meets applicable design and engineering standards set forth in FAA Advisory Circulars;

c. Determinations concerning funding through the Federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (recodified at 49 U.S.C. §47107) and/or approval of an application to use Passenger Facility Charges (PFCs) under 49 U.S.C. §40117 (this FONSI/ROD does not determine eligibility or availability of potential funds);

d. Determination under 49 U.S.C. §44502(b) that the subject airport development is reasonably necessary for use in air commerce or in the interests of national defense;

e. Continued close coordination with the PANYNJ, the City of New York and appropriate FAA program offices, as required, for safety during construction (14 C.F.R. Part 77); and

f. Approval of appropriate amendments to the LGA Airport Certification Manual (ACM), as required, pursuant to 49 U.S.C. §44706.

Purpose and Need

The purpose and need for the Proposed Action is to: improve operational safety on the airside apron through a reconfigured apron with additional maneuvering space and increased gating flexibility; provide a modern terminal building with increased energy efficiency, improved passenger processing (check-in, security, and other necessary components of a modern airline terminal. etc.), additional concessions and retail options, and sufficient electrical capacity to provide reliable service; and improve traffic circulation and flow along the terminal's landside roadways and accommodation of vehicle parking by extending the existing garage; considered together, these elements will also contribute to airline efficiencies.

Governor Cuomo's Advisory Panel Recommendations

As the Proposed Action was evolving, New York's Governor Cuomo announced the recommendations of an advisory panel to address the deficiencies of LGA as a major transportation facility. These recommendations addressed distinct aspirations, each with its own purpose, functionality, and timeframe. Moreover, each would provide stand-alone benefits that could be accomplished whether or not the others moved forward. While preliminary planning efforts are underway to consider other components of the transformational redesign of the airport, the East Side Reconfiguration at LGA, (this Proposed Action), along with the CTB Redevelopment Program, represent concrete-specific projects. The other components, including a potential hotel and ferry terminal, do not have identified funding sources and they have not yet been the subject of sufficiently specific planning work to enable accurate and relevant analysis pursuant to the National Environmental Policy Act (NEPA). The PANYNJ is in the early stage of overseeing feasibility studies and other early analyses for a potential LGA AirTrain and an on-airport hotel. Therefore, the nature, extent, and design of these components, as well as other elements of the advisory panel's recommendations, for which preliminary planning and feasibility studies have yet to be finalized, are not determinable or reasonably foreseeable at the present time. In the event that these components become ripe for decision, they will be subject to their own appropriate NEPA analyses that will be required to consider the cumulative impacts of the CTB Redevelopment Program and this Proposed Action.

Alternatives

In addition to the Proposed Action, the alternatives evaluated consisted of: *East Side Development* where consideration was given to maintaining the existing Terminal C, extending Terminal D, and construction a new concourse into parking lot 5; *Island Concourses* where consideration was given to a separate headhouse for passenger check-in, security screening, and baggage claim and three separate 'island' concourses connected by tunnels for passenger hold room and gate positions; and *Expansion into Flushing Bay* where expansion beyond the current airport boundary was considered. Other terminal layout designs, alternate sites within LGA, and demand management (i.e., implementing policies to reduce total demand, shifting demand from peak to off-peak periods, or upgauging aircraft) were also considered.

The Proposed Action was selected for implementation after an evaluation of all alternatives. Each alternative was assessed to determine its ability to meet the project purpose and need; for each of the alternatives, environmental impacts, and technical, operational, and cost factors were considered.

Discussion

The attached Final EA, together with all of its appendices, addresses the effects of the proposed Action on the human and natural environment, and is made part of this Finding. The following impact analyses provide highlights of the more thorough analyses presented in the Final EA.

Roadway Traffic and Transportation

The Proposed Action is expected to take place over an eight-year period. Project related traffic impacts on airport access roads and other local roads surrounding the airport have been assessed. As indicated by site conditions, traffic improvements or changes may be needed to maintain or improve traffic levels-of-service during and after project construction.

The PANYNJ would implement a traffic monitoring program throughout the duration of the construction period and following project completion. During construction, a variety of temporary improvements may be required to accommodate the increased traffic volumes. These improvements include, but are not limited to, measures such as: traffic signal installation; traffic signal controller upgrades; signal timing adjustments; curbside parking prohibitions; lane widening/restriping; and the use of construction flaggers. With these improvements in place, no significant construction traffic impacts are anticipated to result from the Proposed Action.

All transportation improvements on local roadways will be subject to review and approval by the New York City Department of Transportation (NYCDOT). As mitigation for the previously approved Central Terminal Building (CTB) Redevelopment Program, the PANYNJ implemented a traffic-monitoring program in coordination with NYCDOT throughout the duration of the construction period, which will continue after the construction of the CTB Redevelopment Program, as needed. Since the commencement of CTB Redevelopment Program construction, the PANYNJ has established a Landside Transportation Management Command Center (LTMCC) to respond to traffic issues as they occur and proactively address traffic issues in advance of such occurrences. Since its implementation, the staff at the LTMCC have developed a comprehensive understanding of passenger behavior and traffic flows across the airport, leading to the development of a playbook of mitigation measures and strategies that is constantly being revised to reflect the changing airport roadway environment

The PANYNJ will build on the steps already in place for the CTB Redevelopment Program to mitigate potential adverse traffic conditions that may result from implementation of the Proposed Action. Additional traffic monitoring cameras and real-time mitigation will be used to mitigate delay and prevent back-ups. The monitoring program will determine the need for and timing of implementation of improvements and enable the development of flexible strategies to respond to the traffic dynamics of that hour. With the proposed mitigation in place, no significant traffic impacts are expected to occur as a result of this Proposed Action.

Air Quality

Section 176(c) of the Clean Air Act (CAA), as amended in 1990, (42 U.S.C. §7521-7554) requires that Federal actions conform to the appropriate Federal or State air quality implementation plans in order to attain the CAA's air quality goals. Section 176(c) states: "No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan."

LGA is located in Queens County, which is currently designated by the US Environmental Protection Agency (EPA) as being in marginal non-attainment for ozone (O_3) and as a maintenance area for carbon monoxide (CO) and particulate matter ($PM_{2.5}$). Therefore, air emissions analyses were performed for both the construction phase and the operations phase of the Proposed Action.

In order to determine the potential for impacts to air quality, the analyses included baseline local air quality, an assessment of non-attainment or maintenance pollutants, a "hot spot" analysis near roadway intersections, and a general conformity applicability analysis that includes a net emissions analysis for proposed construction and operational activities. (See Appendix C of the Final EA). The air quality analyses demonstrates that construction and implementation of the Proposed Action would not cause an increase in air emissions above the applicable *de minimis*

thresholds established by the General Conformity Rule in 40 C.F.R. Part 93, §93.153. Therefore, a General Conformity Determination is not required.

In accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, and FAA Order 5050.4B, Airport Environmental Handbook, no further analysis with respect to General Conformity is needed. Accordingly, the Proposed Action conforms to the New York State Implementation Plan (SIP) and the CAA. Additionally, the operation of the Proposed Action 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. Means and measures to reduce or minimize project-related emissions are also incorporated into the Proposed Action. Based on the above, since the Proposed Action is unlikely to result in a pollutant concentration that would exceed NAAQS, implementation of the Proposed Action is not likely to result in significant adverse impacts to air quality.

The CTB Redevelopment Program is currently under construction and activities are expected to continue through the year 2021. Construction for the Proposed Action is expected to begin in 2017 and continue through 2025. When both the CTB Redevelopment Program and the Proposed Action are considered together, the combined emissions during each year of construction would remain at less than *de minimis* threshold levels. Therefore, the increase in air emissions attributable to the Proposed Action when combined with those of the CTB Redevelopment Program would not result in a significant adverse effect on air quality.

Coastal Zone Management and Floodplains

Federal actions that occur in or that would affect a coastal zone of a state having an approved state coastal zone management program must comply with that program to meet the requirements of the Coastal Zone Management Act of 1972 , as amended (16 U.S.C. §1451-1464).

LGA is located within the designated New York State Department of State (NYSDOS) Coastal Zone Management Area. Accordingly, any work undertaken within the Coastal Zone Management Area is subject to consistency with the New York State Coastal Zone Management Program. According to current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and the Preliminary FIRM, the majority of LGA is located within the tidal floodplain, some portions of which are designated a coastal flood zone with velocity hazard.

The project site consists entirely of uplands and is substantially developed with either airport or roadway infrastructure. The site is primarily covered with buildings or pavement. Under the Proposed Action, the project site would be reconfigured with the existing use of the land for transportation purposes remaining unchanged. Impervious cover within the 100-year floodplain would increase by no more than one acre. (See Section 5.14.2 of the Final EA).

The Proposed Action would encroach upon a designated tidal floodplain. Because the majority of the airport is located within the floodplain, there is no feasible and prudent alternative that avoids the floodplain. Pursuant to FAA's Desk Reference for Airports Actions, a "significant encroachment" on the floodplain would not occur because: the probability of loss of human life is low; the Proposed Action would be designed to minimize future extensive damage or costs; and there would be no notable adverse impacts on the floodplain's natural and beneficial

features. The Proposed Action includes a comprehensive flood hazard mitigation plan. (See Section 6.6 of the Final EA).

On May 16, 2016, the NYSDOS determined that the Proposed Action meets its consistency concurrence criteria for determining whether the Proposed Action is consistent with the approved Coastal Zone Management Plan. (See Appendix A-75 of the Final EA). Based on the above, implementation of the Proposed Action is not likely to result in significant adverse impacts to the NYSDOS Coastal Zone Management Area or floodplains.

Noise

Airport development actions have the potential to cause or contribute to changes in community noise levels. It is important to emphasize that when compared to the No Action alternative, the Proposed Action would not increase aircraft takeoffs and landings, and that the existing runway configuration, arrival/departures procedures, and runway use percentages, would remain the same.

Noise impact analyses were conducted that considered the potential changes in noise levels that would be expected as a result of both construction and operation of the Proposed Action. (See Section 5.11 of the Final EA). A noise analysis was performed for construction equipment using the Federal Highway Administration's approved Roadway Construction Noise Model (RCNM). Additionally, pursuant to the New York State Department of Transportation's *Noise Analysis Policy and Procedures* applicable to New York City, an impact to any sensitive receptor resulting from construction noise would only occur when levels are above 85 decibels (dB).

According to the results of the analysis, the Proposed Action would likely result in noticeable noise increases that range from 3 to 9 dBA above existing background levels at the two receptors located immediately across from the project site near Ditmars Boulevard: M3 (at 102nd Street and Ditmars Boulevard) and M4 (at 105-05 Ditmars Boulevard). These increases correspond to pile driving activities that result in noise levels that are still below the 85 dB criterion established by NYSDOT. With the exception of pile-driving activities at various points during construction, the noise generated during construction activities would not be discernable from the normal background noise levels in the area.

To mitigate noise impacts from pile-driving activities, the following measures shall be implemented: 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; reduce the 'ringing' noise of the steel piles by utilizing acoustical paint across the web of each pile at four to six foot intervals; and prohibit pile driving at night, defined as 11pm to 6am.

After construction, noise levels from vehicular traffic are expected to increase, however, the noise increases are also predicted to be well below the thresholds of significance. Adverse impacts will be minimized through the use of a variety of measures, such as limiting construction days/hours, among others. These impacts will be controlled and limited by compliance with the mitigation measures coordinated with the appropriate agencies as set forth in the Final EA's Chapter 6, entitled, "Mitigation" and in this FONSI/ROD (see Conditions/Mitigation Measures, item 6 below).

Based on the above, the Proposed Action is not likely to result in significant adverse noise impacts.

Construction Impacts

Construction of the Proposed Action is not expected to cause significant long-term environmental impacts. However, short-term impacts resulting from construction operations may occur. Resources that are anticipated to experience short-term effects during construction are air quality, solid waste, light and visual, noise, traffic, and water quality. These impacts will be controlled and limited by compliance with the mitigation measures set forth in the Final EA's Chapter 6, entitled, "Mitigation" and in this FONSI/ROD under the heading "Conditions/Mitigation Measures," as well as the FAA's Advisory Circular 150/5370-10F "Standards for Specifying Construction of Airports," Item P-156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control; and Advisory Circular 150/5320-5D, "Airport Drainage Design" (see Conditions/Mitigation Measures, item 1 below).

There is a potential for impacts to National Airspace System Facilities to arise during construction, either temporarily or due to unexpected circumstances. In the event that this occurs, the PANYNJ, in consultation with their leaseholders, and the FAA, will be required to mitigate the impacts to minimize additional operational impacts to LaGuardia Airport.

Change in Aircraft Movement Area

The use of the non-movement area Taxilane M will be subject to a Letter of Agreement (LOA)[1] between FAA Airport Traffic Control Tower (ATCT), the PANYNJ, and Delta Air Lines. This LOA will facilitate the coordination between FAA and Delta during those times when aircraft depart from Runway 31 to allow aircraft to exit the movement area via Taxilane M on Delta's leasehold and then re-enter the movement area, in the event the Taxilane is needed to alleviate aircraft crowding on either Taxiway A or B. This change to the movement area may potentially impact airport operations during operational conditions that require the use of RWY 31 for departures during periods of severe weather. Based on an understanding of operational history at the Airport Traffic Control Tower, these conditions are not present often; however, airfield efficiency is likely to decline from existing operational conditions when the conditions occur.

Summary of All Impact Categories

The Final EA addresses all environmental impact categories, as required by FAA Orders 1050.1F, 5050.4B, and the Desk Reference for Airports Actions. Impact categories such as air quality; biological resources; climate; coastal resources; DOT Section 4(f) resources; farmlands; hazardous materials, solid waste, and pollution prevention; historical, architectural, archaeological, and cultural resources; land use; natural resources and energy supply; noise and noise-compatible land use; socioeconomics, environmental justice, and children's environmental health and safety risks; visual effects; water resources; and cumulative impacts were considered

[1] The EA discussed the use of a Memorandum of Understanding between the FAA Air Traffic Division, the PANYNJ, and Delta Air Lines. The formal name used for these types of arrangements is a Letter of Agreement. This Finding of No Significant Impact/Record of Decision refers to the formal FAA name for these arrangements, Letter of Agreement, rather than the name used within the EA itself; however, for purposes of this decision, both names are intended to refer to the same document, which is the formalized arrangement between the two parties regarding the use of Taxilane M.

during preparation of and analyses for the Final EA. It is the FAA's finding that the proposed action will not have any significant effect on any of the above noted categories.

Coordination with the General Public

A Notice of Public Availability of the Draft EA and Notice of Public Hearing was made in the following publications on or during the week of April 3, 2017: Daily News (Queens Edition), Newsday, Queens Chronicle, Queens Gazette, Queens Times Ledger, Queens Ledger, El Especialito, The National Herald, Sing Tao Daily, Queens Courier, and the Queens Tribune, The document was available for review at LGA's Administration Building, the Port Authority's headquarters office in Manhattan, and at two branches of the Queens Borough Public Library. The document was also available for review on the Port Authority's website at *http://www.panynj.gov/about/studies-reports.html*. The review and comment period was from April 3, 2017 to May 15, 2017. A Public Hearing on the Draft EA was also conducted during the review and comment period on May 3, 2017 at the Sheraton LaGuardia East Hotel.

Comments were received from various interested parties and primarily focused on support for the project, conservation measures, and permitting. All comments have been considered and adequately addressed in the Final EA. None of these comments, when considered individually or aggregately, resulted in significant changes to the Proposed Action

Conditions/Mitigation Measures

1. Construction contract specifications developed for the projects shall contain the provisions of FAA Advisory Circular 150/5370-10F, "Standards for Specifying Construction of Airports," Item P-156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control; and Advisory Circular 150/5320-5D, "Airport Drainage Design."

2. All required regulatory permits shall be obtained prior to construction of the Proposed Action, including a construction stormwater State Pollutant Discharge Elimination System permit when applicable.

3. To ensure safe and efficient movement of aircraft on the airfield and facilitate the coordination of the use of Taxilane M between the FAA ATCT, the PANYNJ, and Delta, the Letter of Agreement regarding the use of Taxilane M must be completed and signed prior to the completion of construction.

4. In the event that impacts to National Airspace System Facilities arise during construction, either temporarily or due to unexpected circumstances, the PANYNJ, in consultation with its leaseholders and the FAA, will be required to mitigate the impacts to minimize additional operational impacts to LaGuardia Airport.

5. To maintain or improve roadway traffic levels-of-service during and after construction, improvements and changes shall be made to include, but not be limited to the following: traffic signal installation; traffic signal controller upgrade; signal timing adjustments; curbside parking monitoring and cooperation with the existing Landside Transportation Management Command Center that was established to address traffic flow issues as part of the CTB Redevelopment Program. The Port Authority will continue to build on steps already in place for the CTB Development Program.

6. To mitigate noise impacts from pile-driving activities, the following measures shall be implemented: 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; reduce the 'ringing' noise of the steel piles by utilizing acoustical paint across the web of each pile at four to six foot intervals; and prohibit pile driving at night, defined as 11pm to 6am.

7. A flood hazard mitigation plan for the Proposed Action will be developed in accordance with the National Flood Insurance Program, the International Building Code, the American Society of Civil Engineers national reference standards, and the New York City Building Code. Adherence to these requirements provides adequate assurance that Proposed Action-related development impacts on the tidal floodplain would be minimized.

Further mitigation measures are detailed in Section 6 of the Final EA. Consistent with applicable orders, policies and guidance, including Council on Environmental Quality (CEQ) Guidance, dated January 14, 2011, "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact" under NEPA. The FAA understands that the PANYNJ will undertake the necessary actions to ensure that the above conditions and/or mitigation measures are undertaken and that it will monitor the implementation and effectiveness of such measures. In some instances, the above conditions are required as a result of coordination and agreement. They do not necessarily reflect impacts that require mitigation to meet FAA standards pursuant to FAA Order or guidance. As with all projects subject to NEPA, should any conditions change or impacts be discovered that require further NEPA analysis, the FAA will require that a separate analysis, review and decision be conducted.

Federal Agency Findings

In accordance with all applicable laws, the FAA makes the following findings for the Proposed Action based on all appropriate information and analyses contained in the Final EA:

A. **The Proposed Action is reasonably consistent with existing plans of public agencies for development of areas surrounding the airport. (49 U.S.C. §47106(a)(1) .** The FAA is satisfied that the Proposed Action is consistent with plans (existing at the time the Proposed Action is approved) of public agencies for development of areas surrounding the airport based on coordination efforts with public agencies as indicated in Appendix A of the Final EA.

B. **The interest of the communities in or near where the Proposed Action may be located were given fair consideration. (49 U.S.C. §47106(b)(2).** The FAA is satisfied that the interests of the communities in or near where the Proposed Action will be located were given fair consideration as demonstrated by the Final EA, including Appendix G, Public Involvement.

C. **The FAA has given this Proposed Action the independent and objective evaluation required by the Council on Environmental Quality (40 C.F.R. Section 1506.5).** The FAA's review and ultimate decision process included the FAA's rigorous exploration and objective evaluation of reasonable alternatives and probable environmental consequences, regulatory agency and Native American consultations, as required, and public involvement. FAA furnished guidance and participated in the preparation of the

Final EA by providing input, advice and expertise throughout the planning and technical analyses, along with administrative direction and legal review. FAA has independently evaluated the Final EA and takes responsibility for its scope and content.

D. **The Proposed Action will conform to the State Implementation Plan (SIP) in accordance with Section 176 of the Clean Air Act (CAA) and its amendments (42 U.S.C. §7506(c)).** LGA is located in Queens County, which is currently designated by the US Environmental Protection Agency (EPA) as being in marginal non-attainment for ozone (O_3) and as a maintenance area for carbon monoxide (CO) and particulate matter ($PM_{2.5}$). The Proposed Action conforms to the New York State Implementation Plan and complies with the Clean Air Act Section 176(c)(1). The Proposed Action would not: cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. Specifically, the Proposed Action's total construction emissions, based on specific emissions calculations, are below the *de minimis* thresholds established by the General Conformity Rule (40 C.F.R. Parts 51 and 93) and therefore, would conform to the SIP. According to FAA Order 1050.1F and the Desk Reference for Airports Actions, no mitigation is necessary and further analysis is not required to comply with the CAA or NEPA. In summary, although the Proposed Action is taking place in a non-attainment area, the FAA determined that project emissions would be below *de minimis* thresholds under General Conformity requirements. Therefore, a Conformity Determination is unnecessary and significant adverse impacts to air quality would be unlikely. The requirements of the General Conformity Rule have been met as discussed in Sections 4.2.1 and 5.1 and Appendix C of the Final EA.

E. **There are no disproportionately high and adverse environmental effects on minority and/or low-income populations that would result from the Proposed Action. (Executive Order 12898) (U.S. DOT Order 5610.2(a)).** Environmental Justice concerns are addressed in Section 5.12 of the Final EA. An Environmental Justice assessment was conducted to determine if a disproportionate share of the Proposed Action's potential impacts would be borne by low-income and/or minority populations. An evaluation of population statistics for the adjacent communities to LaGuardia Airport shows that there are environmental justice populations, defined by high rates of minorities, to the south in the neighborhoods of Jackson Heights and East Elmhurst. Minorities make up 71 to 99 percent of the population, grouped by census block group. The Astoria/Steinway neighborhood to the west of the airport has a lower minority percentage – 20 to 50 percent. This racial diversity represents the borough of Queens, one of the most culturally diverse urban areas in the world. Overall, according to the U.S. Census Bureau, the Queens County population is 70.3 percent minority. Because the Proposed Action does not include any impacts that would go beyond the airport property into adjoining neighborhoods, the FAA does not anticipate impacts to these areas. There are no disproportionately high and adverse environmental effects on minority and/or low-income populations that would result from implementation of the Proposed Action.

F. **Executive Order (EO) 11988 has been followed and complied with as required. The EO directs federal agencies to reduce the risk of flood loss, minimize the impacts of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains.** The Final EA contains analyses that

address whether the Proposed Action would be a "significant floodplain encroachment," as defined in FAA Order 1050.1F and EO 11988. A "significant encroachment" on the floodplain would not occur because: the probability of loss of human life is low; the Proposed Action would be designed to minimize future extensive damage or costs; and there would be no notable adverse impacts on the floodplain's natural and beneficial features. The appropriate and currently valid Flood Insurance Rate Maps (FIRMs) were consulted and they are included in the Final EA. The FAA is satisfied that the Proposed Action would not be a significant encroachment on Floodplains; there is no feasible and prudent alternative that would avoid the floodplain; and the implementation of the Proposed Action would comply with all the requirements of EO 11988. The Proposed Action includes a comprehensive flood hazard mitigation plan.

G. **The Proposed Action is consistent with the New York State Coastal Zone Management Program in accordance with the CZMA, as amended (16 U.S.C. §1451-1464).** LGA is located within a designated New York State Coastal Zone Management Area. As indicated in Appendix A-75 of the Final EA, the NYSDOS, on May 16, 2016, determined that the Proposed Action meets its consistency concurrence criteria required to make a determination that a proposed project is consistent with the approved coastal zone management plan. There would be no significant adverse impacts to the NYSDOS Coastal Zone Management Area as result of the Proposed Action and the NYSDOS concurs with the consistency determination for the Proposed Action.

Decision and Order

The FAA recognizes its responsibilities under the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality's (CEQ) implementing regulations, and the FAA's own directives. Recognizing these responsibilities, I have carefully considered the FAA's goals and objectives in relation to the various aeronautical aspects of the *East Side Reconfiguration at LaGuardia Airport* as discussed in the Final EA and I have used the environmental process to make a more informed decision. This review included the purposes and needs to be served by this Proposed Action and alternative means to achieve them. This review has also included consideration of the environmental impacts of these alternatives, and the mitigation and conditions necessary to preserve and enhance the human environment. This decision is based on a comparative examination of environmental impacts, operational factors, and economic factors for each of the alternatives. The Final EA provides a fair and full discussion of the impacts of the Proposed Action. The NEPA process included appropriate planning and design for avoidance and minimization of impacts, as required by NEPA, the CEQ regulations, other special purpose environmental laws, and appropriate FAA environmental directives and guidance.

The FAA has determined that environmental and other relevant concerns presented by interested agencies and the general public have been addressed in the Final EA. The FAA believes that with respect to the Proposed Action, there are no outstanding environmental issues within FAA jurisdiction to be studied or NEPA requirements that have not been met. In making this determination, the FAA must decide whether to approve the federal actions necessary for Project implementation. FAA approval signifies that applicable federal requirements relating to airport development planning have been met and permits the PANYNJ to proceed with development and possibly receive funds for eligible items. Not approving these actions would prevent the PANYNJ from proceeding with this airport development.

After careful and thorough consideration of the facts contained herein and subsequent to my review of the Final EA and all of its related materials, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of NEPA and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA.

This decision does not constitute a commitment of funds under the Airport Improvement Program (AIP); however, it does fulfill the environmental prerequisites for future AIP funding determinations associated with AIP-eligible project components (49 U.S.C. §47107).

Similarly, this decision neither grants approval to use Passenger Facility Charges (PFC) nor constitutes a commitment of PFC approval. This decision fulfills the environmental analysis prerequisites for future PFC determinations. The FAA will review any future PFC application upon receipt from the PANYNJ and the FAA will make funding decisions in accordance with the established procedures and applicable statutory requirements (49 U.S.C. §40117).

Accordingly, pursuant to the authority delegated to me by the Administrator of the FAA, I find that the actions summarized in this FONSI/ROD are reasonably supported and approved. I hereby direct that action be taken together with the necessary related and collateral actions, to carry out the agency actions noted above. Specifically:

1. Unconditional Approval of "Pen and Ink Change" Revision No. 14 to the LGA ALP pursuant to 49 U.S.C. §40103(b) and §47107(a)(16), and determination of the effects of each of the components comprising the Proposed Action as described above, in the Final EA, and all associated materials upon the safe and efficient utilization of navigable airspace pursuant to 14 C.F.R. Parts 77 and 157 and 49 U.S.C. §44718;

2. Determination under 49 U.S.C. §§40101(d)(1) and 47105(b)(3) that the proposed project meets applicable design and engineering standards set forth in FAA Advisory Circulars;

3. Determinations concerning funding through the Federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (recodified at 49 U.S.C. §47107) and/or approval of an application to use Passenger Facility Charges (PFCs) under 49 U.S.C. §40117 (this does not determine eligibility or availability of potential funds); and

4. Determination under 49 U.S.C. §44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense.

5. Continued close coordination with the PANYNJ, the City of New York and appropriate FAA program offices, as required, to ensure safety during construction (14 C.F.R. Part 77); and,

6. Approval of appropriate amendments to the LGA Airport Certification Manual (ACM), as required, pursuant to 49 U.S.C. §44706.

Approved: Maria D. Stanco for Marie Kennington-Gardiner
Acting Regional Administrator
Federal Aviation Administration
Eastern Region

7/20/17
Date

Right of Appeal
This FONSI/ROD presents the Federal Aviation Administration's findings and final decision and approvals for the actions identified, including those taken under the provisions of Title 49 of the United States Code, Subtitle VII, Parts A and B.

Any party having a substantial interest may appeal this order to the United States Court of Appeals for the District of Columbia Circuit or in the court of appeals of the United States for the circuit in which the person resides or has its principal place of business, upon petition filed within 60 days after entry of this order in accordance with 49 U.S.C. §46110.

Any party seeking to stay the implementation of this ROD must file an application with the FAA prior to seeking judicial relief, as provided in rule 18(a) of the Federal Rules of Appellate Procedure.

East Side Reconfiguration at LaGuardia Airport

Final Environmental Assessment

Prepared for
U.S. Department of Transportation
Federal Aviation Administration

Sponsored by
Port Authority of NY & NJ

Prepared by
AECOM WSP

May 2017

This environmental assessment (EA) becomes a federal document when evaluated, signed, and dated by the Responsible FAA Official.

_____ July 11, 2017
Responsible FAA Official Date

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Acronyms

ADG ..... Airplane Design Group
ALP ..... Airport Layout Plan
ANOMS ..... Airport Noise and Operations Monitoring System
AOA ..... Air Operations Area
APE ..... Area of Potential Effect
APU ..... Auxiliary Power Units
ARPA ..... Archaeological Resources Protection Act
ASCE ..... American Society of Civil Engineers
ASHRAE ..... American Society of Heating, Refrigeration and Air Conditioning Engineers
AST ..... Aboveground Storage Tank
ATCT ..... Airport Traffic Control Tower
BAT ..... Best Available Technology
BFE ..... Base Flood Elevation
BMP ..... Best Management Practices
CAA ..... Clean Air Act (as amended in 1990)
CATEX ..... Categorical Exclusion
CEQ ..... Council on Environmental Quality
CEQR ..... City Environmental Quality Review
CFR ..... Code of Federal Regulations
CHRP ..... Central Heating and Refrigeration Plant
CO ..... Carbon Monoxide
CO_2 ..... Carbon Dioxide
CO_2e ..... Carbon Dioxide Equivalent
CSO ..... Combined Sewer Overflow
CTB ..... Central Terminal Building
CUP ..... Central Utility Plant
dB ..... Decibel
dBA ..... A-weighted Scale Decibel
DNL ..... Day-Night Average Sound Level
EA ..... Environmental Assessment
ECL ..... Environmental Conservation Law
EES ..... East End Substation
eGSE ..... Electric Ground Service Equipment
E.O. ..... Executive Order
ESA ..... Endangered Species Act
EV ..... Electric Vehicle
EWR ..... Newark Liberty International Airport
FAA ..... Federal Aviation Administration
FEMA ..... Federal Emergency Management Agency
FHWA ..... Federal Highway Administration
FIRM ..... Flood Insurance Rate Map
FONSI ..... Finding of No Significant Impact
GHG ..... Greenhouse Gas
GSE ..... Ground Service Equipment
HABS ..... Historic American Buildings Survey
HAER ..... Historic American Engineering Record
HAP ..... Hazardous Air Pollutants
HCM ..... Highway Capacity Manual
HOV ..... High Occupancy Vehicle

HVAC..... Heating, Ventilation and Air Conditioning
Hz .....Hertz
IATA .....International Air Transport Association
JFK ..... John F. Kennedy International Airport
L_{eq} ..... Equivalent Sound Level
L_{max} ..... Maximum Noise Level
LEED..... Leadership in Energy and Environmental Design
LGA .....LaGuardia Airport
LLWAS..... Low Level Windshear Alert System
LOS ..... Level of Service
LPC..... Landmarks Preservation Commission
LTMCC..... Landside Transportation Management Command Center
LWRP ..... Local Waterfront Revitalization Program
MOA .....Memorandum of Agreement
MOU ..... Memorandum of Understanding
MSW.....Municipal Solid Waste
MVA.....Megavolt Amperes
NAAQS .....National Ambient Air Quality Standards
NAS..... National Airspace System
NCP.....Noise Control Plan
NEPA .....National Environmental Policy Act of 1969, as amended
NHPA ..... National Historic Preservation Act
NMFS .....National Marine Fisheries Service
NOx ..... Nitrogen Oxides
NPDES..... National Pollutant Discharge Elimination System
NRHP .....National Register of Historic Places
NTC.....National Tennis Center
NYC.....New York City
NYCDCP..... New York City Department of City Planning
NYCDEP.....New York City Department of Environmental Protection
NYCDOT ..... New York City Department of Transportation
NYCDPR.....New York City Department of Parks and Recreation
NYCEDC.....New York City Economic Development Corporation
NYCRR..... New York Codes, Rules and Regulations
NYSDEC..... New York State Department of Environmental Conservation
NYSDOS.....New York State Department of State
NYSDOT.....New York State Department of Transportation
PANYNJ .....Port Authority of New York and New Jersey
PA-AOC .....Port Authority-Agency Operations Center
PAPD..... Port Authority Police Department
PCAir.....Pre-Conditioned Air
PCB .....Polychlorinated Biphenyl
PCE .....Passenger Car Equivalents
$PM_{2.5}$ .....Inhalable particulate matter less than 2.5 microns in diameter
PM_{10}.....Inhalable particulate matter less than 10 microns in diameter
PPP ..... Public-Private Partnership
RCNM.....Roadway Construction Noise Model
ROD ..... Record of Decision
RON ..... Remain Overnight
RSA ..... Runway Safety Area
RVSR .....Restricted Vehicle Service Road
SEQRA.....State Environmental Quality Review Act
SHPO..... State Historic Preservation Office

SIP ..... State Implementation Plan
SO_2 ..... Sulfur Dioxide
SPCC ..... Spill Prevention Control and Countermeasures
SPDES ..... State Pollutant Discharge Elimination System
STATSGO ..... State Soil Geographic Database
SWPPP ..... Stormwater Pollution Prevention Plan
TAAM ..... Total Airspace and Airport Modeler
TAF ..... Terminal Area Forecast
tpy ..... Tons Per Year
TSA ..... Transportation Security Administration
ULSD ..... Ultra Low Sulfur Diesel
USACE ..... United States Army Corps of Engineers
U.S. DOT ..... United States Department of Transportation
USEPA ..... United States Environmental Protection Agency
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
USTA ..... United States Tennis Association
UW ..... Universal Waste
VOCs ..... Volatile Organic Compounds
WES ..... West End Substation
WR ..... Written Reevaluation
WRP ..... Waterfront Revitalization Program

Executive Summary

In accordance with Federal Aviation Administration (FAA) policies and procedures for implementing the National Environmental Policy Act (NEPA), including FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, this Final Environmental Assessment (EA) analyzes the potential effects of the East Side Reconfiguration at LaGuardia Airport (this Proposed Action). Delta Air Lines (Delta) prepared this Final EA on behalf of the Airport Sponsor, the Port Authority of New York and New Jersey (PANYNJ).[1] This Executive Summary describes the key findings of the Final EA, which is organized as follows:

- Chapter 1: Introduction and Background provides an overview and description of this Proposed Action
- Chapter 2: Purpose and Need establishes the necessity for and objectives of this Proposed Action
- Chapter 3: Alternatives identifies this Proposed Action and No Action Alternatives and discusses why other options were considered and dismissed
- Chapter 4: Affected Environment defines the project setting and the resources to be considered
- Chapter 5: Environmental Consequences analyzes the impacts of this Proposed Action and No Action Alternatives on the affected environment
- Chapter 6: Mitigation discusses the measures to be taken to reduce, minimize, or avoid the potential for environmental harm
- Chapter 7: Public Involvement describes the steps taken to include agencies and the public in the NEPA process
- Chapter 8: List of Preparers lists the firms that prepared this Final EA
- Chapter 9: References lists the references cited in this Final EA

In addition, Appendix A through Appendix G provide supplemental information needed to support the analysis and conclusions presented in the Final EA, including copies of agency correspondence, technical memoranda, and other supporting documentation.

Purpose and Need

This Proposed Action is needed to improve aircraft operations, reduce delays, improve customer service, and provide greater gating flexibility for the airlines operating at Terminals C and D at LaGuardia Airport. The airport has average delays over 15 minutes, resulting in residual delays that affect airline networks and other airports and poor passenger experience (i.e., delayed arrivals or missed connections).[2] By reconfiguring the existing airfield and concourse layout within the constrained airport property

[1] PANYNJ is the lessee of the airport property from the City of New York.

[2] *Terminal C & D Redevelopment TAAM Analysis*, New York LaGuardia Airport (January 2017); see Appendix B.

(surrounded by water to the north, east, and west and Grand Central Parkway to the south), Delta would be able to address existing deficiencies in the building and airfield infrastructure and terminal security features. Delta would also be able to implement needed improvements to improve passenger level of service (LOS) to an acceptable rating of "C" or higher. In addition, a new terminal would contribute toward Governor Andrew M. Cuomo's goal for a comprehensive, unified, and modern airport design.

This Proposed Action's goal is to resolve the following existing airfield deficiencies: single-width taxilanes, hardstand gate positions, and severely constrained gates with insufficient clearance between aircraft. The Proposed Action would allow for dual taxilanes and improved gating flexibility, with contact gates for all live positions. By replacing the existing Terminals C and D and ancillary facilities with new facilities designed to meet the latest federal standards for airport safety and security, the forecasted passenger demand would be accommodated at acceptable levels of service. Inefficiencies from duplicative functions (i.e., ticketing/check-in, security checkpoints, baggage claim) as a result of operating in separate Terminals C and D would be eliminated by consolidating operations into a single terminal.

Since LaGuardia Airport is a slot-controlled airport, aircraft operations will not increase and will be handled by existing runways and taxiways at the airport. Instead, this Proposed Action would allow the airlines to use their existing and planned future fleet more efficiently within the terminal apron area. This Proposed Action would not result in upgauging of the future fleet mix (i.e., increased aircraft size) beyond what is currently forecast.

This Proposed Action

This Proposed Action would create dual taxiways between the concourses. However, creating dual taxilanes could be accomplished only if the distances between the concourses are widened. In light of the constraints of the airport boundaries, this Proposed Action would relocate the headhouse to the south, in existing parking lot P4, and would absorb a portion of Taxiway M into Delta's leasehold (see explanation under "Airside Apron" bullet below) to create additional aeronautical operations area. Under this Proposed Action, Terminals C and D would be demolished and consolidated into a single headhouse with four concourses. This Proposed Action would not change any other portions of the airfield runways or taxiways. Under the No Action Alternative, this Proposed Action will not be implemented, but the Central Terminal Building (CTB) Redevelopment Program will be constructed as approved.

This Proposed Action includes a series of projects divided into four functional areas—airside apron, terminal building, landside roadways and parking, and electrical capacity—which are depicted in Figure ES-1 and described below:

- Airside Apron—Under this Proposed Action, the airside apron around Terminals C and D would be reconfigured in compliance with Advisory Circular 150/5300-13A, *Airport Design*, including modification of standards requirements, while also enhancing airline efficiency, operational safety, and standards of service. By demolishing Building 99 (the ground service equipment [GSE] maintenance shop for American Airlines), relocating American Airlines' GSE storage elsewhere on the airport within an existing building, and reconfiguring the apron area, dual (two-way) taxilanes would be built, which would allow for optimal aircraft maneuvering and gating flexibility within the limited

space available, thereby reducing aircraft congestion and "gate-wait" delays.[3] In addition, there would be space available for restricted vehicle service roads (RVSR),[4] an air operations area (AOA) service road, a GSE fuel island, four remain overnight (RON) positions, and six hardstand aircraft deicing positions (of which all could be in use concurrently), with provisions to collect spent aircraft deicing fluid.

A portion of the current Taxiway M would be absorbed into Delta's leasehold, thereby changing this taxiway into a non-movement area, with the RVSR being relocated to the north. An agreement is being developed among the parties (Delta, PANYNJ, and the local FAA), whereby Delta will coordinate with the FAA when aircraft depart from Runway 31 to allow aircraft to exit the movement area via the taxilane on the Delta leasehold and then re-enter the movement area, in the event the taxilane is needed to alleviate aircraft crowding on either Taxiway A or B. A Memorandum of Understanding among the parties is under development and will be executed prior to any construction.

- Terminal Building—A new single terminal headhouse with four concourses (the East Terminal) would be constructed south of the existing terminals. The concourses would provide gating flexibility through 37 contact gate positions—27 gates for both airplane design group (ADG) II and ADG III aircraft and 10 gates for ADG IIIa aircraft (757-200W). The 1.1-million-square-foot building would be compliant with PANYNJ's *Sustainable Design Guidelines* and replace antiquated building heating and cooling systems. A four-story terminal headhouse would provide baggage claim on the first-floor arrivals level, ticketing on the second-floor departure level, security on the third-floor security level with a connection from the curbside check-in and East Garage, and Delta SkyClub, and mechanical/heating, ventilation, and air conditioning (HVAC) equipment on the top floor. Inside the terminal building, concessions areas, retail space, and other passenger amenities would enhance the traveling experience. There would be additional space for airline and airport support functions and a landside pedestrian connector to the previously approved CTB which is currently under construction. A unifying roof element would cover the headhouse, a portion of the East End Substation (EES), and landside connector (see "Landside Roadways and Parking" bullet). Since the landside connector would interfere with the Low Level Windshear Alert System (LLWAS) Site #4, the pole height would be increased to 150 feet. Two ramp control towers would be incorporated into Concourses E and F (one would have provisions to allow FAA controllers to function in the event of failure or evacuation of the air traffic control tower).

[3] Based on the Total Airport and Airspace Modeler (TAAM) results, in the year 2029, the proposed apron improvements would reduce average taxi time by 2.1 minutes compared to the No Action Alternative. Average delay (arrival and departure) would be reduced by 1.5 minutes over the No Action Alternative (see Appendix B).

[4] Restricted Vehicle Service Road is a marked road within the air operations area that is limited to secure vehicles such as maintenance, fire and rescue, fuel, baggage, freight, and aircraft service vehicles.

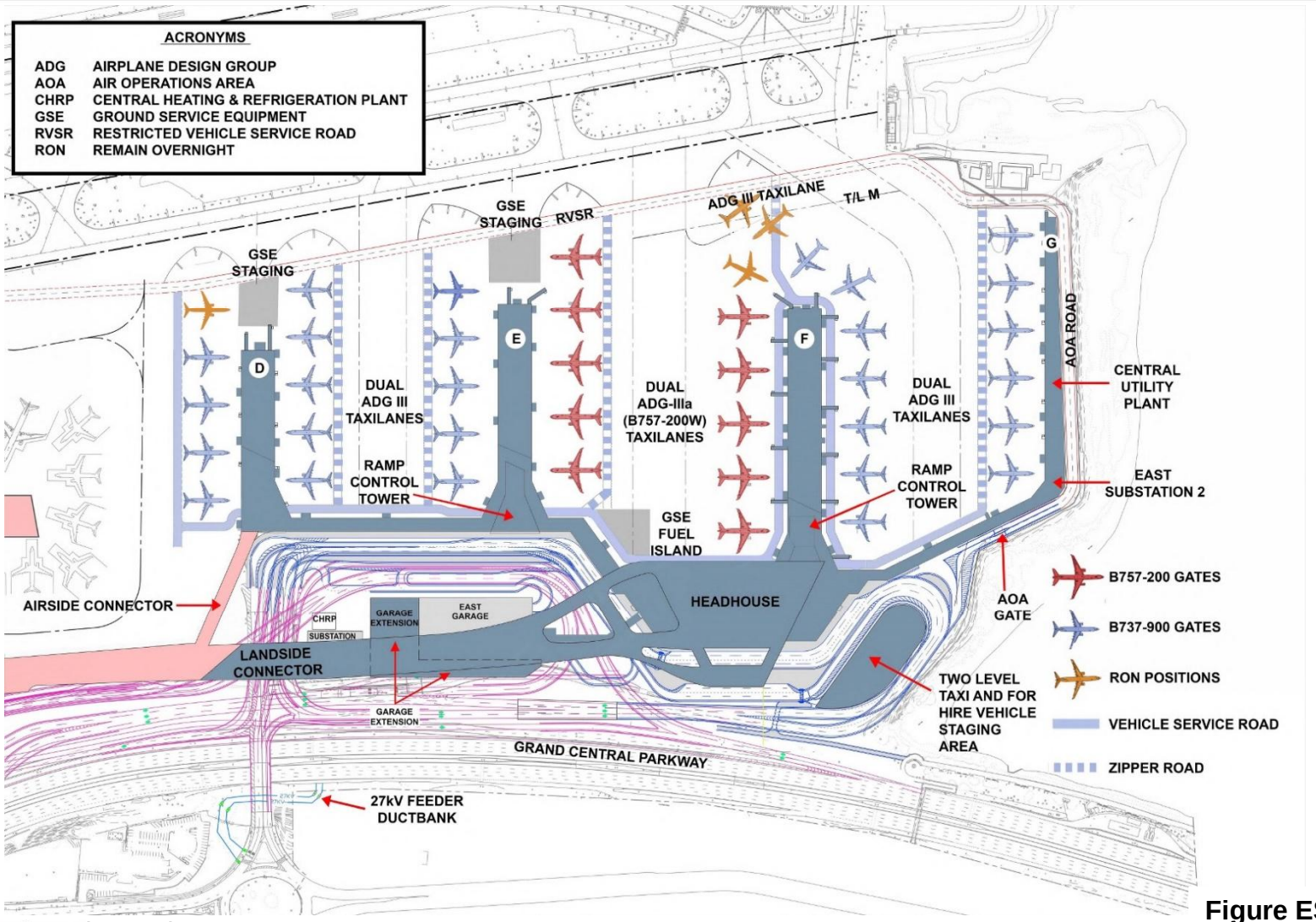


Figure ES-1

Prepared by: Corgan (May 2017)

LaGuardia Airport
East Side Reconfiguration

Legend
Future CTB Redevelopment
Proposed Action

Proposed Action

- Landside Roadways and Parking— The existing arrival and departure roadways directly in front of the new terminal would be reconfigured to support the shifting of the terminal building toward Grand Central Parkway. Proposed terminal frontage roads would connect to existing on-airport circulation and access roads or those already approved and under construction as part of the CTB Redevelopment Program. Two-level terminal roadway frontage would be constructed (at-grade frontage at the arrivals level and elevated frontage at the departures level) with multiple drop-off/pick-up and bypass lanes for both private and commercial vehicles. Two four-lane frontage areas in front of the headhouse would be separated by an island with provisions for curbside check-in. A pedestrian overpass equipped with elevators would provide access from the island, up to the security level within the headhouse, eliminating at-grade crosswalks. The East Garage would be expanded to 2,000 parking spaces in the final condition to mitigate the loss of parking within parking lots P4 (600 spaces) and P5 (850 spaces), and a pedestrian bridge would connect the garage to the new terminal. A two-level taxi and for-hire vehicle staging lot located east of the proposed headhouse that accommodates approximately 300 vehicles would serve the East Terminal and replace the existing taxi hold between Terminals C and D. At present, a taxi hold is contemplated in the unused grassy space between the roadways in front of the previously approved CTB. This temporary, 300-space taxi hold lot would be required since this Proposed Action would be constructed within parking lot P4, the area where the permanent taxi hold for the CTB was to be located at the completion of the CTB Redevelopment Program (i.e., under the No Action Alternative). A final location for the taxihold has not yet been determined.
- Consolidation of Operations—Both Delta and American Airlines operate from multiple terminals at LaGuardia Airport. American Airlines operates out of the CTB (Terminal B) and Terminal C, and Delta operates out of Terminals A, C, and D with exclusive use of Terminal A (also known as the Marine Air Terminal).[5] This is not unique to LaGuardia, since many major commercial airports allow airlines to operate from multiple terminals, which can require them to duplicate activities that are unnecessary for airlines operating from a single, consolidated facility. As a result of the CTB Redevelopment Program now under construction, American Airlines will have the opportunity to consolidate its operations in the new CTB and, when this Proposed Action is complete, Delta would have the opportunity to centralize all operations in its reconfigured terminal. If either or both of these operational consolidations occur, it can be expected that other carriers—by themselves or in combination with each other—may approach PANYNJ as lessor of the airport and seek permission to shift their operations to other gates or other terminals. This shift by other carriers can be expected, because the only way to accommodate projected flight activities, including passenger processing and flights, is to use all of LaGuardia Airport's gate and terminal capacity, including the six gates within Terminal A. Although the identity of the airline(s) that would shift to Terminal A is unknown, in an effort to demonstrate there would be no impact to the airfield associated with consolidation activities, a sensitivity analysis has been performed using an airline with a flight schedule and passenger load that can operate in Terminal A as currently configured. The results of this airside analysis appear in Appendix B, and demonstrate that the airfield impacts of this operational consolidation are negligible

[5] Terminal B will be referred to as the CTB throughout this document.

when measured against the current multiple terminal operations by Delta and American. On the landside, an evaluation of past and forecasted operational numbers at Terminal A, as well as known passenger travel patterns, indicate that past volumes would not be exceeded, and there would be no impact to on- or off-airport intersections (see Appendix E).

- Electrical Capacity— In order to support the additional electrical load of the larger terminal and updated amenities such as electric GSE, upgraded 400 Hz ground power and pre-conditioned air units at each gate, and charging stations for patron vehicles, a new electrical substation would be constructed. The new substation would be located on the roof of Concourse G of the proposed terminal, immediately south of the proposed central utility plant. It would be sized to meet the predicted additional load of this Proposed Action, at 12 megavolt ampere (MVA) or less. Connection to commercial service provided by Consolidated Edison (ConEdison) would be through duct banks installed under Grand Central Parkway as part of the airport's East End Substation (EES) construction as well as three new duct banks to be installed south of Grand Central Parkway and under the 102nd Street bridge, following the same path as those installed for the EES connection.

FAA is performing ongoing studies and analyses on the potential impacts of the proposed buildings and construction activities on the performance of FAA Navigational Aids (Navaids) such as the Instrument Landing System/Very High Frequency Omni-Directional Range, Airport Surface Detection Equipment Model X system, Remote Transmitter/Receiver, Low Density Radio Communications Link, and other communications infrastructure. The results of those studies will be forthcoming and, if necessary, relocation of certain Navaids (a federal action) will be added as part of this Proposed Action.

This Proposed Action would be constructed in phases over approximately 106 months, maintaining full operational capabilities as gating positions and portions of the terminal building are opened in conjunction with the demolition of other sections within the Terminals C and D areas. As needed, temporary facilities such as building spaces, enclosed walkways, roads, and utilities would be constructed in order to maintain safe and secure airport and airline operations. Subject to FAA's and other approvals, construction is expected to begin late spring or early summer 2017 and be effectively complete in mid-2024, with some elements of internal finishing construction continuing through early 2026. Peak construction for the CTB Redevelopment Program is estimated to occur in the second quarter of 2017, while the peak period for this Proposed Action would be two years later, during the third quarter of 2019.

Governor Cuomo's Airport Advisory Panel

On July 27, 2015, Governor Andrew Cuomo of New York announced the findings of an advisory panel he had created to address the airport's systemic weaknesses and deficiencies and to transform LaGuardia Airport into a modern, more efficient transportation facility. These recommendations were published in the *Report to the Governor from the Airport Advisory Panel: Guiding Principles for a Comprehensive Airport Master Plan* ("the Report to the Governor").[6] The various components of these proposed recommendations addressed very distinct aspirations. Each project would have its own purpose, functionality, and timeframe. Moreover, each would provide stand-alone benefits and could be

[6] *https://www.governor.ny.gov/news/governor-cuomo-unveils-vision-transformative-redesign-laguardia-airport;* Note that the report is not a formal airport master plan pursuant to and in accordance with FAA's Advisory Circular 150/5070-6B.

accomplished whether the others move forward. While preliminary planning efforts are underway to consider other components of the transformational redesign of the airport, this Proposed Action, along with the CTB Redevelopment Program, represent concrete, specific projects. The other components, including a potential hotel and ferry terminal, do not have identified funding sources and have not yet been the subject of sufficiently specific planning work to enable accurate and relevant NEPA analysis.

At LaGuardia Airport, the CTB Redevelopment Program is being designed, constructed, and operated by LaGuardia Gateway Partners, a Public-Private Partnership. After the NEPA process for that project was completed, the project received its final approval when the FAA issued its Record of Decision, as amended, in December 2015 and construction began. The PANYNJ expects it to be completed by 2021.

This Proposed Action, the project now under review, is a distinct improvement initiative identified in the Report to the Governor and endorsed by the Governor. Conceptually, this project had its origins when Delta initiated internal, preliminary design work to reconfigure the area that includes Terminals C and D in late 2015 into early 2016. Delta's goal was to determine if previously identified aeronautical deficiencies could be remedied in a reconfiguration project that would contribute to the Governor's vision for a more modern LaGuardia Airport. Thereafter, Delta and PANYNJ collaborated to develop this Proposed Action for which Delta will be responsible for funding design and construction. PANYNJ is the airport sponsor for the purposes of FAA requirements and is the lessee of the airport property from the City of New York.

PANYNJ is in the early stage of overseeing feasibility studies and other early analyses for a potential LGA AirTrain and an on-airport hotel. In February 2017, PANYNJ issued a Request for Proposal (RFP) for expert professional and technical services to provide preliminary design services for the initial design of an AirTrain connection from the airport to the Metropolitan Transportation Authority (MTA) transit complex at Willets Point, and other potential support facilities. Services would be provided in the following two phases:

- Phase 1 would consist of as-needed preliminary design services for initial design of the AirTrain. Phase 1 is expected to be completed within nine months, with the release of an RFP for the AirTrain (if authorized) in the first half of 2018.
- Phase 2 would consist of as-needed technical advisory services during design, procurement, construction, and installation of the AirTrain. Phase 2 services would begin only if PANYNJ's Board of Commissioners authorizes the construction of an AirTrain.

The nature, extent, and design of the AirTrain connection—as well as other elements of the Report to the Governor for which preliminary planning and feasibility studies have yet to be finalized—are not determinable or reasonably foreseeable. In the event that these components become ripe for decision, they will be subject to their own appropriate NEPA analyses, which will be required to consider the cumulative impacts of the CTB Redevelopment Project and this Proposed Action.

This Final EA analyzes the cumulative impacts of the CTB Redevelopment project and this Proposed Action, particularly with respect to construction impacts (see Chapter 5).

Environmental Consequences and Mitigation

This Final EA identifies and describes the reasonably foreseeable environmental consequences of this Proposed Action and the No Action Alternative. Several other alternatives were considered during the planning phases of the project, but were eliminated from further detailed environmental review. This analysis focuses on resources that would be directly, indirectly, or cumulatively affected by this Proposed Action, and the mitigation measures that will reduce adverse effects that cannot be avoided. Analysis of the impacts from construction– for air quality, noise and traffic –was performed for all components of this Proposed Action (apron, terminal and roadways). Because of the overlap with construction of the FAA-approved CTB Redevelopment Program, particular attention has been given to the cumulative impacts from construction of the two projects.

The execution of an action of this nature presents many challenges at LaGuardia Airport because of space constraints. Delta developed and analyzed multiple construction scenarios to present differing courses of action to complete this Proposed Action in an efficient and expeditious manner. Delta developed one scenario that would complete this Proposed Action in 96 months (the shortest, most expeditious approach), and another scenario that would complete this Proposed Action in 106 months (the longest but most-efficient approach). The shorter 96-month schedule was used because that scenario would produce the higher, more-intense environmental consequences of the two approaches. However, Delta intends to complete this Proposed Action pursuant to the 106-month schedule. The 106-month schedule is expected to produce impacts below those analyzed in this Final EA. In addition, this approach allows Delta the flexibility to accelerate some aspects of the project without further review as the full measure of environmental impacts will have already been assessed and evaluated:

- Air Quality – Air emissions analysis was performed for both the construction phase and the operations phase of this Proposed Action. The results indicate that project-related emissions during and after construction would be well below applicable *de minimis* thresholds. Best management practices, control measures, and emissions reduction strategies to reduce or minimize project-related emissions are included in this Proposed Action (see Section 6.2). No additional air quality mitigation measures will be needed to avoid a significance determination.
- Biological Resources – In general, wildlife (particularly birds) and habitat that is a wildlife attractant are incompatible with airport operations. Probable impacts to biotic resources include the temporary displacement of local indigenous species of wildlife and plants and the permanent loss of no more than 1 acre of urban landscaping with limited habitat value. On-airport landscaping would continue to be maintained to deter wildlife activities. There would be no in-water activities as part of this Proposed Action and no impact to New York City trees.
- Climate – This Proposed Action would minimize its individual impact on climate through efficient building design, aircraft apron and taxiway design, and commitment to meeting Leadership in Energy and Environmental Design (LEED) certification for new construction (minimum rating of Silver). In addition, this Proposed Action will adhere to the version of the PANYNJ *Design Guidelines – Climate Resilience* effective on the date of the lease, including the calculation of a flood protection level that incorporates potential sea level rise. Construction activities would result in the burning of fossil fuels by construction equipment and construction-related traffic and the resulting greenhouse gas

emissions are presented as carbon dioxide equivalents (CO_2e). After construction, the CO_2e emissions from the new modern and clean central utility plant (i.e., cooling towers, chillers, boilers) would be reduced, as would emissions from aircraft as a result of the increased efficiencies on the reconfigured apron area. Overall, operations would result in a decrease of approximately 3,900 tons per year of CO_2e emissions (estimated for the year 2029).

- Coastal Resources – This Proposed Action is located within a federally designated coastal zone but would not adversely affect coastal resources. Except for coastal floodplains, the project site is devoid of coastal features identified in the New York City Waterfront Revitalization Program (WRP) as resources to be considered. PANYNJ determined that there would be no foreseeable adverse effects on coastal resources and submitted a Federal Consistency Assessment Form to the New York State Department of State (NYSDOS) and a WRP Consistency Assessment Form to the New York City Department of City Planning (NYCDCP) for concurrence. In an email dated April 20, 2016 the Waterfront Open Space Division, on behalf of the New York City Coastal Commission, indicated that this Proposed Action would be consistent with the WRP policies and the local program (see Appendix A). NYSDOS determined that this Proposed Action would meet NYSDOS's general consistency concurrence criteria (letter dated May 16, 2016; see Appendix A).
- Hazardous Materials, Pollution Prevention, and Solid Waste – During demolition of the terminals and Building 99 (GSE maintenance shop for American Airlines), hazardous materials and waste would likely be encountered. Testing determined that Building 99 does not contain asbestos or lead paint. Delta and PANYNJ will implement appropriate safety procedures, remediation strategies, and removal protocols to handle and store regulated hazardous substances. After construction, the airport's *Spill Prevention Control and Countermeasures (SPCC) Plan* for all the elements of this Proposed Action will be updated.
- Historic Resources – No historic properties listed or eligible for listing on the National Register of Historic Places are located within the area of potential effect (APE). The APE is the geographic area or areas within which this Proposed Action may cause changes in the character or use of historic properties, if any such properties exist. The east concourse of Terminal C was built in the early 1980s, and the west concourse was built by US Airways in 1992. Delta constructed Terminal D in 1983. Building 99 was built in 1990. Based on the age of the structures and the change in context as a result of the CTB Redevelopment Program, the New York State Historic Preservation Office (SHPO) has "no further concerns regarding standing buildings and structures."[7] A Phase IA Archaeological Survey Report identified one area of archaeological sensitivity within the APE. Since proposed utility installation in that area may potentially adversely impact archaeological resources, SHPO concurred that archaeological monitoring of the area during construction would be appropriate. An archaeological monitoring protocol was approved by SHPO in a letter dated May 15, 2017 (see Appendix A).

  Compliance with Section 106 of the National Historic Preservation Act, including evaluation of existing resources in consultation with SHPO, provides adequate assurance that this Proposed Action, with

[7] Letter from Phillip A. Perazio (SHPO) to Allison Rachleff (AECOM) dated March 21, 2016 (see Appendix A).

mitigation measures, would not cause or contribute to a significant adverse impact on historic resources.

- Land Use – In terms of land use compatibility, this Proposed Action would be located exclusively within existing airport property or transportation right-of-way. As such, the project would be consistent with existing land uses. This Proposed Action is also consistent with relevant federal, state, and local plans.
- Noise – Construction equipment noise levels are expected to be well below New York State and New York City significance thresholds, due primarily to the distance between the proposed construction activities and the locations of the nearest noise sensitive receptors. Although distance would attenuate most construction noise, the contractor would still be required to prepare a Construction Noise Control Plan, which would include various noise control measures that would reduce noise impact on the surrounding neighborhoods. The highest noise levels would be associated with pile-driving activities; therefore, pile-driving noise attenuation measures would be recommended.

  After construction, there would be no projected increase in noise (from aircraft or vehicular traffic) when compared with the No Action Alternative since this Proposed Action would not increase the number of passengers, change the number of aircraft operations, or modify the fleet mix.
- Socioeconomic Impacts – This Proposed Action would not relocate homes or businesses, cause a substantial loss in the community tax base, or disrupt local transportation patterns. There would be no disproportionate adverse effects on any minority or low-income population, or disproportionate health and safety risks to children. With or without this Proposed Action, LaGuardia Airport would continue to generate economic activity. However, implementation of this Proposed Action would provide additional economic benefits through direct expenditures of construction labor, materials and supplies, and indirect impacts from construction spending. The added economic activity would not cause or contribute to significant induced development or create an appreciable change in public service demands.
- Traffic and Transportation – Construction-related traffic impacts on airport access roads and other local roads surrounding the airport were assessed in consultation with New York City Department of Transportation (NYCDOT) using the *New York City Environmental Quality Review (CEQR) Technical Manual* criteria. As indicated by site conditions, a temporary traffic improvement (reallocation of green light time) may be needed to maintain or improve traffic levels of service (LOS) during construction.[8] Signal timing adjustments at one intersection would be recommended as a temporary measure to reduce delays and to ensure the most efficient traffic signal operations at the study intersections during periods of construction activity. An airport-wide traffic operations study identified three intersections that, after construction, would require mitigation in order to meet *CEQR Manual* traffic impact criteria. The improvements (green light time reallocation, travel lane reconfiguration, and installation of a traffic signal) may be required to accommodate the shifting traffic patterns as a result of reconfigured passenger and employee parking and taxi hold lots. With

[8] Refers to LOS criteria in the Highway Capacity Manual (HCM). These improvements are included in the assessment of this Proposed Action.

these improvements in place, no significant construction or operational traffic impacts are projected to occur.

- Visual Effects – Light emissions from the construction and operation of this Proposed Action would not cause or contribute to off-site annoyances near the airport. No new light emissions would be introduced into a previously unaffected area. This Proposed Action would alter the view of the terminal area on the east side of the airport as seen by drivers along Grand Central Parkway, by pedestrians walking along the residential streets south of Grand Central Parkway east of 102nd Street, and by employees and guests of the multiple hotels located along Ditmars Boulevard. The current image is an inconsistent set of aging airport buildings set back from Grand Central Parkway and separated by a substation, garage, surface parking lot, and terminal access roads. The proposed image is a row of modern airport buildings connected via a pedestrian bridge, with complementary architecture and a unifying roof element that organizes the central and eastern sections of the airport campus and provides visual continuity. Visual impact assessments and renderings of the proposed terminal from different perspective views (Section 5.13.2) demonstrate that there would be no adverse impacts to visual resources.
- Water Resources – This Proposed Action would not cause or contribute to a significant adverse impact on surface water or groundwater resources during or after construction. Construction-induced changes in stormwater runoff are likely to occur, but the changes would be minor and the adverse effects mitigated through water quality best management practices (BMPs) and control measures. After construction, the overall impact on water quality would be a positive one due to the installation of subsurface water quality devices/oil-water separators and aircraft deicing fluid collection system, which are not in place today and could not be reasonably implemented without new construction.
  - Wetlands – Tidal wetlands are located at the north and east end of the airport. No wetlands are present within the project site; however, certain elements of the project would occur within the New York State-regulated tidal wetlands adjacent area (within 150 feet). The existing level of disturbance and the presence of a confining feature between the wetlands and the airport would preclude any adverse impacts to wetlands from occurring. Based on consultation with New York State Department of Conservation (NYSDEC), a tidal wetlands permit would be required but would not be contingent on any mitigation measures.[9]
  - Floodplains – This Proposed Action would encroach upon a Federal Emergency Management Agency (FEMA) designated coastal floodplain. Because the majority of the airport is located within the floodplain, there is no feasible and prudent build alternative that would avoid the floodplain. Where development within the floodplain cannot be avoided, this Proposed Action includes flood hazard mitigation strategies to minimize impacts on human safety and minimize future damages or costs to equipment. The proposed construction within the floodplain would meet a Design Flood Elevation in compliance with American Society of Civil Engineers (ASCE) 24-14 Standards and PANYNJ *Design Guidelines – Climate Resilience*. In areas or facilities that cannot be raised above the flood protection elevation, "dry flood-proofing" of critical structures would be incorporated into the design. Based on U.S. Department of Transportation policy, a "significant

[9] Phone conversation between Lisa Horowitz (NYSDEC) and Stacy Eastman (AECOM) on April 13, 2016 (see Appendix A).

encroachment" on the floodplain would not occur because the probability of loss of human life is low, this Proposed Action would be designed to minimize future extensive damage or costs, and there would be no notable adverse impacts on the floodplain's natural and beneficial features.

- Cumulative Impacts – Cumulative impacts occur over time, from one or more projects, and can result in impacts to important resources. In accordance with FAA's guidelines for considering cumulative effects under NEPA, the potential incremental effects of other past, present, and reasonably foreseeable projects were considered regardless of the agency or individual responsible for such other projects. Because of the close spatial and temporal proximity of the FAA-approved CTB Redevelopment Program construction to this Proposed Action, this Final EA paid particular attention to the potential cumulative impacts of the CTB Program and this Proposed Action, particularly with respect to construction impacts. Peak construction for the CTB Redevelopment Program would occur two years before peak construction of this Proposed Action. After thorough review of potential cumulative impacts that might occur as a result of this Proposed Action, no significant cumulative impacts have been identified.

Agency Coordination

Appendix A: Agency Consultation, provides correspondence with federal, state, and local agencies consulted with during the EA process. The agencies contacted include the following:

- Federal Agencies
  - Federal Aviation Administration
  - National Marine Fisheries Service
  - U.S. Environmental Protection Agency
  - U.S. Fish and Wildlife Service
- State Agencies
  - New York State Department of Environmental Conservation
  - New York State Office of Parks, Recreation, and Historic Preservation
  - New York State Department of State, Division of Coastal Resources
  - New York State Department of Transportation
- Local Agencies
  - New York City Landmarks Preservation Commission
  - New York City Department of City Planning
  - New York City Department of Transportation

Public Involvement

Both Delta and PANYNJ are committed to ensuring that stakeholders are informed about this Proposed Action and its benefits and potential impacts. The Draft EA's public review and comment period served

the public involvement requirements of the following special purpose law triggered by this Proposed Action: Executive Order 11988, *Floodplain Management*, and its amendment, Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*.

The Draft EA was made available for public review and comment for 42 days, from April 3 until May 15, 2017. A Notice of Availability of the Draft EA was printed in the *Daily News (Queens edition), Newsday*, *Queens Chronicle, Queens Gazette, Queens Time Ledger, Queens Ledger, El Especialito, The National Herald, Sing Tao Daily, Queens Courier*, and *Queens Tribune* newspapers. The document was available at PANYNJ's Administration Building at LaGuardia Airport (Hangar 7, 2nd Floor), PANYNJ's office in Manhattan (4 World Trade Center, 150 Greenwich Street, 18th Floor), and two branches of the Queens Borough Public Library (35-51 81st Street in Jackson Heights and 41-17 Main Street in Flushing) as well as on PANYNJ's website (*www.panynj.gov/about/studies-reports.html*). Interested parties were permitted to submit comment cards, emails, or other written testimony throughout the public comment period.

A Public Information Session and Public Hearing was held at the Sheraton LaGuardia East Hotel on May 3, 2017. At the Public Information Session (3:00 p.m. – 6:00 p.m.), Delta and PANYNJ staff answered questions regarding this Proposed Action and the Draft EA. At the Public Hearing (from 7:00 p.m. to 9:00 p.m.), individuals were given the opportunity to publicly comment on the Draft EA. Only two formal comments were made at the meeting and were recorded by a stenographer. All comments received during the public comment period have been addressed in this Final EA (see Appendix G).

1 Introduction and Background

Delta Air Lines (Delta) on behalf of the Airport Sponsor—the Port Authority of New York and New Jersey (PANYNJ)—prepared this Final Environmental Assessment (Final EA) to summarize the potential environmental effects of the following actions (collectively referred to as this Proposed Action):

- Reconfigure the airside apron associated with LaGuardia Airport's Terminals C and D.
- Construct a new terminal building.
- Expand the East Garage.
- Construct a new electrical substation.

This Final EA was prepared in accordance with Federal Aviation Administration (FAA) policies and procedures for implementing the National Environmental Policy Act of 1969 (NEPA), as amended, as regulated by the Council on Environmental Quality (CEQ).[10,11] These policies and procedures include FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures.* Adherence to NEPA is required because the project would require the FAA to approve a change to LaGuardia Airport's Airport Layout Plan (ALP).

1.1 LaGuardia Airport

Located approximately eight miles east of midtown Manhattan in New York City's borough of Queens (Figure 1-1), LaGuardia Airport is situated along the waterfront of Flushing Bay and Bowery Bay, and borders the neighborhoods of Astoria/Steinway, Jackson Heights, and East Elmhurst. The City of New York owns and PANYNJ operates LaGuardia Airport under a lease agreement that runs through 2050.[12] The airport opened in 1939, and PANYNJ took control in 1947.

LaGuardia Airport plays a vital role in the National Airspace System (NAS), providing nonstop service to over 75 airports in the United States and Canada. Almost 28.5 million passengers used LaGuardia Airport in 2015, and there were approximately 360,000 aircraft takeoffs and landings. Twelve airlines operate scheduled service out of the airport, with Delta serving as the dominant carrier, flying more passengers and operating more flights than any other airline at the airport. The airport also plays an important role in the economy of the region. Airport operations are major contributors to the regional economy in terms of employment, salaries, and spending. LaGuardia Airport employs about 12,000 people and contributes almost $17.7 billion in economic activity to the New York/New Jersey region by generating about 129,100 job-years and $6.4 billion in annual wages and salaries.[13]

[10] P.L. 91-190, 42 U.S.C. 4321-4347, et. seq., *National Environmental Policy Act*, 1969, Section 102(2)(c), as amended.

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

[12] In 2004, PANYNJ renewed its lease agreements with the City of New York that ensures their continued operation of LaGuardia Airport and John F. Kennedy International Airport through the year 2050.

[13] *Airport Traffic Report*, Port Authority of New York and New Jersey (2015); *http://www.panynj.gov/airports/pdf-traffic/ATR_2015.pdf*

Source: NYS Dept. of State, NYC DCP, NYC DoITT, ESRI
Prepared by: AECOM (April 2016)

Figure 1-1

LaGuardia Airport
East Side Reconfiguration

Location Map

Since 1968, FAA has imposed operational limits, or slot controls, at LaGuardia Airport. As a way to avoid extreme congestion at the airport, FAA issued an order placing an hourly limitation on the number of takeoffs and landings (operations) for most of the week (Monday – Friday, 6:00 a.m. – 9:59 p.m., and Sunday, 12:00 p.m. – 9:59 p.m.). FAA recently extended the order, limiting operations at LaGuardia Airport through October 27, 2018.[14] Although slots were removed from Newark Liberty International Airport (EWR) as of October 2016, the airport still remains a Level II coordinated airport. At John F. Kennedy International (JFK), the FAA also extended the order limiting operations to 6:00 a.m. – 10:59 p.m., seven days per week, through October 27, 2018. Unlike JFK and EWR Airports—which have large-scale facilities designed to serve international passenger and cargo operations—short- to medium-range domestic passenger services (which employ smaller aircrafts than the longer domestic and international flights) primarily use LaGuardia Airport.

LaGuardia Airport's two relatively short intersecting runways (both 7,000 feet long) and restrictions on aircraft weight also constrain the use of larger aircraft.

The airport property consists of 680 acres, which include two intersecting runways, four passenger terminals, a roadway network, and parking facilities. Airport- or airline-support functions (e.g., FAA navigational aids and lighting, aircraft fuel storage, equipment storage and maintenance) use the remainder of the airport's property. Two parcels are located on airport property west of the terminal area: one parcel includes a flight kitchen and Ingraham's Mountain (an undeveloped area being used for employee parking for ongoing airport projects) and the other parcel contains Elmjack Little League ball fields. Figure 1-2 presents the ALP Pen and Ink Change #14, submitted to FAA for approval on February 21, 2017.[15]

1.1.1 Terminal A

Delta currently uses Terminal A (located on the west side of the airport) exclusively for shuttle service to Chicago and Washington, DC. The original airport terminal building—called the Marine Air Terminal—served international flights, using large sea planes through the 1940s. In 1995, the National Register of Historic Places listed the Marine Air Terminal. The New York City Landmarks Preservation Commission designated the terminal as an interior and exterior landmark. In 1986, an annex to Terminal A was constructed to provide a concourse with six gates for narrowbody jets. (The annex is not considered historic.)

1.1.2 Terminal B/Central Terminal Building

Terminal B, also known as the Central Terminal Building (CTB), is the largest of the four terminals and is used by most air carriers serving LaGuardia Airport. The CTB has 835,000 square feet of floor space with four concourses and 35 contact gates. The CTB originally connected to a five-level parking garage (P2) with 2,700 spaces, which was demolished to accommodate construction of the new CTB.

[14] FAA, *Operating Limitations at New York LaGuardia Airport*, *Federal Register* Vol. 81, No. 101, 33126-33128, Docket No: FAA-2016-12220 (May 25, 2016).

[15] A "pen and ink" change to an existing approved ALP is an interim revision showing proposed construction that is minor in scope.

The aging terminal no longer meets current operational requirements (e.g., new aircraft, increased security needs) and higher air traffic and passenger demands. PANYNJ developed plans to redevelop the existing passenger terminal, airside apron, landside roadways, and parking garage within the central terminal area. FAA issued a Finding of No Significant Impact/Record of Decision (FONSI/ROD) for a proposed design on December 10, 2014.

Through competitive solicitation, the PANYNJ's Board of Commissioners selected LaGuardia Gateway Partners (LGP) on May 28, 2015, for a Public-Private Partnership (PPP). LGP is designing, constructing, financing, and operating the new CTB.[16] Following their selection, LGP advanced a revised terminal design that changed the building geometry to a main headhouse with two island terminals connected by elevated pedestrian walkways over the aircraft apron area.

In November 2015, PANYNJ published the *Technical Report: Proposed Design Changes to the Central Terminal Building Redevelopment Program at LaGuardia Airport*, which analyzed and compared potential impacts associated with the proposed design changes against the potential impacts of the original 2014 design approved in the 2014 FONSI/ROD. FAA prepared and approved a Written Reevaluation and Record of Decision (WR/ROD) of the 2014 EA on December 30, 2015.

The redeveloped CTB will have the same number of gates as the existing terminal, but terminal space will increase to approximately 1.3 million square feet. The airside apron will be reconfigured to provide gating flexibility and multiple entrance points to apron areas to reduce surface congestion and delays. The design includes an airside connector to Terminal C. The approved project will replace existing facilities with new facilities that are more efficiently designed and located to both meet the latest federal standards for airport safety and security and to accommodate forecasted passenger demand at acceptable levels of service. Construction on the terminal began in 2015 and is expected to continue through 2021.

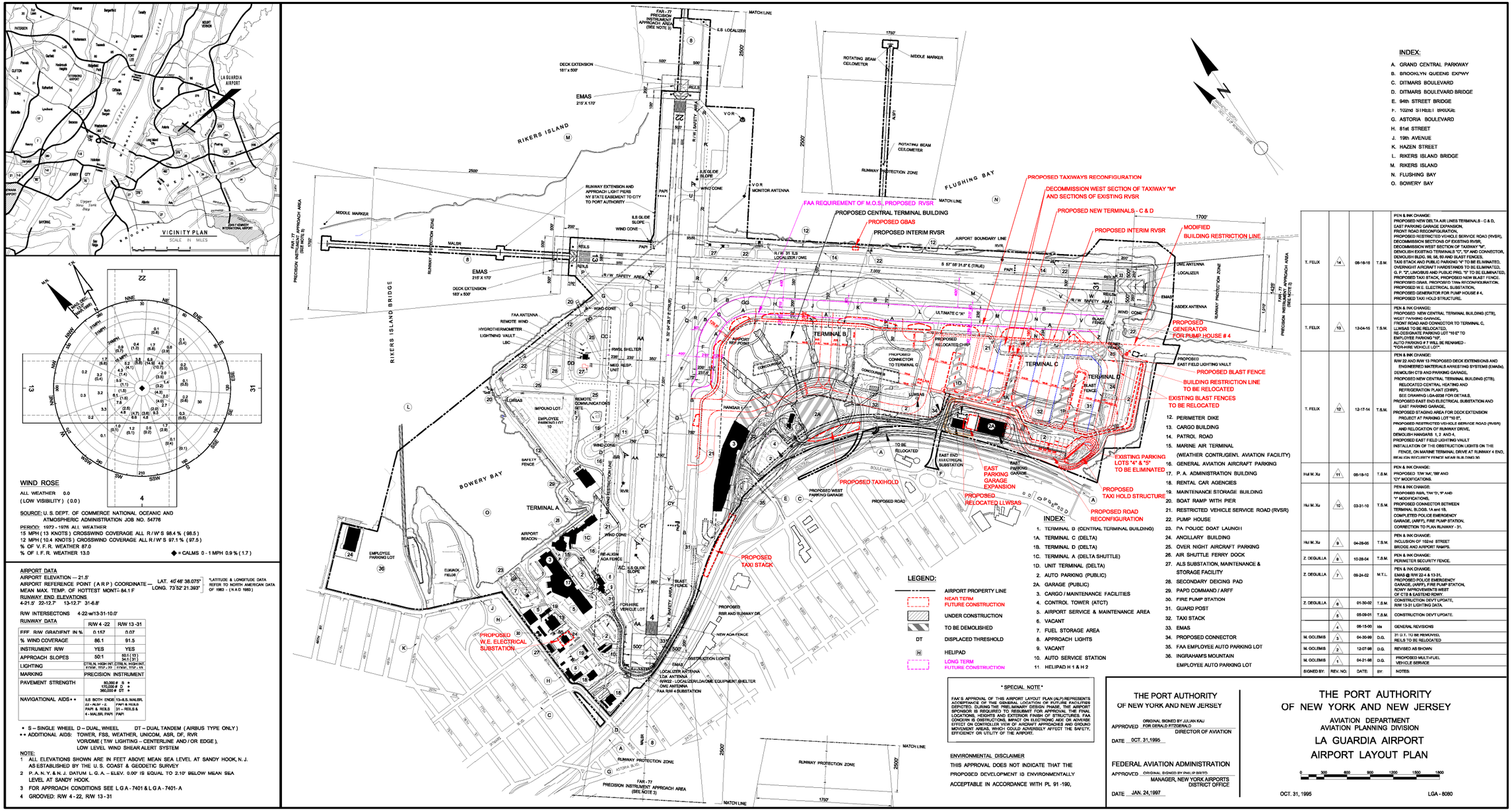
1.1.3 Terminal C

The two concourses that comprise Terminal C were constructed separately. The east concourse was constructed in the early 1980s, and the west concourse was built in 1992. The two-story terminal is composed of 400,640-square feet with 14 contact gates that can accommodate narrowbody jets, seven contact gates for smaller regional jets, and an additional three hardstand positions. Formerly known as the US Airways Terminal, Delta took over the lease for Terminal C in 2011 as part of a plan to create hub operations at LaGuardia Airport.[17] American Airlines operates six of the contact gates and the three hardstand positions on the west side of the terminal. A six-level parking garage (East Garage) with 1,100 spaces was recently constructed directly in front of Terminal C.

[16] Vantage Airport Group Ltd leads LaGuardia Gateway Partners. Construction firms Skanska and Walsh Construction, and Meridiam, an equity investment firm, are also part of the consortium, along with a design joint venture made up of HOK, WSP | Parsons Brinkerhoff and partners.

[17] Delta Air Lines operates all gates in Terminal A; American Airlines and Delta Air Lines operate out of Terminal C; Delta Air Lines and WestJet operate out of Terminal D.

Figure 1-2. Airport Layout Plan Change #14



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1.1.4 Terminal D

Delta constructed Terminal D, located at the east end of the airport, in 1983. The terminal comprises two stories and 275,460 square feet of floor space. Delta operates four hardstands and all but one of the 10 contact gates. WestJet operates out of the remaining gate. The gates are designed for a mixed use of regional and narrowbody aircraft, with a few that are capable of handling B-757/767 type aircraft. To meet Delta's current flight schedule, portable adapters[18] are used to facilitate boarding smaller aircraft.

1.2 Delta Air Lines and Terminals C and D

Delta is a major U.S. airline, headquartered in Atlanta, Georgia. The airline serves more than 180 million annual passengers and operates over 15,000 daily flights worldwide. New York City is one of Delta's domestic hubs and is served by LaGuardia and JFK Airports. The airline also operates out of EWR. All three airports are critical components of Delta's nationwide domestic program, and Delta has significantly invested in them to demonstrate commitment to the New York/New Jersey market.

From JFK, Delta serves 92 destinations (47 international) and operates 223 peak-day departures.[19] Since 2011, Delta has invested $1.4 billion to expand Terminal 4 at JFK—the first phase of which opened in May 2013, with an extension added in January 2015.[20, 21]

From LaGuardia Airport, Delta serves 63 destinations (two international) and has 274 peak-day departures.[22] In 2012, Delta expanded operations at the airport to include Terminal C. Since 2014 Delta has invested over $270 million in Terminals C and D to include a new Delta Sky Club, expanded security lanes, five new sit-down restaurants, an expansive food/beverage hall, additional retail stores, new baggage screening and renovated seating and circulation areas. In addition, a 630-foot enclosed walkway opened in 2012, which allows passengers to walk between the two terminals without having to re-enter through security.[23] However, these changes did not improve the airside aprons—the pavement and gates serving Terminals C and D. Refer to Figure 1-3 for existing layout of Terminals C and D.

[18] Devices to make connection/fill in the gap between the jetbridge and the aircraft when the aircraft is too small to connect with the jetbridge.

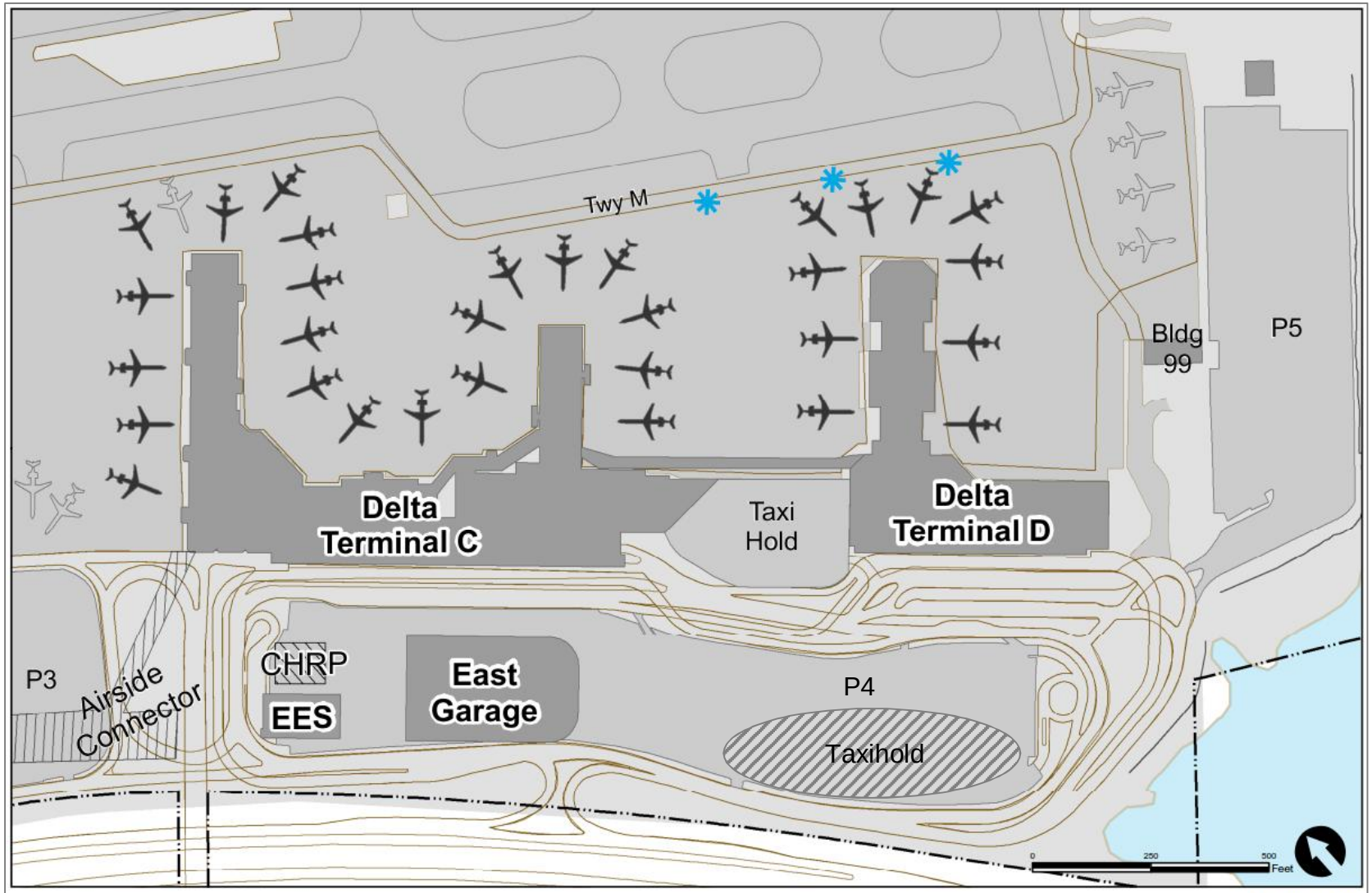
[19] *http://news.delta.com/new-york-city-john-f-kennedy-international-airport-and-laguardia-airport*

[20] *http://news.delta.com/taking-flight-building-delta-s-brand-new-york-and-london*

[21] The Federal Aviation Administration signed the Finding of No Significant Impact for JFK Terminal 4 EA on July 21, 2010; and approved the Categorical Exclusion for Phase II of Terminal 4 Development Project on April 2, 2013.

[22] *http://news.delta.com/new-york-city-john-f-kennedy-international-airport-and-laguardia-airport*

[23] The Federal Aviation Administration approved the Categorical Exclusion for the Terminal C/D Connector on March 10, 2010.


Twy M
Bldg 99
P5
Delta Terminal C
Taxi Hold
Delta Terminal D
P3
Airside Connector
CHRP
EES
East Garage
P4
Taxihold
0
250
500
Feet
Prepared by: AECOM (January 2017)
Figure 1-3
LaGuardia Airport
East Side Reconfiguration
Legend
Airport Lease Line
Existing Building
Future CTB Construction
Deicing Position
Contact Gate
Hardstand Gate
Existing Terminals C and D

1.2.1 Deficiencies

Despite Delta's recent upgrades to the terminal facilities—including security, baggage screening, concessions, and retail—Terminals C and D provide passengers with a level of service that is less than acceptable (i.e., less than LOS C). The aging terminals are obsolete and inefficiently distributed facilities. Space limitations and duplicative operations across two terminals hinder any efforts to significantly improve level of service at the check-in hall, security areas, circulation hallways, gate hold areas, and concessions. The check-in hall has inadequate depth from the face of the vestibule to the face of check-in counters (only 30 to 40 feet) to accommodate circulation, kiosks, and queuing, resulting in overcrowding and constrained passenger flows. There are four separate security checkpoints between the two terminals, located in narrow spaces that provide little space for queuing ahead of the checkpoint and recomposure upon exiting, and offering no flexibility to manage passengers during peak hours or accommodate changing technology. Concession space (e.g., retail within island kiosks, bars/restaurants) and overlapping support functions (e.g., trash removal, deliveries) constrain the circulation hallways. Using guidelines developed by the International Air Transport Association, gate hold areas function at LOS E, providing only 7 to 8.5 square feet per passenger (10.8 square feet per passenger is needed for LOS C).[24] Concession space and public restrooms are undersized and infrequently spaced.

Although the current gates are capable of meeting forecasted demand, the airside apron surrounding Terminals C and D is constrained, limiting the size of aircraft that can be parked at specific gates. Of the 38 active positions at Terminals C and D, 31 are contact positions and seven are remote hardstands (i.e., loading areas not connected to the terminal by a jet bridge). Remote hardstand positions result in extended boarding and deplaning times—since passengers must walk or be bused to the aircraft—and additional delays caused by increased vehicle activity on the airfield. Terminals C and D can accommodate a few airplane design group (ADG) IV aircraft (consisting of B-757/767 type aircraft), and the remaining contact positions can handle ADG II through differing types of ADG III aircraft. Special handling (i.e., use of portable adapters inside the jet bridge to accommodate bridge loading) is required whenever ADG II aircraft are gated. As demonstrated by the Total Airspace and Airport Modeler (TAAM) results, single-lane taxilanes between the concourses impede aircraft circulation and are a major source of congestion-related delay at LaGuardia Airport.[25] These extended flight delays can disrupt airlines' schedules throughout the day and at other airports throughout the NAS as aircraft and crews are not in place for subsequent flights and delayed aircraft occupy gates meant for other scheduled flights.[26] In addition, there is limited space for ground-service equipment (GSE), and snow melting and aircraft deicing operations. There are seven hardstand positions proximate to the two terminals that must accommodate active boarding by either busing or walking passengers to the aircraft from the terminal buildings.

On the landside, the terminal curb frontages regularly back up because of conflicts between personal and commercial vehicles accessing them during peak hours of the day. The inner lanes get blocked by stopped vehicles, while maneuvering vehicles slow down in the outside lane looking for a space to stop. There are

[24] *Guidelines for Air Capacity/Demand Management*, Third Edition, ACI/IATA, 1996.

[25] Terminal C & D Redevelopment, TAAM Analysis, New York LaGuardia Airport (January 2017); see Appendix B.

[26] *Flight Connections and Their Impacts on Delay Propagation*, Center for Advanced Aviation System Development, The MITRE Corporation. *https://www.mitre.org/sites/default/files/pdf/wang_delay.pdf*

also multiple at-grade crosswalks from the outer curbs to the terminal entrances that stop the flow of traffic and pose a safety risk to pedestrians.

If no improvements are made to the Terminal C and D apron area, there will be continued airside delays with a deterioration in the level of service at LaGuardia Airport, as Delta continues to reduce the number of single-class ADG II aircraft in its fleet, replacing them with larger and more efficient dual-class ADG II regional jets and Boeing 717 aircraft (see Terminal C & D Redevelopment, TAAM Analysis, New York LaGuardia Airport in Appendix B). This would increase the number of passengers impacted by delays. Expanding the taxilanes and apron are required to provide gating flexibility and reduce apron congestion. Eliminating active hardstand gate positions will improve passenger experience (e.g., boarding directly from the terminal instead of walking on the apron or being bused to the aircraft) and safety. Expanding processing capacity within the terminal, such as at security screening, increasing terminal amenities, and replacing and updating the building systems, will allow Delta to provide acceptable levels of service (LOS C or better) to its LaGuardia Airport passengers.

1.3 Delta-US Airways Agreement

In 2011, Delta and US Airways agreed to and completed a slots swap. The two airlines exchanged landing and takeoff rights at Reagan National Airport (Arlington, VA) and LaGuardia Airport. As part of this agreement, Delta took over the leasehold of Terminal C at LaGuardia Airport. By assuming the leasehold for Terminal C, Delta also inherited a medley of operational challenges that needed to be addressed. These challenges included building maintenance, customer processing, Transportation Security Administration (TSA) baggage screening, TSA passenger screening, and aeronautical inefficiencies.

In response, Delta engaged a team of architects and airport planners to develop a framework to integrate Terminal C into its operations at Terminal D. The team prioritized the challenges and developed an implementation program that initially included all items except the aeronautical improvements. Those initial elements included expanded security lanes, new baggage screening, additional restaurants and retail stores, and a post-security connection between the two terminals. Delta realized the aeronautical issues were not under their immediate control and would need to wait until the resolution of a larger ongoing discussion about the airport's future.

1.4 Governor Cuomo's Airport Advisory Panel

As Delta was addressing the non-aeronautical deficiencies in the complex, New York's Governor Cuomo announced the recommendations of an advisory panel he had created to address the airport's systemic weaknesses and deficiencies as a major transportation facility. On July 27, 2015, the Governor announced his goal to transform LaGuardia Airport into a modern, more efficient transportation facility. These recommendations were published in the *Report to the Governor from the Airport Advisory Panel: Guiding Principles for a Comprehensive Airport Master Plan* ("the Report to the Governor").[27] These recommendations addressed distinct aspirations. Each recommendation has its own purpose, functionality, and timeframe. Moreover, each would provide stand-alone benefits and could be

[27] *https://www.governor.ny.gov/news/governor-cuomo-unveils-vision-transformative-redesign-laguardia-airport; Note that the report is not a formal airport master plan pursuant to and in accordance with FAA's Advisory Circular 150/5070-6B.*

accomplished whether the others moved forward. While preliminary planning efforts are underway to consider other components of the transformational redesign of the airport, this East Side Reconfiguration at LaGuardia Airport project (this Proposed Action), along with the CTB Redevelopment Program, represent concrete-specific projects. The other components, including a potential hotel and ferry terminal, have no identified funding sources and have not yet been the subject of sufficiently specific planning work to enable accurate and relevant NEPA analysis. The CTB Redevelopment Program is being designed, constructed, financed, and operated by LGP. After the NEPA process for that project was completed, the project received its final approval when the FAA issued its Record of Decision, as amended, and construction began. The PANYNJ expects it to be completed in 2021.

This Proposed Action is a distinct improvement initiative identified in the Report to the Governor and endorsed by the Governor. Conceptually, this Proposed Action originated in late 2015 into early 2016 when Delta reconvened the planning team to determine if the aeronautical deficiencies that had been deferred after the Delta-US Airways Agreement could be remedied in a reconfiguration project that would contribute to the Governor's vision for a more modern LaGuardia Airport. Thereafter, Delta and PANYNJ collaborated to develop this Proposed Action for which Delta will be responsible for funding design and construction.[28]

PANYNJ is in the early stage of overseeing feasibility studies and other early analyses for a potential LGA AirTrain and an on-airport hotel. In February 2017, the agency issued a Request for Proposal (RFP) for expert professional and technical services to provide preliminary design services for the initial design of an AirTrain connection from the airport to the Metropolitan Transportation Authority (MTA) transit complex at Willets Point, and other potential support facilities. Services would be provided in two phases. Phase 1 would consist of as-needed preliminary design services for initial design of the AirTrain and Phase 2 would consist of as-needed technical advisory services during design, procurement, construction, and installation of the AirTrain. Phase 2 services would begin only if PANYNJ's Board of Commissioners authorizes the construction of an AirTrain. Phase 1 is expected to be completed within nine months, with the release of an RFP for the AirTrain (if authorized) in the first half of 2018. Therefore, the nature, extent, and design of this component—as well as other elements of the Report to the Governor—for which preliminary planning and feasibility studies have yet to be finalized, are not determinable or reasonably foreseeable at the present time. In the event that these components become ripe for decision, they will be subject to their own appropriate NEPA analyses that will be required to consider the cumulative impacts of the CTB Redevelopment Project and this Proposed Action.

1.5 Description of this Proposed Action

To improve aircraft operations, reduce delays, and improve reliability, the apron area around Terminals C and D must be reconfigured. This Proposed Action would create dual taxilanes between the concourses. However, creating dual taxilanes would require widening the distances between the concourses. In light of the constraints of the airport boundaries, this Proposed Action would relocate the headhouse to the south into existing Parking Lot 4, would extend the terminal eastward into Parking Lot 5, and would absorb

[28] The Port Authority of New York and New Jersey is the airport sponsor for the purpose of Federal Aviation Administration requirements and is the lessee of the airport property from the City of New York.

a portion of Taxiway M into Delta's leasehold (see explanation under the following Airside Apron section) to create additional aeronautical operations areas. Under this Proposed Action, Terminals C and D would be demolished and consolidated into a single headhouse with four concourses. This Proposed Action would not involve any other changes to the airfield runways or taxiways and, with the exception of minor duct bank installation immediately south of Grand Central Parkway, would be located entirely on existing airport property.

This Proposed Action includes separate projects that would be divided into four functional areas: (1) airside apron, (2) terminal building, (3) landside roadways and parking, and (4) electrical capacity.

Figure 1-4 shows an overlay of this Proposed Action on existing conditions, and Figure 1-5 depicts the specific elements (described below).

FAA is performing ongoing studies and analyses on the potential impacts of the proposed buildings and construction activities on the performance of FAA Navigational Aids (Navaids) such as the Instrument Landing System/Very High Frequency Omni-Directional Range, Airport Surface Detection Equipment Model X system, Remote Transmitter/Receiver, Low Density Radio Communications Link and other communications infrastructure. The results of those studies will be forthcoming and, if necessary, relocation of certain Navaids (a federal action) will be added as part of this Proposed Action.

1.5.1 Airside Apron

The airside apron around Terminals C and D would be reconfigured in compliance with several criteria: the new airside apron must meet FAA geometric design standards (Advisory Circular 150/5300-13A, *Airport Design*), including modification of standards requirements, while also satisfying airline operating procedures. The project would include the following elements:

- Dual parallel taxilanes, or two points of entry, between the concourses
- Vehicle service roads to allow ground service equipment (GSE) access to deliver goods, services, air cargo, and flight kitchen supplies to parked aircraft
- Four remain overnight(RON) positions
- An air operations area service road and gate from the landside roadways, along the eastern edge of the airport property, connecting to the restricted vehicle service road (RVSR)[29]
- A GSE fuel island located between the headhouse and Concourse E

[29] Restricted Vehicle Service Road is a marked road within the air operations area that is limited to secure vehicles such as maintenance, fire and rescue, fuel, baggage, freight, and aircraft service vehicles.

Figure 1-4. Overlay of Proposed Action

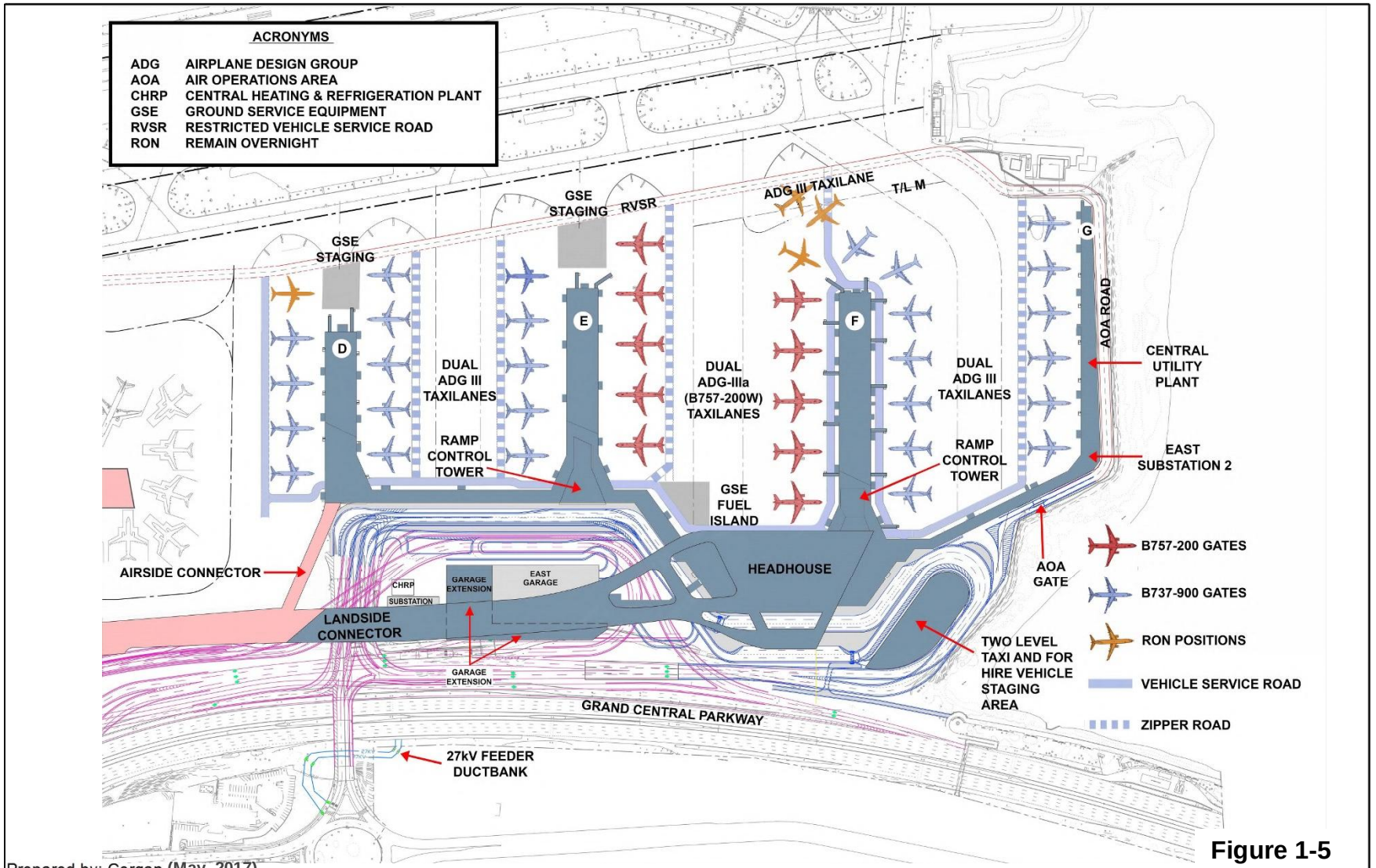


Figure 1-5

Prepared by: Corgan (May 2017)

LaGuardia Airport
East Side Reconfiguration

Legend
Future CTB Redevelopment
Proposed Action

Proposed Action

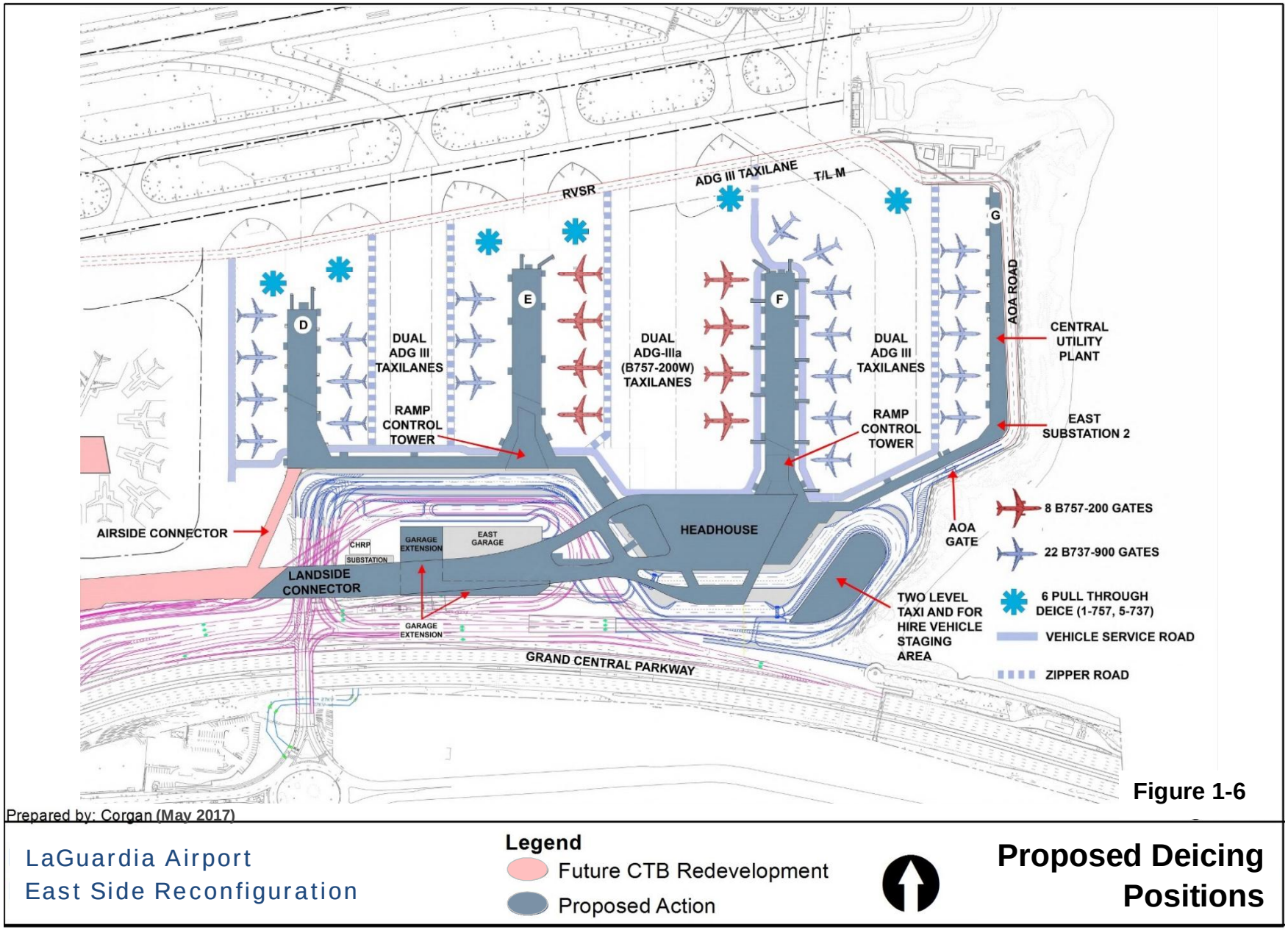


Figure 1-6

Prepared by: Corgan (May 2017)

LaGuardia Airport
East Side Reconfiguration

Legend
Future CTB Redevelopment
Proposed Action

Proposed Deicing Positions

- Six hardstand/aircraft deicing positions in close proximity to the concourses (on non-movement area; see Figure 1-6), all of these positions capable of being used concurrently and provisions would be made to collect spent aircraft deicing fluid[30]
- Provisions for hydrant fueling (i.e., hydrant fuel lines and hydrant pits) within the apron area only.[31]

Reconfiguration of the apron would require demolition of Building 99 (GSE maintenance for American Airlines), located on the far east side of the existing apron associated with Terminal D. The GSE maintenance shop would be consolidated into an existing facility within the airport property.

TAAM is an industry tool from Jeppesen that models airspace and airports to facilitate planning, analysis and decision making. Based on the TAAM results, in the year 2029 (build year plus five years), the proposed apron improvements would reduce average taxi time by 2.1 minutes compared to the No Action Alternative.[32] This reduction in aircraft taxi time would decrease carbon dioxide equivalents emissions (the typical representation of greenhouse gases) by 764 tons per year and reduce fuel usage by 240 short tons per year. Average delay (arrival and departure) would be reduced by 1.5 minutes over the No Action.

Movement/Non-Movement Areas

Movement Area: Runways, taxiways, and other areas used for taxiing; entry onto this area requires approval from the air traffic control tower.

Non-Movement Area: Loading ramps, maintenance ramps, and parking areas; movement of aircraft and vehicles is the responsibility of the pilot, aircraft operator or airport management.

To optimize the airfield and provide for the maximum efficiency to be gained through the incorporation of dual taxilanes and vastly improved gating flexibility, a portion of the current Taxiway M would be absorbed into Delta's leasehold, thereby changing this taxiway into a non-movement area, with the RVSR being relocated to the north. A portion of the current Taxiway M would be converted into an ADG III taxilane connecting the taxilanes between Concourses G and F with the taxilanes between Concourses F and E, allowing taxiing aircraft to bypass Taxiways A and B and enter into or out of these two alleys when arriving or departing. Furthermore, an agreement is being developed between Delta, PANYNJ, and the local FAA, whereby Delta will coordinate with the FAA when aircrafts are departing on Runway 31 to allow aircraft to exit the movement area via the taxilane on the Delta leasehold and then re-enter the movement area in the event the taxilane is needed to alleviate

[30] Two taxiway entrance "throats"—one located north of Concourse E and one located north of Concourse D—would be added to provide access from four of the aircraft deicing positions (two at the end of Concourse E and two at the end of Concourse D) to Taxiways A and B during snow events only. Those taxiway entrances would not be used during normal airport operations. The other aircraft deicing positions would access the taxiways via the regular taxilanes.

[31] The cost of installing the hydrant fuel lines and hydrant pits would be incurred as part of this Proposed Action, when the aircraft apron is being reconstructed, to allow for construction of a potential hydrant system sometime in the future. Completion of the system would be deferred until after further investigation of site constraints, design alternatives, environmental impacts, operational effects, construction costs, and financial feasibility of installing the fuel transfer line from the storage tanks located on the west side of the airport. If necessary, separate NEPA documentation will be prepared prior to beginning construction on any portion of the underground hydrant fuel system outside of the project limits of this Proposed Action.

[32] Terminal C & D Redevelopment, TAAM Analysis, New York LaGuardia Airport (January 2017); see Appendix B.

aircraft crowding on either Taxiway A or B. A Memorandum of Understanding (MOU) among the parties is under development and will be executed prior to construction.

Managing aircraft movements on the airfield is a challenging task, since air traffic controllers have a difficult job under normal operating conditions, and their jobs become even more difficult when conditions arise that affect the normal flow of arriving and departing aircraft. While the conversion of Taxiway M from a movement to non-movement area will be addressed administratively with the execution of the MOU and approval of the ALP, there remain operational challenges from the loss of this movement area that are unquantifiable. Challenges exist primarily when Runway 31 departures are combined with occasional severe weather or groundstops in other parts of the country, thereby affecting certain departing aircraft that need to be removed from the aircraft taxi queue. However, Runway 31 is rarely used for departures during a severe weather event. While the added gate flexibility and the new dual taxilanes between three of the four concourses in the new East Terminal would provide greater flexibility that would resolve many of the current operational challenges, there may be some residual impacts due to the loss of this movement area on days with particularly challenging airfield operations.

1.5.2 Terminal Building

Existing Terminals C and D would be demolished and a new single terminal headhouse with four concourses (the East Terminal) would be constructed south of the existing terminals. The concourses would include 37 contact gate positions: 27 gates for both ADG II and ADG III aircraft and 10 gates for ADG IIIa aircraft (757-200W).[33] The building would be compliant with PANYNJ's *Sustainable Design Guidelines* and replace antiquated building heating and cooling systems. Within approximately 1.1 million square feet, the terminal and concourses would include standard amenities such as check-in positions (counters and kiosks), bag claim units, and operations and support space, with additional area dedicated to concessions, retail areas, airline clubs, gate holdrooms, and secure circulation areas. In addition, the following services would be included:

- Curbside check-in with convenient access to the security level
- Checked-bag handling system with a centralized in-line baggage screening
- Consolidated passenger screening checkpoints
- Two ramp control towers (one would have provisions to allow FAA controllers to function in the event of failure or evacuation of the air traffic control tower)[34]
- Centralized control center for building controls (life, safety and security systems)

A landside pedestrian connector between the proposed East Terminal and the new CTB would also be constructed, providing access to the East Garage. The design would include a unifying roof element that would span the proposed headhouse, roadways, and the landside connector to the CTB. Since the landside

[33] The design would allow for the addition of one contact gate by downgauging six planned 737-900 gates on Concourse G to seven 717 gates.

[34] A ramp control tower is typically operated by the airlines or airport authority, controlling aircraft within the immediate terminal apron. Once aircraft transition to the nearest active taxiway, responsibility for directing aircraft movements switches to the Federal Aviation Administration personnel within the Airport Traffic Control Tower.

connector would interfere with the Low Level Windshear Alert System (LLWAS) Site #4, the pole height of the LLWAS would be increased to 150 feet.

The four-story terminal headhouse would consist of a first-floor arrivals level with baggage claim and inbound baggage handling, a second-floor departure level with ticketing, a third-floor security level that includes connections from the curbside check-in and East Garage, and a top floor for Delta's Sky Club as well as mechanical/heating, ventilation, and air conditioning equipment. The concourses would go from three stories to two stories as passengers move from the third-floor security level down to the gating areas, passing by concessions (on both the second and third floors) on the way from the headhouse. Arriving passengers would exit the concourses on the second floor, before descending to the baggage claim on the first floor, then out to the terminal frontage with passenger pick-up and high-occupancy vehicle loading areas.

1.5.3 Landside Roadways and Parking

The existing arrival and departure roadways directly in front of the new terminal would be reconfigured to support the shifting of the terminal building toward Grand Central Parkway. Proposed terminal frontage roads would connect to the on-airport circulation and access roads currently under construction. Two-level terminal roadway frontage would be constructed (at-grade frontage at the arrivals level and elevated frontage at the departures level) with multiple drop-off/pick-up and bypass lanes for both private and commercial vehicles. Two four-lane frontage areas in front of the headhouse would be separated by an island with provisions for curbside check-in. A pedestrian overpass from the island, up to the security level within the headhouse would eliminate at-grade crosswalks. The East Garage would be expanded to a total of 2,000 parking spaces in the final condition and one pedestrian bridge would connect the garage to the new terminal and the landside connector to the CTB. A two-level taxi/for-hire vehicle staging lot serving the East Terminal would replace the existing taxi hold between Terminals C and D. Since the proposed headhouse would be constructed in existing Parking Lot #4, in the area where the permanent taxi hold lot for the future CTB was to be located at the completion of the CTB Redevelopment Program, the approved location of the CTB taxi hold must be relocated. At present, an area has been contemplated in the previously unused grassy space between roadways in front of the future CTB. This location would temporarily provide the requisite access for empty taxis arriving at the airport or circulating from CTB Departures to enter the hold area, and access from the hold area to the CTB Arrivals level with minimal circulation on the airport roadway network. The temporary taxi hold lot would accommodate 300 vehicles.

1.5.4 Consolidation of Operations

Both Delta and American Airlines operate from multiple terminals at LaGuardia Airport. American operates out of the CTB (Terminal B) and Terminal C, and Delta operates out of Terminals A, C, and D with exclusive use of Terminal A (also known as the Marine Air Terminal).[35] This is not unique to LaGuardia Airport, since at many major commercial airports, airlines operate from multiple terminals, which can require them to duplicate activities that are unnecessary for airlines operating from a single, consolidated

[35] The original Marine Air Terminal building (excluding the concourses, which were added later) is listed on the National Register of Historic Places and is a New York City Landmark.

facility. At LaGuardia Airport—as a result of the CTB Redevelopment now under construction—American Airlines would have the opportunity to consolidate its operations in the new CTB, and when this Proposed Action is complete, Delta would have the opportunity to centralize all operations in its reconfigured terminal. If either or both of these operational consolidations occur, other carriers—by themselves or in combination with each other—may approach the PANYNJ (as lessor of the airport) and seek permission to shift their operations to other gates or other terminals. This shift by other carriers can be expected because the only way to accommodate projected flight activities, including passenger processing and flights, is to use all of LaGuardia Airport's gate and terminal capacity, including the six gates within Terminal A. The identity of the airline(s) that would shift to Terminal A is unknown; however, to demonstrate there would be no impact to the airfield associated with operational consolidation activities, a sensitivity analysis has been performed using an airline with a flight schedule and passenger load that can operate in Terminal A as currently configured. Appendix B provides the results of this airside analysis, which demonstrates that the airfield impacts of this colocation would be negligible when measured against the current multiple terminal operations by Delta and American Airlines. On the landside, an evaluation of past and forecasted operational numbers at Terminal A, as well as known passenger travel patterns, indicate that historic volumes would not be exceeded and there would be no impact to on- or off-airport intersections (see memo in Appendix E).

1.5.5 Electrical Capacity

To support the additional electrical load of the larger terminal and updated amenities, as well as the electrical charging stations for patron vehicles in parking lots and the full deployment of airport-wide electric ground-service equipment (eGSE), a new electrical substation would be constructed. The new substation would be located on the roof of Concourse G of the proposed terminal, immediately south of the proposed central utility plant. The proposed substation would be sized to meet this Proposed Action's predicted additional electrical load (12 MVA or less). Connection to commercial service provided by Consolidated Edison (ConEdison) would be through duct banks installed under Grand Central Parkway as part of the airport's East End Substation (EES) construction as well as three new duct banks to be installed south of Grand Central Parkway and under the 102nd Street bridge, following the same path as those installed for the EES connection.[36]

1.5.6 Construction

This Proposed Action would be constructed in phases over approximately 106 months (almost 9 years), maintaining full operational capabilities as gating positions and portions of the terminal building are opened in conjunction with the demolition of other sections within the area of Terminals C and D. As-needed, temporary facilities such as building spaces, enclosed walkways, roads, and utilities would be constructed to maintain safe and secure airport and airline operations. Subject to FAA's and other approvals, construction would begin late spring or early summer of 2017. Peak construction for the CTB Redevelopment Program would occur in the second quarter of 2017, while the peak period for this Proposed Action would be two years later, during the third quarter of 2019.

[36] *Final Environmental Assessment for the East End Substation and East Garage at LaGuardia Airport* (Port Authority of New York and New Jersey, February 2013); Finding of No Significant Impact signed February 5, 2013.

Shortly after work began on the CTB Redevelopment Program, it was widely reported that on-airport traffic conditions had worsened. Some of these temporary impacts were caused by construction at the airport, which required passengers and employees to adjust to new and unfamiliar traffic patterns. In addition, some of the planned traffic mitigation measures had yet to take effect. There has been notable improvement from those first weeks of construction, especially during the last quarter of 2016, when traffic mitigation measures implemented by PANYNJ and LGP began to take full effect.[37] The traffic command center—referred to as the Landside Transportation Management Command Center (LTMCC)—and monitoring system is the foundation of the mitigation strategy.

At the LTMCC, Port Authority Traffic Engineering, LGA Operations, the Port Authority Police Department, and LGP are co-located in a central facility to manage traffic conditions in real time. The LTMCC uses on-site traffic monitoring cameras and vehicle-detection sensors—in association with anticipated passenger flight activity and off-airport roadway network conditions—to monitor traffic and report on traffic conditions at designated periods while the airport is operating on weekdays and Sundays. Based on direction from the LTMCC, mitigation measures are implemented as part of active traffic management. Direction is given to the Port Authority Police Department, which is stationed at designated posts throughout the roadway system. Real-time communications to other landside transportation stakeholders also occurs; for example, the Port Authority-Agency Operations Center reaches out to the NYS/NYC Departments of Transportation Joint Traffic Management Center, and airport ground transportation entities. Additionally, PANYNJ continuously monitors vehicular, taxi, parking, and transit performance and submits daily and monthly reports through the Port Authority-Agency Operations Center to various internal and external stakeholders. These reports evaluate the need for and effectiveness of transportation management plan strategies and identify the operational impacts of the project to facilitate as-needed changes to work zones or detours.

This Proposed Action would build on the steps already taken by the PANYNJ to mitigate potential adverse traffic conditions, and would feature the following critical traffic monitoring and mitigation to minimize delay and prevent back-ups:

- Procure additional traffic monitoring cameras and install them along roadway frontages to track real-time traffic conditions.
- Establish a separate traffic monitoring facility to collaborate with the LTMCC and ensure timely reaction to any traffic-related incidents (congestion, accidents, disabled vehicles, etc.).
- Install static and dynamic signage throughout the roadway system that would provide up-to-date information to passengers and drivers.
- Retain a traffic management firm throughout the construction term that would manage curbside traffic, expediting loading and unloading in order to avoid back-ups.

[37] The Port Authority of New York and New Jersey's Board of Commissioners selected the LaGuardia Gateway Partners team to design, build, and operate the new Central Terminal Building. Vantage Airport Group Ltd. leads the team. Construction firms Skanska and Walsh Construction, and Meridiam (an equity investment firm) are also part of the consortium, along with a design joint venture made up of HOK, WSP | Parsons Brinkerhoff, and partners.

Holistic strategies would optimize traffic circulation based on the traffic dynamics of that hour, with consideration to impacts throughout the airport landside roadway network. These mitigation measures would evolve during this Proposed Action, since the on-the-ground conditions themselves would change and evolve to reflect the various stages of construction.

1.6 Required Land Use/Environmental Permits

The following land use or environmental permits may be required prior to construction of this Proposed Action:

- New York State Department of Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002)
- NYSDEC – Environmental Conservation Law (ECL) Article 17 Titles 7 & 8 Industrial SPDES Surface Discharge Permit for groundwater treatment and discharge from temporary construction dewatering
- NYSDEC - ECL Article 15 Title 15 Long Island Well Temporary Dewatering Permit
- NYSDEC - ECL Article 19 Air State Facility Permit
- Air permits from New York City Department of Environmental Protection
- 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*
- Stormwater Pollution Prevention Plan and Notice of Intent (submitted to NYSDEC at least 30 days prior to construction)
- Concurrence with New York State and New York City Waterfront Revitalization Program Coastal Zone Consistency Assessment Forms
- Tidal Wetlands Permit from NYSDEC pursuant to the Tidal Wetlands Act, Environmental Conservation Law Article 25, 6 NYCRR Part 661, with concurrence from U.S. Army Corps of Engineers
- New York City Department of Transportation review and approval of proposed traffic improvements at several local intersections for construction conditions

There would be no discretionary City action requiring analysis pursuant to the Rules of Procedure for City Environmental Quality Review. This Proposed Action is consistent with existing land uses as well as relevant federal, state, and local plans.

1.7 Requested Federal Action and Timing

The Federal Action is FAA approval of revisions to the ALP and the implementation of this Proposed Action as depicted in Figure 1-4. The ALP reflects the proposed terminal redevelopment and the NAS facilities (also known as air navigation facilities).

Subject to FAA's decision on this EA, appropriate State and City approvals, ALP approval, and funding approvals, construction is expected to begin late spring or early summer of 2017 and last approximately

nine years, with a substantial portion of the work complete by mid-2024. Some internal finishing construction elements would continue through early 2026.

1.8 Document Content and Organization

This Final EA contains all the content required by FAA Order 1050.1F and includes several attached appendices that provide detailed technical information to supplement material in the body of the document. The document is organized as follows:

- Chapter 2 discusses the Purpose and Need for this Proposed Action.
- Chapter 3 identifies and describes the Alternatives considered.
- Chapter 4 discusses the Affected Environment.
- Chapter 5 identifies the potential Environmental Consequences of this Proposed Action and No Action Alternatives.
- Chapter 6 discusses Mitigation measures that would be taken to reduce potential harm.
- Chapter 7 discusses the Public Involvement elements.
- Chapter 8 provides the List of Preparers.
- Chapter 9 lists the References used to prepare the Final EA.
- Appendices
  - Appendix A – Agency Consultation
  - Appendix B – Total Airspace and Airport Modeler (TAAM) Report
  - Appendix C – Air Quality and Noise Impact Analysis Memorandum
  - Appendix D – Phase IA Archaeological Survey Report
  - Appendix E –Traffic Study Reports
  - Appendix F – Supporting Data
  - Appendix G – Public Involvement

2 Purpose and Need

This East Side Reconfiguration Project (Proposed Action) would improve aircraft operations, reduce delays, improve customer service, and provide greater gating flexibility for the airlines operating out of Terminals C and D at LaGuardia Airport. Reconfiguring the airside facilities within the constrained airport property would necessitate the existing Terminals C and D to be relocated. The reconfiguration of the existing airfield and concourse layout would allow Delta Air Lines (Delta) to address deficiencies in the building and airfield infrastructure and terminal security features and to implement needed improvements to improve passenger level of service (LOS) to an acceptable rating of "C" or higher. In addition, a new terminal would contribute toward achieving Governor Cuomo's goal for a comprehensive, modern, and unified airport design.

The goal of this Proposed Action is to resolve existing airfield deficiencies (i.e., single-width taxilanes, hardstand gate positions, and severely constrained gates with insufficient clearance between aircrafts) by widening the distances between the concourses to allow for dual taxilanes and by increasing concourse space to allow for improved gating flexibility and contact gates for all live positions. Although the current terminals meet the latest federal standards for airport safety and security, replacing the existing Terminals C and D and ancillary facilities with newly designed facilities would comfortably accommodate those federal standards and the forecasted passenger demand at acceptable levels of service. Since LaGuardia Airport is a slot-controlled airport, aircraft operations will not increase and will continue to be handled by existing runways and taxiways. Instead, this Proposed Action would allow Delta to more efficiently use their existing and planned future fleet within the terminal apron area. This Proposed Action would not result in upgauging of the future fleet mix (i.e., increase aircraft size) beyond what is currently forecast.

2.1 Statement of Purpose and Need

The purpose of this Proposed Action is to improve aircraft operations and reduce delays to enable the airlines to safely and effectively meet passenger demand at acceptable levels of service by the following:

- Improve airline efficiency and operational safety on the airside apron through a reconfigured apron with additional maneuvering space and increased gating flexibility.
- Provide a modern terminal building with increased energy efficiency, improved passenger processing (check-in, security, etc.), additional concessions and retail options, and sufficient electrical capacity to provide reliable service.
- Improve traffic circulation and flow along the terminal's landside roadways and accommodation of vehicle parking by extending the existing garage.

This Proposed Action is needed because of the following:

- LaGuardia Airport has average delays of over 15 minutes, resulting in residual delays that affect airline networks and other airports, which in turn negatively affect the National Airspace System and poor passenger experience (i.e., delayed arrivals or missed connections).[38]
- To comply with the Tarmac Delay Rule (U.S. DOT consumer rule entitled "Enhancing Airline Passenger Protections," effective April 29, 2010) without taking significant operational penalties, airlines using Terminals C and D require a facility with flexible gating options and multiple apron ingress and egress points that do not presently exist.[39]
- The current ramp layouts do not include dual taxilanes, independent aircraft deicing operations, or aircraft gating flexibility.
- The airside layout cannot be reconfigured without impacts to the terminal buildings and roadways because of constrained airport property that is surrounded by water to the north, east, and west, and Grand Central Parkway to the south.

This Proposed Action would serve the public interest by meeting the air transportation needs of the Federal Aviation Administration (FAA), Port Authority of New York and New Jersey (PANYNJ), airlines serving LaGuardia Airport Terminals C and D, Transportation Security Administration (TSA), and air passengers. The following sections discuss those needs.

2.1.1 Airline Efficiency and Operational Safety

Purpose

As with all other aspects of aviation operations, the primary driver and obligation of the airlines is to ensure safe operations. However, weather or other constraints often compromise the efficiency and fluidity of operations that maintain safety. Carriers operating at Terminals C and D in particular suffer delays caused by the obsolete, inadequate airside design and layout. Conceptually, an aircraft apron should provide maximum efficiency and operational safety, and enable an airline to satisfy its standard of service. Aircrafts should be able to maneuver efficiently and safely around the apron area in accordance with clearance dimensions contained in FAA Advisory Circular 150/5300-13A: *Airport Design*. There should also be adequate space for ground-service equipment and other vehicles, as well as provisions for facilities and services needed to improve ramp operations such as snow melters and areas for aircraft deicing. Aircraft deicing facilities should be located close to the departure runway to minimize the taxiing times between the start of

> Aircraft Apron
>
> A defined area on an airport intended to accommodate aircraft for purposes of loading and unloading passengers or cargo, refueling, parking, or maintenance.
>
> FAA Advisory Circular 120-57A: *Surface Movement Guidance and Control System*

[38] Terminal C & D Redevelopment, TAAM Analysis, New York LaGuardia Airport (January 2017); see Appendix B.

[39] *https://www.transportation.gov/airconsumer/enhancing-airline-passenger-protections-baggage-and-other-consumer-issue*

treatment and takeoff and to avoid changing weather conditions when aircrafts have extra-long taxi routes.[40] Delays occur when these features do not exist or are available only in limited measure.

Aircraft parking stands should be designed for the full range of potential aircraft in order to provide gating flexibility across all gates. This Proposed Action would provide sufficient clearances to allow aircraft of various sizes to maneuver effectively at any given position. Although this Proposed Action would not affect the forecasted demand and fleet mix at the terminals, this Proposed Action would increase the number of available contact gates by eliminating hardstand gates.[41] Increasing the number of gates capable of handling larger aircraft would provide operational flexibility, reduce congestion during the busiest times, and vastly improve the customers' level of service. Delta's announcement in early 2017 that it would eliminate MD88 and MD90 aircraft from LaGuardia is customary and usual for an airline as decisions are made on optimizing aircraft utilization and fleet mix. Since the MD88 and MD90 aircraft that are being removed from the airport will be replaced with similar sized aircraft, this announcement has no impact on the Proposed Action as the new terminal facilities have been designed with the flexibility to accommodate a full range of aircraft types.

Table 2-1 presents LaGuardia Airport derivative aviation forecast through the year 2033. The derivative forecast provides the aircraft fleet mix, the time of day for operations (flights), and departure stage lengths required for modeling the Day-Night Average Sound Level (DNL) contours as part of the airport's 14 CFR Part 150 Study. The forecast is consistent with what was assumed for the future build condition in the CTB Redevelopment Program Final EA and Written Reevaluation/ROD.[42] Table 2-2 illustrates the existing and proposed gating capability for Terminals C and D and the proposed East Terminal.

Table 2-1. LaGuardia Airport Aviation Forecast

Year	Passengers	Operations	FAA 2014 TAF – Operations	% Difference in Operations
2014	26,697,364	363,315	370,375	1.9%
2015	27,404,368	367,448	374,551	1.9%
2016	27,831,886	371,662	378,764	1.9%
2021	30,161,066	380,132	387,234	1.8%
2023	30,991,583	380,970	388,072	1.8%
2028	32,672,118	380,970	388,072	1.8%
2033	34,096,341	380,970	388,072	1.8%

Source: "Derivative Aviation Activity Forecast Memorandum," *LaGuardia Airport 14 CFR Part 150 Study* (March 28, 2016)

[40] Federal Aviation Administration Advisory Circular 150/5300-14C, *Design of Aircraft Deicing Facilities* (August 7, 2013).

[41] Hardstands are remote loading areas for passenger enplaning and deplaning used to supplement terminal gates.

[42] FAA approved the FONSI/ROD on December 10, 2014 and the Written Reevaluation/ROD on December 30, 2015.

Table 2-2. Existing and Proposed Gating Capability at Terminals C and D

Maximum Aircraft Type	Available Seats	Existing Terminals C and D	Proposed East Terminal
767-400	246	1	—
757-300	224	3	—
757-200	180	2	10
737-900	180	8	27
737-800	160	1	—
737-700	113	1	—
A321	192	2	—
A320	150	4	—
717-200	110	4	—
CRJ-900	76	10 (6 hardstands)	—
CRJ-700	65	1	—
CRJ-200	50	1 (1 hardstand)	—
Total Gates	Contact:	31	37
	Hardstand:	7	0
Total Maximum Seat Capacity:		5,331	6,660

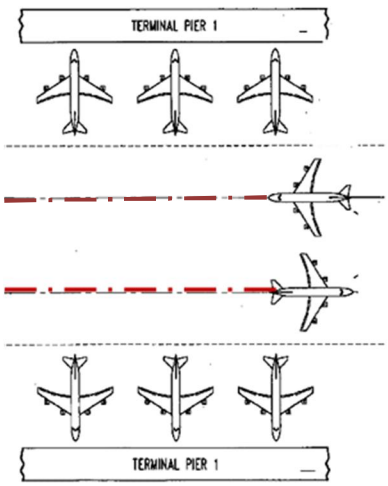
Source: Delta Air Lines, 2016.

Need

LaGuardia Airport is often ranked as one of top five most delayed airports in the nation. According to the U.S. DOT Bureau of Transportation Statistics, in 2016 the airport had the most delays of any major U.S. airport. Whether volume- or weather-related, these delays resulted in passenger inconvenience, increased costs to the airlines, and impacts to the National Airspace System. Although there may be other causes for these delays—including airport-wide issues or conflicts within the greater New York City airspace—some are a direct result of deficiencies in the airfield apron around the existing Terminals C and D concourses.

The taxilanes between the concourses at Terminals C and D are only single width, meaning there is only room for one aircraft to exit or enter the parking apron at a time (Figure 2-1). Aircrafts are forced to wait to access or depart a gate until other aircrafts have cleared the taxilane. When a departing aircraft is unable to push back from the terminal gate, that gate is unavailable for the next scheduled arrival. At LaGuardia Airport, the average taxi-time from touch down to gate is approximately 10 minutes. In 2014, 6.7 percent of flights at Terminals C and D had taxi times greater than 20 minutes; the number jumped to 9.7 percent in 2015. Ramp congestion and the inability to get planes to the gate efficiently contribute to these extended taxi times.

Figure 2-1. Example of Dual Taxilanes



Of the 31 contact gate positions available between Terminals C and D, many can only be used by smaller aircrafts because of the current configuration and required wingtip clearances. Due to these adjacency restrictions, only 18 gates can simultaneously accommodate airplane design group III type aircraft or larger. Since only certain

gate positions can accommodate larger aircrafts when the adjacent gates are serving other aircrafts, airlines are restricted in the flight schedule options they can operate without producing delays. The delay of a single flight can affect all subsequent flights that are not able to access the assigned gate at an allotted time and flights at other gates that may be blocked unexpectedly.

Seven hardstand positions are available at the terminals, which are used for active passenger loading and unloading; however, passenger access to those positions requires a significant walk or busing, which extends boarding and de-boarding time, adds to delays, and increases vehicle activity on the airfield.

Aircraft deicing operations use three active areas. One of the locations (on Taxiway ZA) will be eliminated after the 2016 winter season because of the CTB Redevelopment Program construction. The remaining two locations—Taxiway M and E pad—provide operational challenges. Aircraft deicing on Taxiway M restrict the arrivals and departures into the area of Terminals C and D. The Taxiway E pad is on the far west of the airfield and proves to be advantageous on a Runway 22 departure, but on a Runway 31 departure, it is cumbersome to route aircraft to the Taxiway E pad and back for take-off.

In addition, delays can be exacerbated because carriers need to comply with the requirements of the Tarmac Delay Rule. Under already delayed conditions, airlines may be required to return an aircraft to the gate to allow passengers to deplane as required by the rule. At LaGuardia Airport, Delta chooses to have flights return to the gate ahead of the three-hour time limit in order to avoid a violation of the rule (per Delta). The deficiencies described previously—single-width taxilanes, limited number and inflexible gate positions—make implementation of the rule cumbersome, since aircrafts returning to a gate to deplane the passenger hinder the scheduled arrivals and departures of flights at nearby gates.

Tarmac Delay Rule

Officially titled *Enhancing Airline Passenger Protections*, this U.S. DOT consumer rule became effective on April 29, 2010, and requires that after 2 hours the airline should provide food and water to passengers and that after 3 hours the airlines should allow passengers to deplane

These deficiencies cause aircraft congestion and delay within and around the Terminals C and D concourses. As a result, airlines at Terminals C and D lose efficiency because of increased aircraft taxi times and "gate-wait" delays. Worst-case conditions produce extended delays that disrupt the airlines' daily schedules of aircraft and crew to the point that there are ripple effects throughout the National Airspace System. In addition, passengers are inconvenienced when flights do not arrive or depart as scheduled; when delays result in missed connections, inconvenience turns into serious disruptions to businesses, families, and almost all the scheduled intentions of passengers. These ground delays cost airlines in terms of passenger re-accommodation (i.e., rebooking flights for missed connections and providing hotel and food costs for extended delays), additional fuel, crew and maintenance, as well as in terms of lost future revenue as a result of passenger dissatisfaction.

2.1.2 Passenger Convenience and Energy Efficiency

Purpose

A purpose of this Proposed Action is to provide a terminal configuration that provides maximum operational efficiency and passenger convenience. This configuration would perform the following:

- The terminal concourses/gates should be able to accommodate flexibility in the fleet mix—including appropriately sized in-gate ground power units—and to provide adequate seating for projected passenger volumes.
- The terminal headhouse should have sufficient space for airport and airline functions, such as check-in areas for processing passengers and baggage and security screening areas that meet TSA requirements and are capable of handling projected peak-hour passenger volumes.
- Throughout the terminal, there should be adequate public space for passenger amenities and circulation, including convenient locations for concessionaires. The terminal should be designed and constructed in ways that incorporate flexibility to adapt to the changing needs of passengers, airlines, and aircraft. Convenient access to other airport terminals should be provided for transferring passengers.

The age and layout of Terminals C and D make it difficult to accommodate the equipment and staff needed to meet post-9/11 security requirements. In addition, dividing gates for a single airline over multiple separate terminal buildings results in decreased efficiency and passenger convenience. For most functional areas, the existing Terminals C and D do not provide an acceptable level of service (LOS C or better) as defined by International Air Transport Association. (These deficiencies are described further in this section.) Consolidating functions such as roadways, check-in counters, security checkpoints, and bag claim halls would reduce passenger wayfinding issues, increase levels of service, and eliminate operational inefficiencies.

The congestion and crowding experienced by travelers at the passenger and baggage processing facilities demonstrate the existing terminal buildings' capacity and operational constraints. Level of service ratings (LOS A represents excellent conditions and LOS F represents unacceptable congestion and delay) quantify those constraints by measuring the flow and delay given the capacity and condition of the facility—such as the ticketing/check-in lobby, security checkpoints, and baggage claim areas—and the passenger demand it must accommodate.

The existing terminal buildings need to be replaced with a new facility that can provide an effective interface between the airside apron and the landside roadways and parking garage. Such a design would allow passengers and their baggage to be processed through the terminal as quickly and efficiently as possible (at LOS C or better). Existing at-grade pedestrian crossings to parking areas are a safety hazard and slow down through traffic.

The layout of the lobby check-in areas results in congestion, which causes delays in passenger and baggage processing. The depth between vestibules and check-in counters is an average of 30 to 40 feet, which is almost half the space needed to accommodate kiosks, queuing, and circulation. Passengers using curbside check-in must still pass through the crowded check-in hall to access security. Passenger security screening checkpoints are distributed throughout both terminals in limited available space. Passenger queuing for the checkpoints further encroaches into the check-in halls. After passengers have been screened, recomposure areas restrict narrow concourse circulation leading to departure gates.

Passenger amenities such as concessions and airline departure lounges are limited (33 percent smaller than what is needed) and/or poorly distributed. Over 21,000 square feet of additional concession space is required to meet passenger demand. Delta operates two SkyClubs at Terminals C and D that are too small to meet passenger demand (over 6,000 square feet of additional space is needed), are operationally inefficient with redundant functions, and are unable to balance passenger demand. Seating capacity is lacking at the gates during peak periods. Hold rooms provide 7 to 8.5 square feet per passenger, operating at LOS E. (LOS C requires 11 to 12 square feet per passenger.) Passenger restrooms are also undersized and ineffectively spaced to accommodate surges of deplaning passengers, resulting in queues out the entrances into concourse circulation.

Circulation space at the departure level is further constrained by concessions islands and restaurants/bars as a way to provide services and seating outside of the holdroom areas. In addition, space for airline support facilities is disjointed and inconveniently located, and there is limited space available for improvements. The lack of support space (deficient by 38 percent or 43,000 square feet) results in inefficient operations. It also limits space for traditional "back of house" operations such as trash removal, leaving them to occur within the passenger circulation areas.

Despite the recent construction of the East End Substation (EES), the additional terminal space and amenities—such as upgraded 400 hertz ground power and pre-conditioned air (PCAir) units at each gate, and the installation of electrical charging stations for patron vehicles in parking lots and the deployment of electric GSE (eGSE)—would cause the total airport-wide electrical load to potentially exceed the airport's existing capacity.

Merging the passenger and checked baggage security screening services of two separate terminals into a single facility would require less area and resources (i.e., airline and Transportation Security Administration [TSA] staff) and provide a greater level of service that can easily be scaled up or down based on passenger demand. Modern terminals have centralized checkpoints that are more efficient for passengers and cost effective.

Transportation Security Administration

After 9/11, TSA implemented multilayered security measures to enhance aviation security, including deployment of new technologies and training of additional airport security personnel. Post 9/11, TSA screens 100% of all checked and carry-on baggage for explosives.

The existing facilities constructed decades ago do not match current needs, and continued use of these facilities would result in substantially worsened conditions and an inability to meet future demand. The existing Terminals C and D have neither the gross terminal square footage nor the functional capabilities to meet this projected demand level at an acceptable LOS C or better.

Need

To meet the need for improved airline efficiency and enhanced operational safety through a reconfigured apron area (as described previously), additional aeronautical space is required. LaGuardia Airport is almost entirely developed—covered by runways, taxiways, four terminal buildings, administrative and maintenance buildings, roadways, and parking lots. In addition, and as a practical matter, the property

cannot be expanded because of its location adjacent to Flushing Bay and Bowery Bay to the north and Grand Central Parkway to the south.

Terminal D was built in 1983, Terminal C East was built in the early 1980s, and Terminal C West was built in 1992. Terminal D is a single-concourse, two-level building, consisting of 275,640 square feet, while Terminal C is a two-level building, consisting of two concourses and 400,640 square feet. A pedestrian connector was constructed between the two terminals in 2012. Delta has continuously invested in improvements to the interiors of both terminals. However, these improvements were limited to largely cosmetic changes. Delta updated concessions, seating areas, and lighting, but did not increase the square footage or change the terminal layouts. The improvements did not include significant upgrades to the aging facilities that could improve the energy efficiency of the building or replace deteriorated utilities and operational systems such as electrical, plumbing, HVAC or fire protection systems.

New security measures imposed after 9/11 further exacerbated the terminals' limitations. TSA required additional equipment and personnel in constrained areas of the terminal, thereby leading to a loss of already limited building space. The existing space limitations have produced inefficient security screening, causing severe backups, and poor passenger levels of service. Passengers experience substantial delays and congestion, especially during peak periods.

Although a pedestrian walkway now connects the two existing terminals, Terminals C and D operate separately and have duplicative functions. Curbside and lobby check-in areas, baggage and passenger screening, and flight departure lounges are available in both terminals, thus contributing to inefficiency for Delta and TSA staffing.

The age of the terminal buildings and the lack of significant upgrades mean the terminals have not incorporated the latest advancements in energy efficient design that are common in modern buildings. Heating and cooling these buildings is costly and not energy efficient. The larger size of the proposed terminal would still require some additional electrical capacity, despite sustainable design measures and increased energy efficiency per square foot. Although all the gates at the two east side terminals have ground power units to deliver standby power for aircraft operating systems as needed, most of the units do not have the capacity to serve the larger aircraft that are currently used at the terminals. In those cases, aircraft must operate their auxiliary power units while parked at the gate, causing greater emissions from the consumption of jet fuel at the gate.

PANYNJ has been working since 2011 to meet the predicted electrical supply needs of LaGuardia Airport. The 24 megavolt amperes (MVA) EES was constructed in 2015 to replace the aging Central Electrical Substation and meet the additional load from past airport infrastructure improvements. The Central Terminal Building (CTB) Redevelopment Program has incorporated energy-saving elements throughout the design to offset the increased demand from larger aircraft and additional passengers, which are forecasted to use the airport. The cumulative impacts to energy supply are being managed through airport-wide planning and sustainable design. Both the CTB Redevelopment and the East Side Reconfiguration Programs will reduce fuel usage through efficiencies in the airside apron, charging stations for eGSE, and improvements in the airport roadways that will allow for free-flowing traffic.

Despite these efforts, the capacity of the EES cannot handle the following loads that were not contemplated for the parking garage and Terminals C and D:

- The need to accommodate electric charging stations in the parking garage for patron vehicles
- The full range of eGSE that will be used at the new terminals
- The conversion of all existing hardstand gates to jetbridge-supported contact gates at the new East Terminal

PANYNJ expects continued customer adoption of electric vehicles (EV), since the five existing on-airport charging stations are fully occupied several days per week. It is possible that once the new terminals are open (and with the current pace of EV adoption), 50 to 100 charging stations will be needed in patron parking garages. In addition, in accordance with Local Law 130 of 2013, 20 percent of spaces in all new parking garages must be "charger ready" and support electric capacity so that 20 percent of all spaces could accommodate electric chargers.[43] This demand was not forecasted several years ago during the design of the EES, since market demand for EVs had not been firmly established, and Local Law 130 of 2013 had not been enacted at the time that the East Garage was planned. Second, advances in eGSE technology have allowed airlines to use the equipment for almost all GSE applications, including push-back tractors. PANYNJ did not anticipate the scale of the expected eGSE deployment. Both of these factors increase the demand for electricity but ultimately result in improved air quality and reduced consumption of fossil fuels on-airport, both of which PANYNJ supports.

LaGuardia Airport's existing electrical capacity is 36 MVA (12 MVA provided by the West End Substation (WES) and 24 MVA provided by the EES). It is expected that this Proposed Action and the factors described previously could exceed the airport-wide electrical load, increasing the risk of power outages. Neither of the existing substations can be upgraded since they would require going offline during construction, and a continuous, reliable source of power would be needed to maintain safe operations at the airport. Therefore, depending on the specific future load requirements of the airport, a new substation providing up to 12 MVA must be constructed to provide a total of 48 MVA to the airport.

2.1.3 Traffic Circulation and Flow on the Landside Roadways

Purpose

To complement a reconfigured east apron area and relocated East Terminal, this Proposed Action includes reconstructing the on-airport roadways on the east side of the property, and constructing an East Garage extension and two taxi-hold facilities so that the airside and landside functions operate in harmony.

The airport roadways should provide safe and efficient access to the terminals and parking facilities. The roadways in front of Terminals C and D need to be reconfigured to optimize vehicles to access, exit, and circulate through the airport, and then integrate with on-airport circulation and airport access roads. The airport roadways must provide passengers with convenient access to the terminal curbside and parking. The existing curbside frontage length should be maintained to accommodate various modes of ground transportation, including private automobiles, taxis and other for-hire vehicles, and high-occupancy

[43] *https://www1.nyc.gov/assets/buildings/local_laws/ll130of2013.pdf*

vehicles. A pedestrian bridge should reduce the number of at-grade crossings to ensure safe pedestrian access.

Surface parking on the east side of the airport should be replaced with parking facilities convenient to the terminal, requiring only a short, safe walk. Taxi/for-hire vehicle staging lots should be available to serve passengers departing each of the terminals. Dedicated lots allow taxis to be released to the terminal frontage area only as needed and reduce recirculating traffic volumes. In addition, the new roadway system should be designed not only as stand-alone infrastructure to support the East Terminal vehicular traffic, but also to be compatible with the other on-airport roadways and access points.

Need

The airport roadway system is a complex network of multilevel roads that serve a variety of airport users. The roadway system includes entrance and exit ramps to Grand Central Parkway, terminal approach roads at both arrival and departure levels, terminal curb frontage, recirculation roads, patron and employee parking, as well as restricted service roads for airport service vehicles and deliveries.

The existing current airport roadways are inefficient and contribute to high peak-hour volumes, heavily congested flow, and traffic demand that exceeds roadway capacity. Design factors that influence roadway capacity near Terminals C and D include circuitous routing, sharp curves off Grand Central Parkway exit, at-grade intersections, and pedestrian crossings. During busy periods, these conditions cause stop-and-go waves, poor travel times, low levels of comfort and convenience, and increased accident exposure. Airport traffic congestion can result in off-airport backups (e.g., on Grand Central Parkway or other main arteries) and increased traffic on secondary roads and neighborhood streets. Roadway improvements currently under construction as part of the CTB Redevelopment Program will improve many of these conditions, but problems with roadways in and around Terminals C and D will persist.

2.2 Summary of Needs

For the airlines to safely and effectively accommodate forecasted passenger demand at acceptable levels of service, the following airside, terminal, and landside needs must be met:

- Airside Apron
  - Dual taxilanes
  - Contact gate positions that allow for maximum fleet mix flexibility
  - Overnight positions within the terminal apron area
  - Aircraft deicing areas in close proximity to the terminal
- Terminal Building
  - Passenger and baggage screening areas that meet TSA requirements.
  - Space for passenger amenities such as gate-wait seating and concessions that would achieve LOS C under forecast passenger demand
  - Energy efficient building compliant with PANYNJ's *Sustainable Design Guidelines*
  - Additional electrical capacity to meet the future East Terminal and parking electrical load

- Landside Roadways and Parking
  - Safe and efficient access to terminals and parking facilities
  - Separation of various vehicle types for passenger loading and unloading
  - Parking facilities within a short walk from the terminal
  - Taxi/for-hire vehicle staging lots serving both Terminal B and the East Terminal

3 Alternatives

The Council on Environmental Quality (CEQ) regulations implementing National Environmental Policy Act (NEPA) require that the federal decision-makers perform the following tasks when preparing an environmental assessment (EA):

- Evaluate all reasonable alternatives, including alternatives not within the jurisdiction of the federal agency, and for alternatives that were eliminated from further study, briefly discuss the reasons for their having been eliminated.
- Devote substantial treatment to each alternative considered in detail, including the Proposed Action and the No Action Alternative, so that reviewers can evaluate their comparative merits.

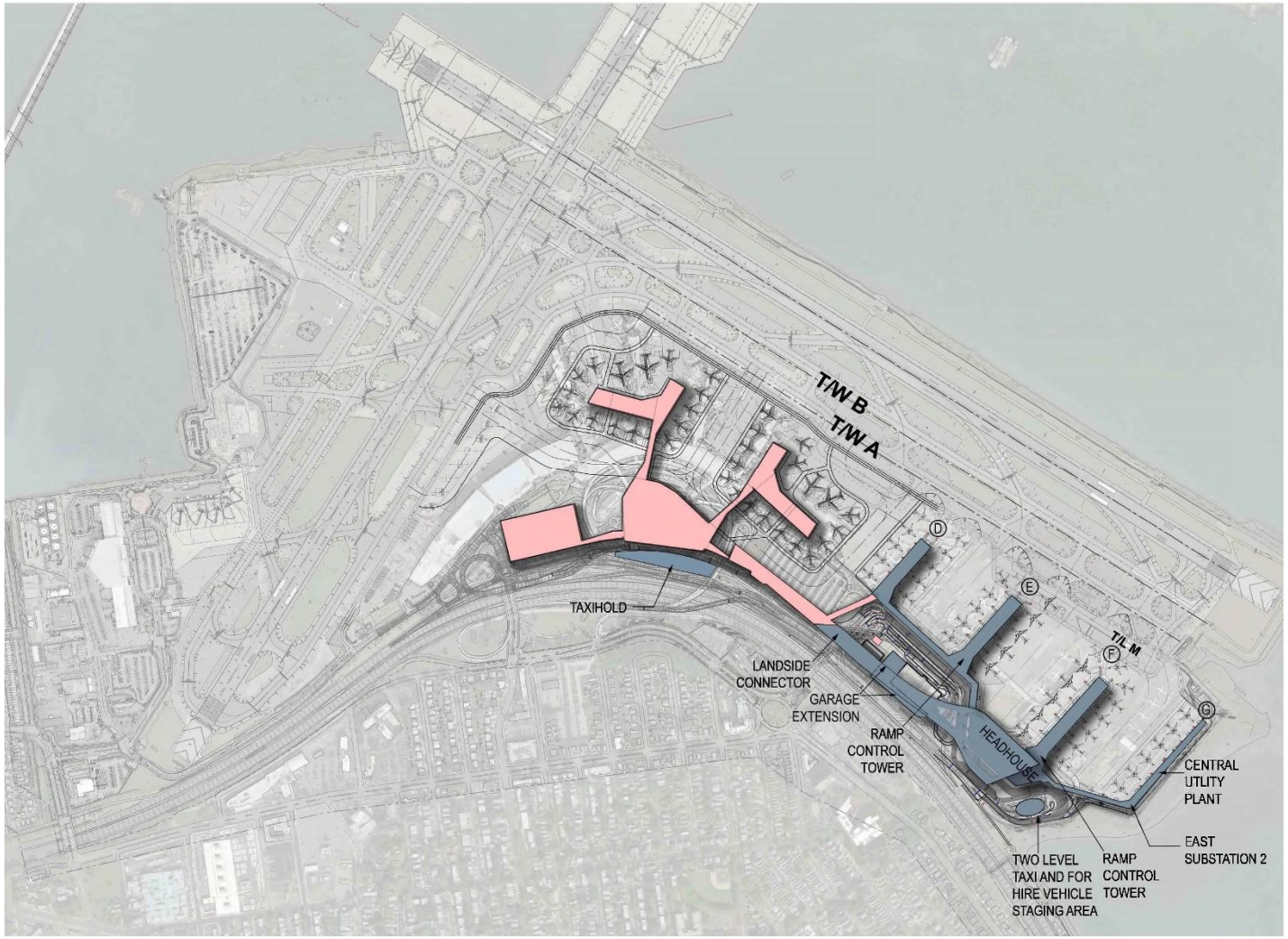
This section describes this Proposed Action and its alternatives, including the No Action Alternative, and evaluates the ability of each alternative to accomplish this Proposed Action's objectives as discussed in *Chapter 2, Purpose and Need*. This Proposed Action would fulfill the purpose and need for the project. The No Action Alternative will not meet the purpose and need; however, it is analyzed in this Final EA pursuant to the requirements of FAA Order 5050.4B, FAA Order 1050.1F, CEQ, and NEPA.

This Final EA identifies and evaluates all reasonably foreseeable potentially adverse impacts on the human and natural environments that are expected to result from the implementation of this Proposed Action or No Action Alternative. Other alternatives were considered during preliminary planning of the project but were eliminated from further detailed environmental review for reasons explained in *Section 3.3*.

3.1 Proposed Action Alternative

This section describes the airside, terminal, and landside elements of this Proposed Action and how this Proposed Action addresses the purpose and need discussed in *Chapter 2*. This Proposed Action assumes the Central Terminal Building (CTB) Redevelopment Program described in the 2015 Written Reevaluation/Record of Decision and currently under construction is implemented, including the reconstruction of the CTB, reconfiguration of the airside apron adjacent to the CTB, construction of the West Garage, and reconstruction of the landside roadways in front of the CTB and existing Terminal C.

Under this Proposed Action, Delta Air Lines (Delta) would reconfigure the apron area around existing Terminals C and D, creating dual taxiways between the concourses. The increased distance between the four proposed concourses, along with the location of Runway 13-31, would require pushing the headhouse to the south to create additional aeronautical operations areas. Existing Terminals C and D would be demolished and consolidated into a single headhouse with four concourses and a landside connection to the CTB, and terminal roadways would be reconfigured to provide arrival- and departure-level access to the terminal and tie into the airport circulation roadways.



Prepared by: Corgan (May 2017)

Figure 3-1

LaGuardia Airport
East Side Reconfiguration

Legend
Future CTB Redevelopment
Proposed Action

Proposed Action

This Proposed Action includes a series of projects divided into the following four functional areas: (1) airside apron, (2) terminal building, (3) landside roadways and parking, and (4) electrical capacity. Figure 3-1 depicts the proposed airport layout with both the CTB Redevelopment and Proposed Action.

3.1.1 Airside Apron

The airside apron for this Proposed Action would comply with FAA Advisory Circular 150-5300-13A, *Airport Design*, and geometric design standards, correct the existing Modification of Standards, and bring the terminal apron into full compliance with FAA airplane design group (ADG) IV criteria.[44] The proposed apron would include the following elements:

- 37 contact gate positions: 27 gates for ADG II and III aircrafts and 10 gates for ADG IIIa aircrafts[45]
- Dual parallel taxilanes between concourses
- Vehicle service roads for GSE access to deliver goods and services to parked aircraft
- Relocated restricted vehicle service road (RVSR) for access to airside facilities
- A GSE fuel island located between the headhouse and Concourse E
- Air operations area (AOA) service road and gate along airport perimeter, connecting to the RVSR
- Four ADG III overnight (RON) positions with a minimum 25-foot wingtip clearance
- Six hardstand/aircraft deicing positions within the non-movement area that can accommodate up to ADG III aircrafts, one of which would be 757-capable (all of these positions would be capable of being in use concurrently) with provisions to collect spent aircraft deicing fluid[46]
- Upgraded aircraft ground power and preconditioned air to accommodate all size aircraft at each gate
- Charging stations for electrical ground service equipment
- Provision for hydrant fueling (i.e., hydrant fuel lines and hydrant pits within the proposed East Terminal apron area only)[47]

[44] The ADG IV requirement at two gates was mandated by the Port Authority of New York and New Jersey Aviation Planning Division, to be consistent with requirements for the new CTB.

[45] The design would allow for the addition of one contact gate by downgauging six planned 737-900 gates on Concourse G to seven 717 gates.

[46] Two taxiway entrance "throats" – one located north of Concourse E and one located north of Concourse D – would be added to provide access from four of the aircraft deicing positions (two at the end of Concourse E and two at the end of Concourse D) to Taxiways A and B during snow events only. Those taxiway entrances would not be used during normal airport operations. Aircraft at the other aircraft deicing positions would access the taxiways via the regular taxilanes.

[47] There is no proposal at this time to install a fuel transfer line connecting to the fuel storage tanks located on the west side of the airport. The hydrant fuel lines and hydrant pits would remain inactive until the fuel transfer lines are installed. If necessary, separate NEPA documentation will be prepared prior to beginning construction on any portion of the underground hydrant fuel system outside of the project limits of this Proposed Action.

- Reconfigured Taxiway M[48]

Building 99, located east of Terminal D within the AOA, would be demolished to make room for the proposed airside elements. The building has been used by American Airlines for GSE maintenance but has recently been vacated. That function has been relocated elsewhere on the airport property within an existing building.

3.1.2 Terminal Building

Under this Proposed Action, Terminals C and D would be demolished and replaced with a new terminal building designed and constructed so that all critical operational and design elements comply with ASCE 24-14 *Flood Resistant Design and Construction Standards* and the PANYNJ *Design Guidelines – Climate Resilience*. The LEED-certified terminal (minimum rating of Silver) would meet the latest federal standards for airport safety and security, would comply with PANYNJ's *Sustainable Design Guidelines,* and would accommodate passenger demand at acceptable levels of service. The proposed terminal would include the following elements:

- A consolidated, four-story terminal headhouse:
  - First floor – Arrivals level with baggage claim and inbound baggage handling
  - Second floor – Departure level with approximately 30 ticketing counters and 40 kiosks
  - Third floor – Security level with consolidated passenger screening checkpoint to accommodate up to 20 lanes
  - Fourth floor – Delta's SkyClub and mechanical/HVAC equipment
- Four concourses that transition from three to two stories:
  - First floor – Baggage and airline support facilities
  - Second floor – Passenger circulation and concessions
  - Third floor – Additional concessions
- Approximately 1.1 million square feet of total space
- Consolidated passenger screening checkpoint with flexibility for additional lanes and changing technology, as well as a comfortable area for passenger recomposure
- Aircraft gate holdrooms sized to provide LOS C for the largest aircraft that could be accommodated at each gate
- Checked-bag handling system with consolidated checked baggage inspection system, two baggage make-up rooms, and inbound baggage room adjacent to the baggage claim hall

[48] A portion of the current Taxiway M would be absorbed into Delta's leasehold, changing the taxiway into a non-movement area. An agreement is being developed between Delta, PANYNJ, and the local FAA, whereby Delta will coordinate with the FAA when aircrafts are departing on Runway 31 to allow aircrafts to exit the movement area via the taxilane on the Delta leasehold, and then re-enter the movement area in the event the taxilane is needed to alleviate aircraft crowding on either Taxiways A or B. A Memorandum of Understanding among the parties is under development and will be executed prior to construction.

- Consolidated baggage claim area with approximately seven claim devices, concessions, restrooms and other amenities
- Concessions, public restrooms and other passenger amenities sized to meet demand
- Airport and airline operations and support space, including a service corridor to minimize passenger/service movement overlap
- Centralized control center for building controls (life, safety and security systems)
- Two ramp control towers located in Concourses E and F (one would have provisions to allow FAA controllers to function in the event of failure or evacuation of the air traffic control tower)
- A pedestrian bridge/walkway connecting the headhouse to the East Parking Garage
- Landside pedestrian connector bridge to the approved CTB that would integrate with the pedestrian walkway to the East Garage
- Unifying roof element spanning the headhouse, roadways, and the landside connector to the approved CTB
- Central utility plant located on the roof of the easternmost concourse (Concourse G) with cooling towers, chillers, pumps and other equipment to service the terminal
- Ice storage tanks in Concourse G that would store ice produced during off-peak hours to provide cooling, as needed, during peak hours, in order to reduce the load on chillers
- Dedicated water, electric, and gas service to the headhouse and each concourse

In addition, to eliminate interference from the proposed landside connector, the pole height for the Lower Level Windshear Alert System Site #4 would be increased 10 feet to 150 feet.

3.1.3 Landside Roadways and Parking

Under this Proposed Action, the roadways in front of Terminals C and D would be reconfigured to support the shifting of the terminal building, accommodate free flowing traffic movements in forecast year 2029, and integrate with the other on-airport roadways and access roads. Generally, the roadway improvements would provide efficient access to the terminals and parking facilities and improve safety by reducing at-grade pedestrian crossings.

This Proposed Action would include the following roadway and parking elements:

- At-grade terminal frontage roads at the arrivals level
- Elevated terminal frontage roads and ramps at the departure level
- Two four-lane frontage areas in front of headhouse, separated by an island, to provide loading/unloading and bypass lanes for both private and commercial vehicles
- Large (40-foot deep) outer island in front of the headhouse on departures level for curbside check-in
- Pedestrian overpass from curbside check-in to security level of headhouse (third floor)

- Connections to the on-airport roadways
- Connection through a security gate to the AOA service road on east side of property
- Expansion of the East Garage to 2,000 parking spaces in the final condition to mitigate the loss of parking within parking lots P4 (600 spaces) and P5 (850 spaces) due to the construction of the East Terminal, resulting in a net loss of 550 spaces. The East Side Reconfiguration Project cumulative impacts would result in sufficient on-airport patron parking.[49]
- Relocated access and egress roads to the East Garage
- Two-level Taxi/For-Hire Vehicle Staging Lot with approximately 300 spaces near the East Terminal (to replace existing taxi hold between Terminals C and D)
- Temporary taxi hold with 300 spaces contemplated to be located in the unused grassy space between the roadways in front of the previously approved CTB (required since the East Side Reconfiguration Project would be constructed within Parking Lot #4, the area where the permanent taxi hold for the CTB was to be located at the completion of the CTB Redevelopment Program).[50]

3.1.4 Electrical Capacity

This Proposed Action would construct a new substation on the roof of Concourse G, immediately south of the proposed central utility plant. The substation would be sized to meet this Proposed Action's additional electrical load (12 MVA or less). The substation would be connected to ConEdison commercial service at the 102nd Street Bridge on the south side of Grand Central Parkway via multiple 27 kV feeders. The feeders would access ConEdison through duct banks installed under Grand Central Parkway as part of the East End Substation (EES) construction as well as three new duct banks to be installed south of Grand Central Parkway and under the 102nd Street Bridge.[51] Minor trenching off-airport would be required south of Grand Central Parkway in the area previously disturbed for the installation of duct banks for the EES connection. The facility would comply with the Port Authority of New York and New Jersey (PANYNJ) *Design Guidelines – Climate Resilience* and would integrate elements of the U.S. Green Building Council's Performance Excellence in Electricity Renewal rating system. Certification under this rating system may be pursued.

3.1.5 Construction Phasing

Construction activities would be expected to begin late spring or early summer of 2017 (pending environmental approvals) and would be effectively complete in mid-2024, with some elements of internal finishing construction continuing through early 2026. As shown in Figure 3-2, the East Side

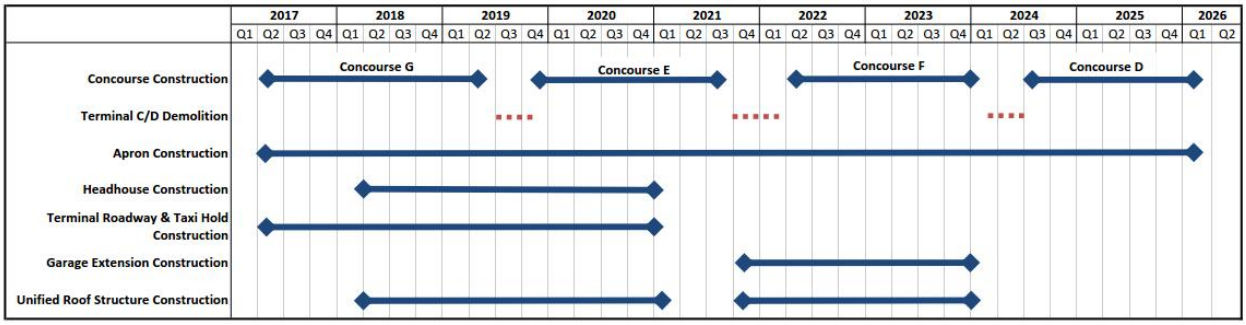
[49] The net loss of short-term parking spaces in front of the new East Terminal would not affect passenger level of service because of recent trends in customer behavior. As indicated by Delta customer surveys, increasing costs for on-airport short-term parking coupled with the addition of nearby third-party off-airport parking lots, as well as the increase in average travel party size and for-hire vehicle usage (e.g., Uber, Lyft) are driving down demand for on-airport parking.

[50] This location would provide the requisite access for empty taxis arriving at the airport or circulating from CTB Departures to enter the hold area, and access from the hold area to CTB Arrivals level with minimal circulation on the airport roadway network.

[51] *Final Environmental Assessment for the East End Substation and East Garage at LaGuardia Airport* (PANYNJ, February 2013); Finding of No Significant Impact signed February 5, 2013.

Reconfiguration would be divided into multiple major construction phases during which the existing facilities would be demolished and replaced with new facilities. Terminals C and D would remain in service during construction; therefore, construction phasing would be sequenced to maintain as many open gate positions as possible. During construction, Delta will continue to operate its existing level of flights, and will minimize impacts on airline operations and passenger level of service.

Figure 3-2. Construction Schedule



Source: Delta Air Lines (February 2017)

This Proposed Action presents many challenges at LaGuardia Airport because of space constraints. Delta developed and analyzed multiple construction scenarios to present differing courses of action to complete this Proposed Action in an efficient and expeditious manner. Delta developed scenarios that would complete this Proposed Action in 96 months (the shortest most expeditious option) and 106 months (the longest and most efficient option). To assess this Proposed Action's environmental impacts, Delta used the shorter 96-month schedule because that scenario would produce the most and more-intense environmental consequences of the two scenarios. However, Delta intends to complete this project using the 106-month schedule. The 106-month schedule would produce impacts below those forecasted in this document. In addition, this approach would allow Delta to accelerate some aspects of the project without further review since the full measure of environmental impacts will have already been assessed and evaluated.

As shown on Figure 3-2, the first and second concourses will be completed in 2019 and 2021, respectively. The third concourse, Concourse F, will be finished in late 2023 and operational in 2024. By then, 28 of the 37 new gates on the concourses will be completed and the taxilanes serving the new Concourse D will be completed by mid-2024. During the final phase of construction, the remaining aircrafts required for full operation would operate from temporary hardstand positions close to Concourse D, thereby allowing the entire new East Terminal to operate in its final configuration, as modeled in the TAAM analysis, by mid-2024. (Appendix F presents the corresponding phasing plans.)

In general, construction would begin on the east side of the site, working westward as the new building components become operational. Portions of the existing terminals would be demolished and new facilities constructed in stages. Construction of the airside apron would be staged to correspond to construction of the new concourses. The new terminal headhouse and terminal roadways would be constructed within the first four years of the project and be operational by early 2021. The proposed electrical substation would be constructed in conjunction with Concourse G, starting in the spring 2017 and continuing through spring 2019.

As part of the construction phasing plan, temporary facilities would be needed to maintain safe and secure airport and airline operations, to facilitate the transfer of passengers and baggage, and to accommodate displaced parking spaces. This is a normal part of the construction process. Temporary facilities would include, but would not necessarily be limited to, building spaces, enclosed walkways, roads, and utilities. Current planning and design indicate that, with the exception of contractor parking at Citi Field, all temporary facilities would be accommodated on existing airport property.

Additionally, multiple mitigation measures are currently being implemented as part of the CTB Redevelopment Program construction—including improved and modified parking in lot P10 as well as improved wayfinding signage—that will have immediate benefits to all customers using the airport roadways and parking facilities. This ongoing mitigation will minimize or eliminate potential impacts to day-to-day operations of the airport as a result of ongoing and future construction, and may be altered as these temporary issues warrant. Lot P10 will provide enough additional spaces to serve all long-term parking needs for airport passengers as well as flight crew parking. The additional parking capacity at lot P10 will allow Delta to close parking lots P4 and P5 at the start of scheduled construction, once an approved and implemented parking mitigation plan is in place, which could occur prior to the opening of the West Garage.

During some phases of construction, total passenger loading positions (gated and hardstand) may be reduced to 36 (from the existing 38 positions); however, the current operations and fleet mix would be maintained through minor adjustments to the daily schedule. The number of hardstand positions may increase by two (to a total of nine) during portions of construction, in order to maintain full operational capacity.

During construction, workers would park their personal vehicles at the Citi Field baseball stadium. Construction staging would occur on-site, within the area of Terminals C and D. Shuttle buses would transport workers between the contractor parking and the construction site. Heavy construction work would occur on weekdays 7:00 a.m. – 3:00 p.m., with a small portion (approximately 10 percent of the workforce) occurring 3:00 p.m. – 11:00 p.m. Construction would not increase noise levels for sensitive receptors during the nighttime or weekend. There would be no pile driving at night.

The CTB Redevelopment Program construction will continue to be underway at the airport when the East Side Reconfiguration construction begins. It is expected that construction activities for the two projects would overlap for up to five years. For the CTB Redevelopment Program, employee parking will be at Ingraham's Mountain on the far west side of the airport and, in general, construction traffic will access the airport via local roads on the west side of the airport. Construction traffic for the East Side Reconfiguration will access the airport from the east. Peak construction for the CTB Redevelopment Program will occur in the second quarter of 2017, while the peak period for this Proposed Action would be two years later, during the third quarter of 2019.[52] The construction sites would be physically separated with the exception of the on-airport roadways in front of existing Terminal C and apron reconstruction

[52] Although this Proposed Action is independent from the recently initiated CTB Redevelopment Program and has its own utility, the study of potential traffic impacts in this Final EA incorporates construction traffic expected to be generated by the CTB Redevelopment Program, as presented in the previously approved EA for the CTB. The traffic projections contained in this Final EA rely on the assumption that those CTB analyses remain accurate, and that the full panoply of CTB traffic mitigation measures are in place and effective. See Appendix E.

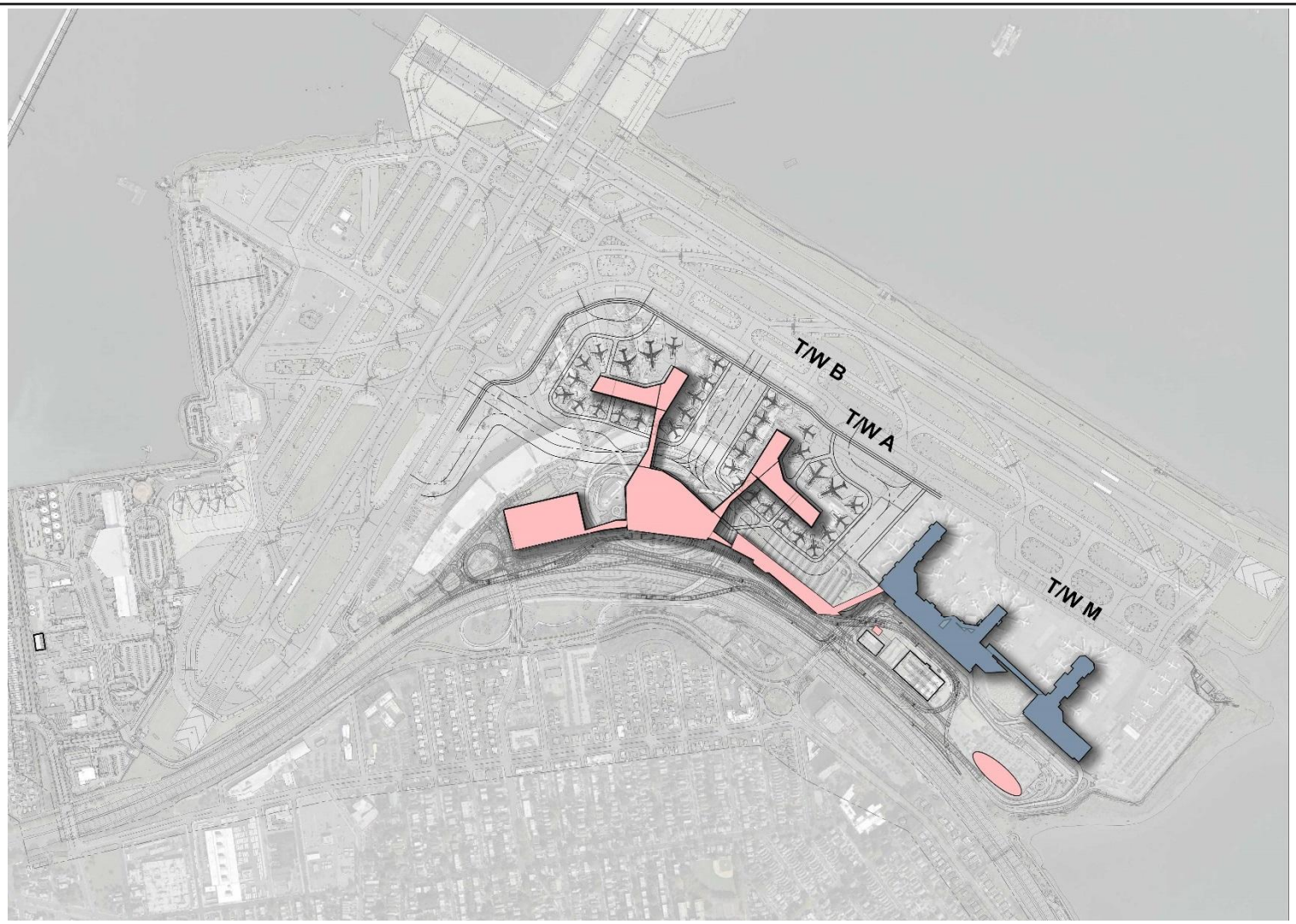
immediately west of the East Terminal. Delta would work closely with the LaGuardia Gateway Partners (LGP) and PANYNJ to ensure there are no airport-wide conflicts with regard to access, resources or design, and that passenger level of service is maintained.

To manage real-time traffic conditions from the CTB Redevelopment Program construction, PANYNJ and LGP created the Landside Transportation Management Command Center (LTMCC). The LTMCC uses on-site traffic monitoring cameras and vehicle detection sensors—in association with anticipated passenger flight activity and off-airport roadway network conditions—to monitor traffic, report on traffic conditions, and implement mitigation measures, as needed. This Proposed Action will build on the steps already taken by the PANYNJ to mitigate potential adverse traffic conditions. Delta will install additional traffic monitoring cameras and establish its own traffic monitoring facility to collaborate with the LTMCC. It can be expected that the mitigation measures taken could change during the length of the project, since the on-the-ground conditions themselves evolve to reflect the various stages of construction.

3.2 No Action Alternative

Under the No Action Alternative, this Proposed Action will not be implemented, but the CTB Redevelopment Program will be constructed as approved (see Figure 3-3 for the future airport layout under the No Action Alternative). As a result, there will be no negative environmental impacts related to the construction of this Proposed Action. However, without this Proposed Action, there will be no operational benefits to air quality from reduced aircraft taxi times and vehicle traffic congestion. In addition, this Proposed Action's objectives will not be accomplished, and airside inefficiency and delays will continue, with no improved level of service for passengers.

The No Action Alternative will leave the existing Terminals C and D with no improvements to the airside layout and only maintenance upgrades to the terminal buildings. Without this Proposed Action, the airside apron and taxilanes will not be reconfigured, there will continue to be only single taxilanes between concourses, the number of contact gates will remain at 31 (hardstands will remain at 7), and airfield and terminal ramp congestion will continue. In the year 2029, the No Action Alternative will result in an additional 2.7 minutes of taxi time per aircraft and 2.2 minutes of delay per aircraft, when compared to this Proposed Action. The airlines using Terminals C and D will continue to be limited in gating flexibility because of insufficient clearances between most gate positions. These deficiencies will complicate aircraft movements and gate scheduling.



Prepared by: Corgan (January 2017)

Figure 3-3

LaGuardia Airport
East Side Reconfiguration

Legend
Future CTB Redevelopment
Existing Delta Terminals

No Action Alternative

Within the terminal buildings, the constrained check-in hall layout and gate hold space limitations will remain in place and existing fragmentation of security screening, baggage claim, and inbound baggage functions will not be addressed. Gate hold rooms' crowding will likely worsen by the year 2029 from the current LOS E because of insufficient space and seating, and passengers will continue to be inconvenienced by poor circulation within the check-in hall and concourses. On the landside, at-grade crossings will still be required for access between the terminals and the adjacent parking areas, with no improvement to pedestrian safety.

The No Action Alternative will exacerbate existing operational constraints at Terminals C and D. The No Action Alternative will not fulfill the stated purpose and need for the project. This alternative will not correct the deficiencies and inadequacies of the existing Terminals C and D facilities and airfield. Presently, Delta is not able to provide efficient passenger processing facilities or airport operations, resulting in less-than-acceptable passenger experience on many occasions. As discussed in *Chapter 1*, Delta has already upgraded the terminals to the extent possible within the existing physical constraints of the airfield, spending $270 million to improve concessions and retail options and add some security lanes and baggage screening facilities. However, these changes did not include any improvements to the airside aprons.

Although the No Action Alternative is not a reasonable or prudent solution and is not recommended by Delta or PANYNJ, it is required to be evaluated pursuant to CEQ regulations. As such, this alternative has been included and used as a baseline against which the effects of this Proposed Action are compared.

3.3 Alternatives Eliminated from Further Consideration

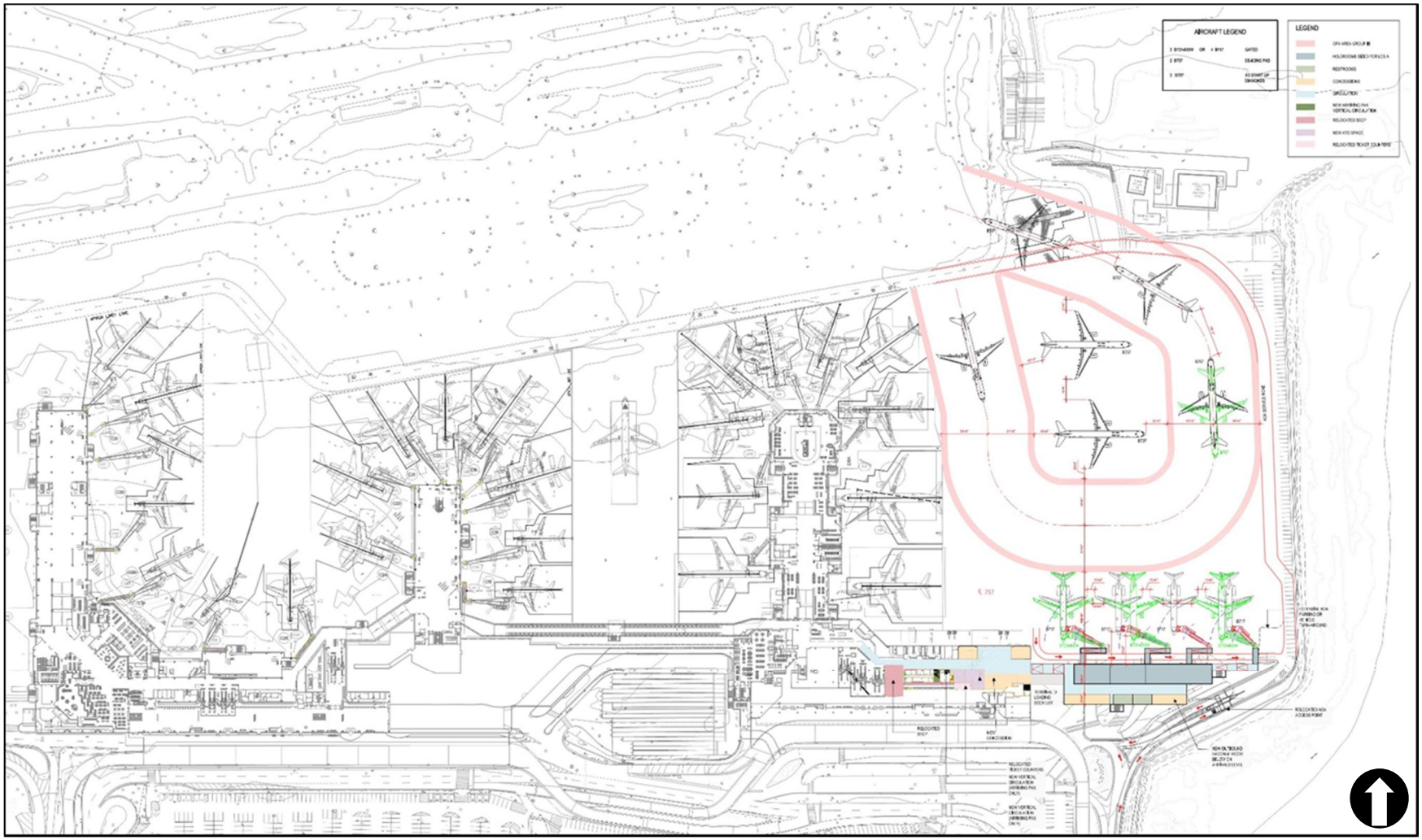
The following options were considered but were eliminated from more detailed environmental analysis for the reasons provided below. The options ranged from using a different terminal design, to using a different development site, to using demand management. None of these alternatives were under consideration when the CTB Redevelopment Program was under review for NEPA compliance.

3.3.1 Other Configurations within the Terminal Area Envelope

East Side Development

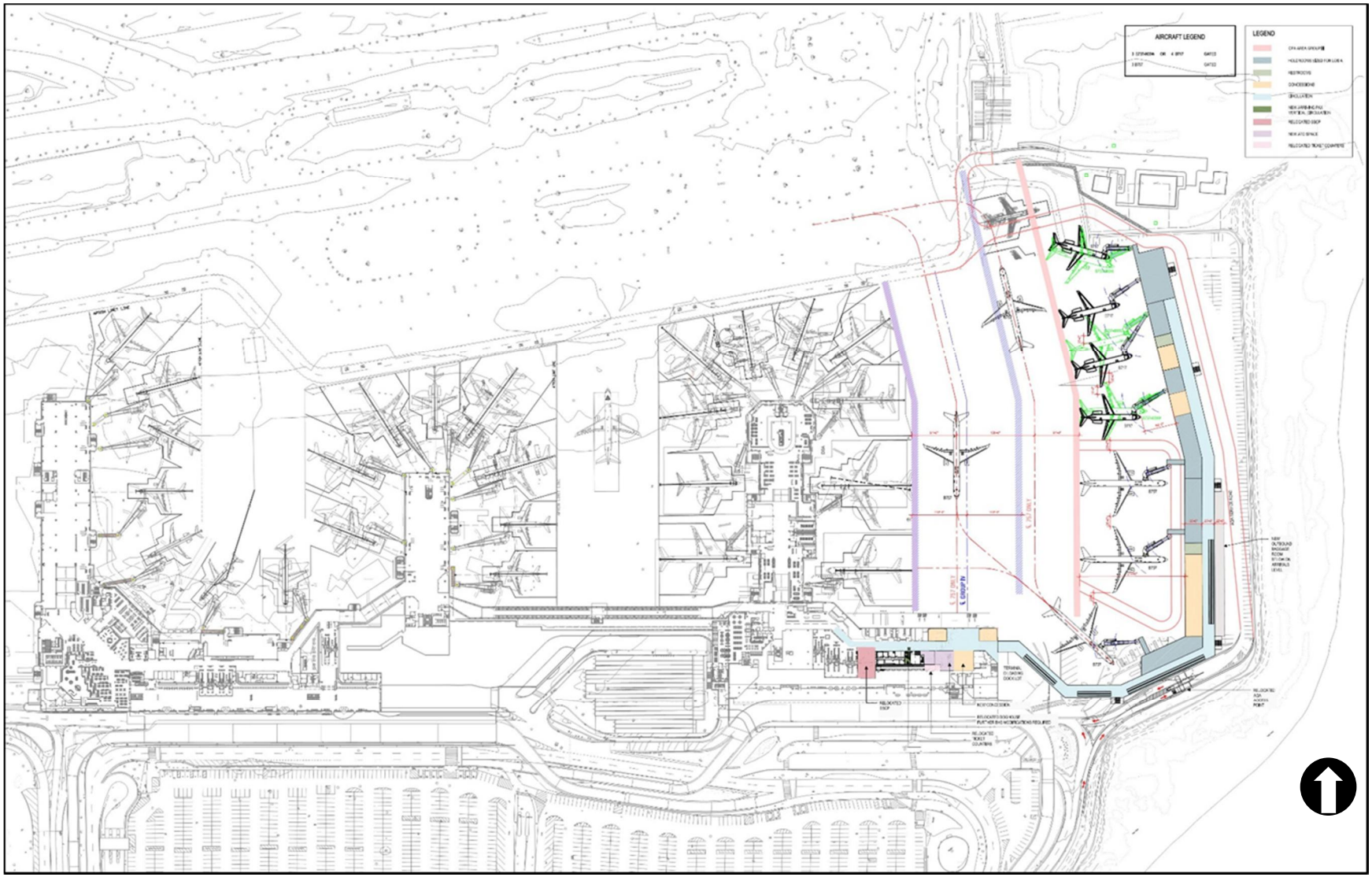
Preliminary design considered maintaining the existing Terminals C and D while also expanding into lot P5 on the far eastern end of the airport to provide additional contact gate positions and some additional gating flexibility. Option 1B (Figure 3-4) provided a small addition to Terminal D containing four new contact gates, and two hardstand positions and a taxilane to accommodate ADG IV aircrafts. Option 2B (Figure 3-5) included a new concourse, with an airside connection to Terminal D. The new concourse provided six additional contact positions, three of which accommodated widebody aircrafts. A dual taxilane between the new concourse and existing Terminal D concourse reduced taxi times and gate wait delays for aircrafts accessing those gates on the east side. Although these east side development options had benefits with regard to construction—relatively low cost, short timeframe, minimal impact to airport operations—and increased the number of contact gates, they did not improve airside functionality for the majority of Delta gate positions or the in-terminal conditions at the existing Terminals C and D. The existing terminals and terminal roadways were not modified. Since the east side development options did not meet the purpose and need, they were not evaluated further.

Figure 3-4. Option 1B – Terminal D Extension



Source: Delta Air Lines (2017).

Figure 3-5. Option 2B – East Concourse



Source: Delta Air Lines (2017).

Island Concourses

Consideration was given to an island concourse concept, similar to what was evaluated in the Written Re-evaluation for the CTB, which is under construction. As shown in Figure 3-6, a headhouse provided for passenger check-in, security screening, and baggage claim, and three island concourses accommodated passenger hold rooms and gate positions.

This option provided dual taxilanes between island concourses but accommodated only 35 contact gates, and did not accommodate forecasted demand for the airlines currently serving Terminals C and D. In addition, the design constructed tunnels for pedestrian access between the headhouse and central island concourse and between the central concourse and each of the two outer concourses. As a matter of history, LaGuardia Airport was built on fill. As a result, the ability to construct several pedestrian tunnels connecting the proposed headhouse with the various concourses presented significant design challenges that dramatically increased project costs if this concept were adopted. Construction of pedestrian bridges, similar to the proposed CTB design was also evaluated; however, the limited distance available in the north-south direction, due to existing infrastructure on the east side of the airport, would have prohibited implementation of that option. Since the design did not meet the purpose and need and had constructability concerns, it was not developed further for evaluation.

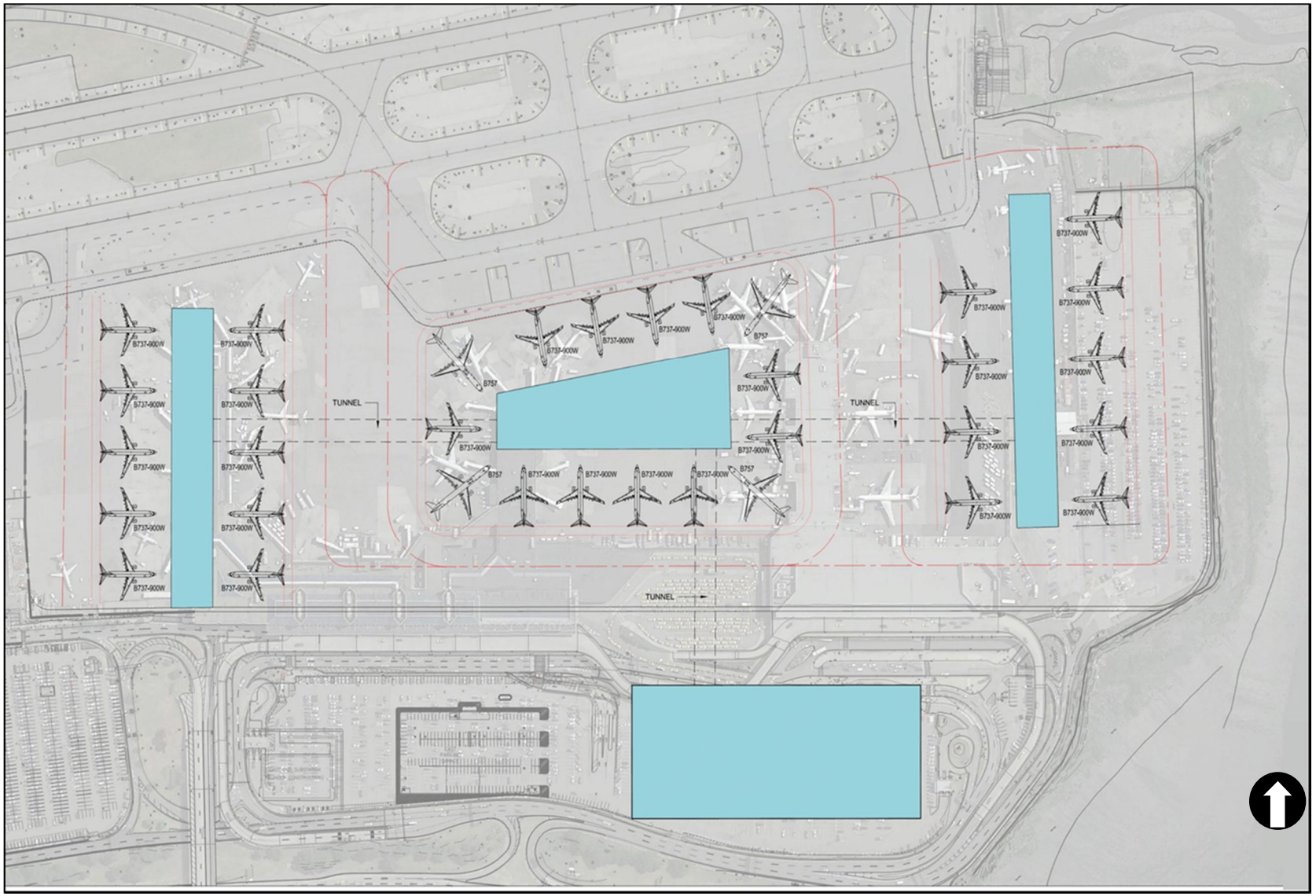
Expansion into Flushing Bay

Delta explored expanding beyond the current airport boundaries by constructing an additional concourse in lot P5 and apron space for gating positions and a taxilane farther east within Flushing Bay (see Figure 3-7). Terminals C and D were combined into a single headhouse with four concourses. The option provided gating flexibility and dual taxilanes between the two eastern concourses, but had significant environmental impacts.

Environmental requirements associated with the need to fill a significant area of Flushing Bay would have been difficult to meet because of wetlands, floodplains, and coastal zone impacts, as well as potential threatened and endangered species concerns. After preliminary analysis, the environmental and construction costs were determined to be too high and the ultimate outcome too uncertain for further consideration. In addition, the construction would have affected the recently updated Pump House #4, which is an important part of the airport's stormwater management and flood protection system, and could have displaced the East Field Lighting Vault, to be constructed as part of the CTB Redevelopment Program.

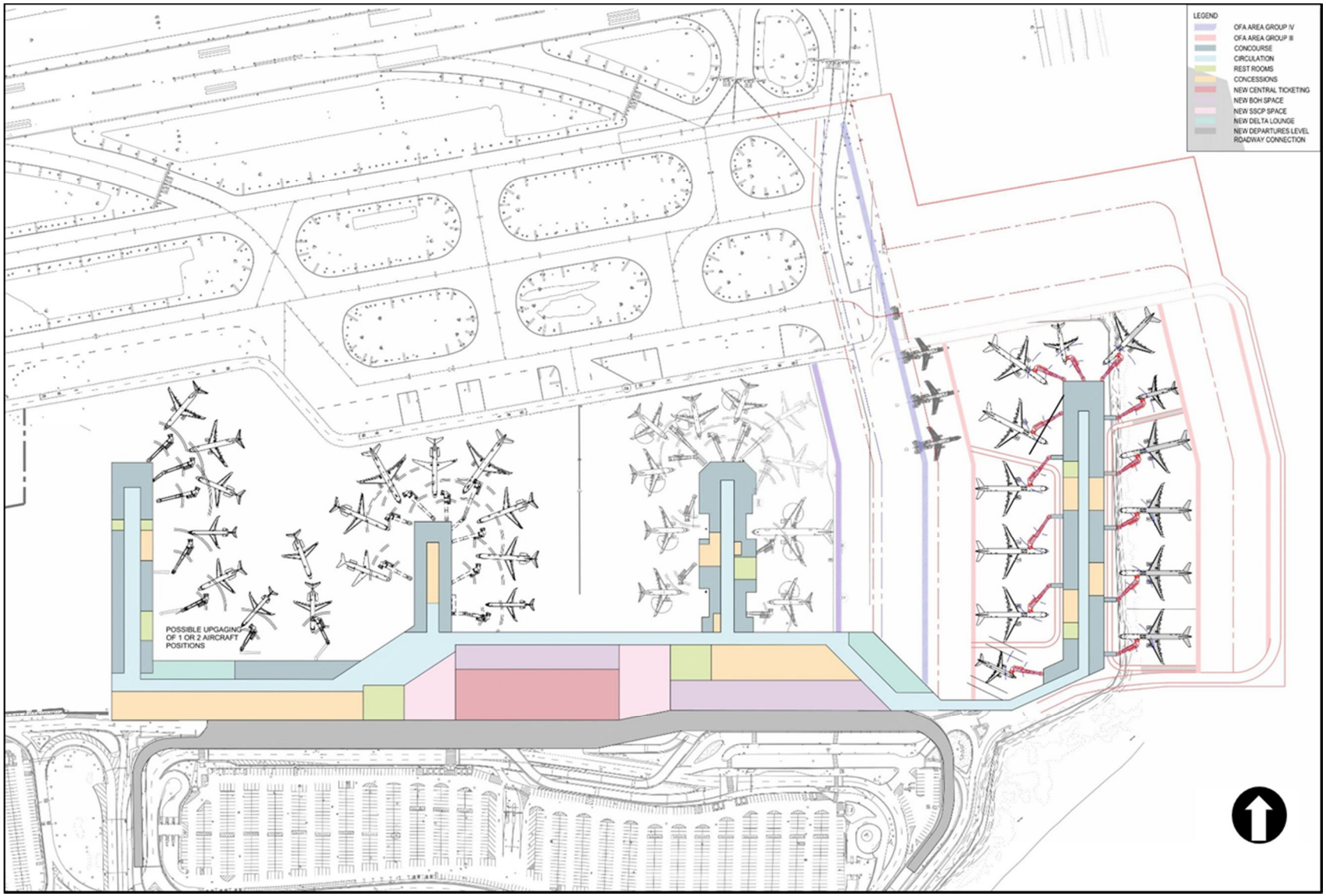
This option increased the number of contact gates but did not improve maneuverability and delay issues on the west concourses. Since the apron configuration did not change, there was only single taxilanes between the concourses. Therefore, the option did not fully meet the purpose and need for the project.

Figure 3-6. Island Concourses Option



Source: Delta Air Lines (2017).

Figure 3-7. Expansion into Flushing Bay Option



Source: Delta Air Lines (2017).

Other Options

Delta evaluated other terminal layouts during preliminary design such as a V-shaped terminal with a small island concourse, or variations of this Proposed Action with a relocated headhouse or reverse flow roadways. These options were eliminated from further consideration for reasons similar to those described for the east side and island options—constructability, insufficient contact gates, or failure to include dual taxilanes. In addition, some options required expansion beyond the airport lease line. One of the criteria for the evaluation was that the layout not modify areas that are already approved for redevelopment; therefore, any option that did not integrate with the previously approved CTB roadway design was eliminated.

For early phase planning and evaluation purposes—because most of the various terminal layouts would occur within a given project site and virtually no natural resources exist within the almost entirely developed project site—it was assumed that the potential for long-term development impacts on the affected resources would be essentially the same regardless of the option selected (with the exception of the Expansion into Flushing Bay option). There may have been variation in construction-related impacts (such as temporary air, noise, and traffic impacts); however, detailed construction phasing was not prepared for these conceptual designs.

3.3.2 Utilization of Alternate Sites within LaGuardia Airport

Delta leases Terminals A, C, and D for their LaGuardia Airport operations, with American Airlines operating out of nine gate positions in Terminal C and WestJet operating a single gate out of Terminal D. The CTB (Terminal B) serves multiple airlines. In this alternative, operations beyond the capacity of Terminals C and D were accommodated in the other terminals, either separately or in combination with one another, or in new facilities built in another location on the airport.

Using a different terminal was not a prudent or feasible alternative because no vacant space or underutilized facilities were available to accommodate unmet needs. The future CTB was designed to accommodate increases in forecasted demand for LaGuardia Airport, to a level of 34 million annual passengers by the year 2030. Approximately half of the demand—or 17.5 million annual passengers—was accounted for and was factored into the terminal space and gate requirements for Terminals A, C, and D. There is no excess capacity in the existing or planned future terminals at the airport. Moreover, using gates in the future CTB produced significant logistical obstacles to Delta passengers checking in at Terminal C or required Delta to maintain check-in facilities at four different terminals, resulting in a high level of redundancy.

Developing another location on the airport in which to implement this Proposed Action was not a prudent or feasible alternative. LaGuardia Airport is already land constrained. There was no suitable site with the space available to accommodate the airside, terminal, and landside requirements associated with constructing another terminal building.

For the reasons stated above, utilization of alternate sites within LaGuardia Airport was not a reasonable alternative.

3.3.3 Demand Management

Airport demand management strategies were also considered but were not carried forward. Demand management, in the aviation context, refers to the collection of administrative- and market-based policies designed to maintain efficient operations at congested airports by reducing total demand, shifting demand from peak to off-peak periods, or encouraging upgauging of aircraft.

Because of limited operational capacity in comparison with passenger demand, the Federal Aviation Administration (FAA) has imposed operational limits, or slots, at LaGuardia Airport since 1968.[53] The FAA issued an order limiting the number of arrivals and departures (slots) at LaGuardia Airport from Monday through Friday (6:00 a.m. – 9:59 p.m.) and Sunday (12:00 p.m. – 9:59 p.m.).[54]

Any alternative that used demand management strategies to reduce passenger demand or to limit projected growth did not meet the purpose and need for this Proposed Action. Therefore, demand management was not a reasonable alternative.

[53] FAR Part 93, *Special Air Traffic Rules*, Subpart K, *High Density Traffic Airports*.

[54] More information about the Order can be found in the *Federal Register* (docket number FAA-2016-12220).

4 Affected Environment

This section briefly describes the project's location and the existing environmental conditions for those impact categories potentially affected by this Proposed Action. The following resources are introduced in this section:

- Air Quality
- Coastal Resources
- Historic, Architectural, Archaeological, and Cultural Resources
- Land Use
- Noise
- Traffic and Transportation
- Water Resources

Chapter 5, Environmental Consequences, includes a discussion of all of the impact categories required by FAA Order 1050.1F, whether there would be impacts to those resources or not.

4.1 Project Location and Setting

LaGuardia Airport is located in the Borough of Queens, in New York City, New York. New York City consists of five boroughs connected by an expansive network of roadways, bridges, tunnels, and ferries used to cross a series of inland and coastal waterways that make up one of the largest natural harbors in the world. With more than 8 million residents living within 300 square miles, New York is the most populous city in the United States and the most densely populated. New York exerts a significant impact upon nation-and world-wide commerce, finance, media, art, fashion, research, technology, education, and entertainment. For this reason, people from across the U.S. and around the world travel to New York City and most use one of its three major airports. Approximately 90% of travelers using LaGuardia Airport are beginning or ending their trip at the airport, rather than transiting LaGuardia, indicating strong and lasting demand for Origin and Destination travelers to the New York/New Jersey region.

LaGuardia Airport is eight miles east of midtown Manhattan, and is New York City's primary airport for domestic travelers. Queens is the easternmost of the five boroughs, the largest in land area, and the second largest in population. With 2.2 million residents, approximately half of which are foreign born, Queens is one of the most culturally diverse urban areas in the world. Known for tight-knit ethnic communities influenced primarily by Asian and Hispanic cultures, there are residents from over 100 foreign countries speaking over 138 different languages.[55] The diversity of Queens's population is reflected in its employment sectors, which is spread across health care, retail trade, manufacturing, construction, transportation, and film and television production. Queens is well served by all modes of

[55] *http://www.newyork.com/ny/nyc/queens/* (Retrieved March 23, 2016)

transportation including two of New York City's three major airports—JFK and LaGuardia—for which citywide public transit for arriving and departing passengers is offered.

LaGuardia Airport consists of 680 acres bordered by Flushing Bay and Bowery Bay to the north and Grand Central Parkway to the south. The NYC Department of Corrections, Rikers Island Facilities are north of the airport across Rikers Island Channel, and the College Point neighborhood is located to the east, across Flushing Bay. The neighborhoods immediately adjacent to the airport are Astoria (Steinway), Jackson Heights, and East Elmhurst. Surrounding neighborhoods are densely developed with commercial strips and light industrial complexes situated along arterial roadways that pass through established communities and residential areas. Figure 4-1 is an aerial photograph of LaGuardia Airport and the surrounding area.

The airport's property is almost entirely built out. Approximately 95% of the property is covered by the airfield, buildings, roadways, and parking lots. Vegetation is limited to landscaped areas consisting of trees, foundation plantings, and turf grasses. Two undeveloped parcels within the property are located west of the terminal area—the vegetated lot known as 'Ingraham's Mountain' was partially cleared and graded in 2014 in order to provide employee parking for airport construction projects (the lot also contains a flight kitchen) and the Elmjack Little League operates several baseball fields with an adjacent parking lot.

The project site is bounded by the airfield to the north and west, Grand Central Parkway to the south, and Flushing Bay to the east (Figure 4-2). The area is fully developed and covered with buildings and pavement, with small landscaped areas consisting of trees, shrubs, and grasses.

4.2 Resources Potentially Affected

FAA Order 5050.4B states that the affected environment section of an EA should succinctly describe only those environmental resources this 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 importance of the impact. The resources introduced below include air quality, coastal resources, historic and archaeological resources, land use, noise, socioeconomics (traffic and transportation), and water resources.

4.2.1 Air Quality

National Ambient Air Quality Standards (NAAQS) are outdoor air quality standards for six principal pollutants (criteria air pollutants) established by the U.S. Environmental Protection Agency (USEPA) under the authority of the Clean Air Act. Areas of the country where air pollution concentrations persistently exceed NAAQS are designated "nonattainment." Areas that had a history of nonattainment but are now meeting NAAQS are designated as "maintenance." According to the USEPA's *Green Book*, Queens County is a designated nonattainment area for ozone (O_3) and a designated maintenance area for carbon monoxide (CO) and fine particulates ($PM_{2.5}$).[56]

[56] EPA list of currently designated nonattainment and maintenance areas for all criteria pollutants as of October 1, 2015.

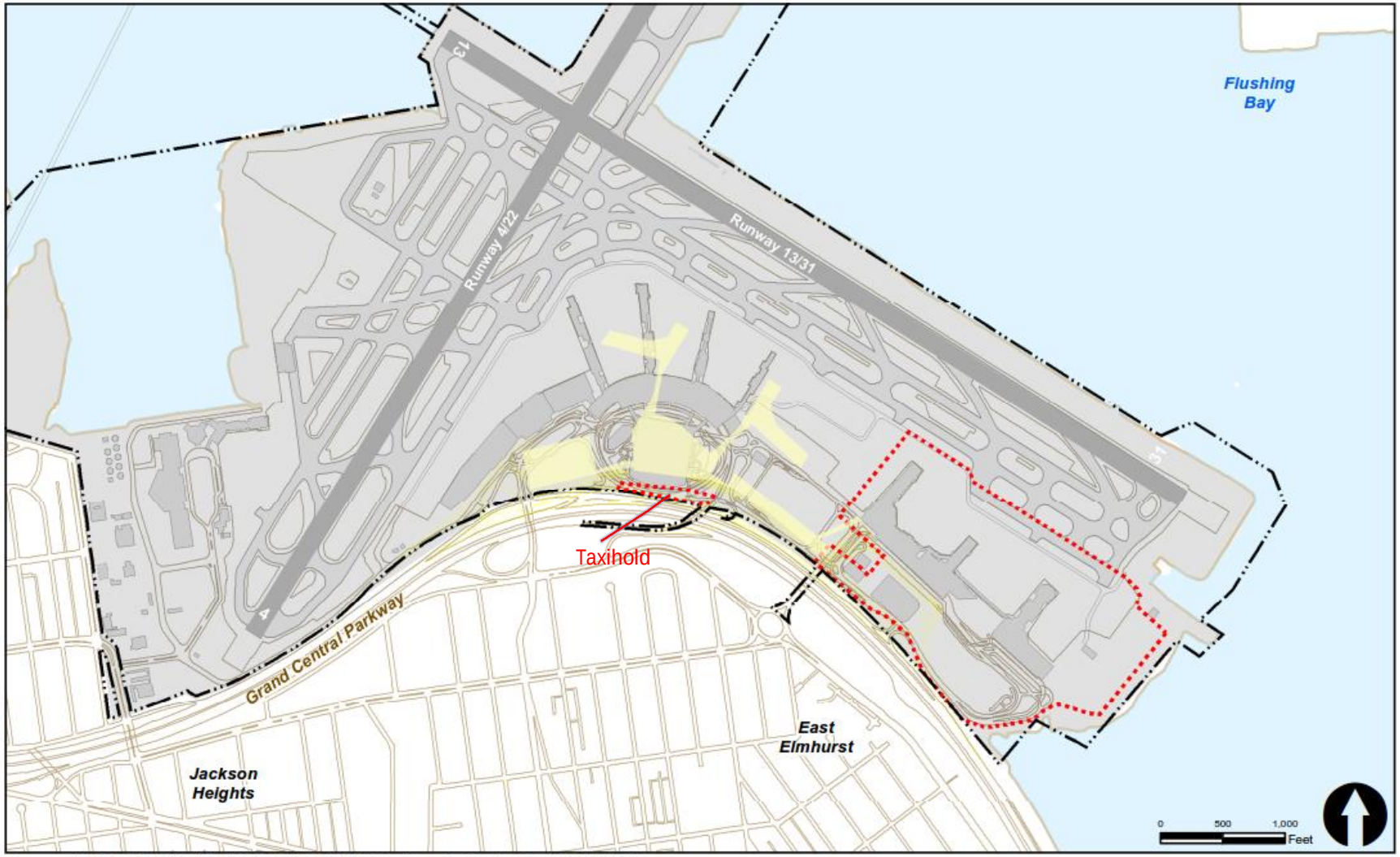
Source: NYC DCP, NYC DoITT, ESRI
Prepared by: AECOM (April 2016)

Figure 4-1

LaGuardia Airport
East Side Reconfiguration

Legend
Airport Property Line
0 0.25 0.5 Miles

Surrounding Environs



Source: NYC DCP, NYC DoITT, ESRI, PANYNJ Engineering Dept (Sept 2007), LGP
Prepared by: AECOM (January 2017)

Figure 4-2

LaGuardia Airport
East Side Reconfiguration

Legend
- Airport Lease Line
- Project Limit
- Future CTB Redevelopment

Project Limits

Since LaGuardia Airport is located in Queens County, a USEPA-designated nonattainment or maintenance area, project-related air emissions are subject to review under the Clean Air Act and its amendments. The assessment of impacts on air quality is discussed in *Section 5.1* and Appendix C.

4.2.2 Coastal Resources

LaGuardia Airport and much of the surrounding area is located within the Coastal Zone Management Area of New York (see Figure 4-3). Under the Coastal Zone Management Act of 1972, all federal actions within the coastal zone must comply with the "enforceable policies" of the New York Coastal Management Program. The New York State Department of State (NYSDOS) administers the program. The process by which the State decides whether a project or action meets its enforceable policies is called a consistency review. In addition, New York City has established a coastal zone under the Local Waterfront Revitalization Program—administered by the NYC Department of City Planning (NYCDCP)—which established the City's policies for the development and use of the waterfront and provided the framework for evaluating the consistency of all discretionary actions in the coastal zone. Appendix A presents the consultation with both NYSDOS and NYCDCP, and *Section 5.4* provides additional discussion of coastal zone consistency.

There are no coastal barriers or any areas subject to the Coastal Barriers Resources Act of 1982 or the Coastal Barriers Improvement Act of 1990 near LaGuardia Airport.

4.2.3 Historic Resources

There are several structures listed or eligible to be listed on the National Register of Historic Places (NRHP) near the project site. The NRHP-listed Marine Air Terminal is located approximately one mile west of the project site. The property is also an interior and exterior landmark designated by NYC's Landmarks Preservation Commission (LPC). The Lent Homestead and Cemetery, located between 19th Road and 19th Street in East Elmhurst, is also listed on the NRHP. Hangars 1, 2, 3, 4, 5, and 7 were built around 1940 and are part of the original airport. Hangars 1, 3 and 5 are located on the west side of the existing Central Terminal Building, Hangars 2 and 4 were located immediately east of the CTB, and Hangar 7 is located just east of the Marine Air Terminal. All six hangars were determined to be eligible for listing on the NRHP. As part of the CTB Redevelopment Program, Hangars 2 and 4 were demolished in 2015 and Hangar 1 is proposed to be demolished in 2020. There are no plans to remove Hangars 3 and 5 at this time and, in accordance with the Memorandum of Agreement signed for the CTB Redevelopment Program, they must remain in a state of good repair for the foreseeable future.[57] All of the listed or eligible sites are located west of this Proposed Action and beyond the project limits. In addition, the LPC-eligible Malcolm X House is located south of the airport.

The resources within the project limits, Terminals C and D and Building 99, were constructed between the early 1980s and 1992 and do not meet the age criterion to be considered for NRHP eligibility. Specifically, in 1983, Delta Air Lines constructed Terminal D at the eastern end of the airport, the east concourse of Terminal C was constructed in the early 1980s and in 1992, US Airways constructed the west concourse of Terminal C. In 2012, a new pedestrian bridge was opened that allows passengers to walk between

[57] *Final Memorandum of Agreement among the Port Authority of New York & New Jersey, the New York State Historic Preservation Office, and the Federal Aviation Administration, for the Central Terminal Building Redevelopment Program at LaGuardia Airport, Queens, New York* (November 2014).

Terminals C and D without having to reenter through security. Building 99 was built in 1990. Consultation with the State Historic Preservation Office (SHPO) and LPC is presented in Appendix A and an evaluation of impacts to both historic and archaeological resources can be found in *Section 5.8*.

4.2.4 Land Use

The Grand Central Parkway is an eight-lane divided highway separating the airport from the East Elmhurst and Jackson Heights neighborhoods. Land uses south of Grand Central Parkway are densely developed and consist mostly of residential areas with retail stores, commercial buildings, and office space concentrated along Ditmars Boulevard, 23rd Avenue, and Astoria Boulevard. Other notable land uses near the project site include Vaughn College of Aeronautics and Technology and Overlook Park. Flushing Meadows Corona Park, a 1,255-acre park that includes Citi Field, the Billy Jean King National Tennis Center, the Queens Zoo, and other recreational and educational facilities, is located southeast of the airport.

Airport property is zoned for Manufacturing, Light Industrial (M1-1). Zoning around the airport is primarily residential and mixed-used development (General Residence, R3-2, and Regional Commercial Center, C4-2). The assessment of impacts on surrounding land uses is discussed in *Section 5.9*.

4.2.5 Noise

Noise levels at and around LaGuardia Airport are affected both by the setting of the airport, which includes an urban area close to a major highway (Grand Central Parkway), and the aircraft operations taking place on the airfield. Vehicle traffic on and off the airport is a mostly steady source of ambient noise while aircraft operations make a more intermittent but significant contribution to existing noise levels.

The potential noise effects depend in large part on the distance between the source of the noise and a sensitive receptor, such as a church, school, hospital, or residence. Full noise and compatible land use analysis can be found in *Section 5.11* and Appendix C.

On October 27, 2014, PANYNJ announced the award of a contract to conduct a formal Airport Noise Compatibility Planning Study for LaGuardia Airport in conformance with 14 CFR Part 150. That study is ongoing, along with the following initiatives to address community concerns with aircraft noise:[58]

- A newly created noise office within the PANYNJ with dedicated staff
- Expanded noise monitoring program
- Introduction of a new flight and noise monitoring web portal (WebTrak)
- Enhanced noise complaint management system
- Airport Community Roundtables

[58] *http://www.panynj.gov/airports/noise-office.html*

4.2.6 Traffic and Transportation

During construction, this Proposed Action has the potential to impact service on local roads serving LaGuardia Airport and the surrounding community. On-airport roadways serving the east side terminals would be altered. There would be no changes to off-airport roadways or local transportation patterns as a result of the project. The assessment of impacts on traffic and transportation is discussed in *Section 5.12* and detailed results are provided in Appendix D.

On-Airport Roadways

The airport's internal roadway network includes several one-way loop roads that connect the terminals and parking facilities. Frontage roads to the arrivals and departures levels of the existing CTB and Terminals C and D allow for passenger drop-off and pick-up. LaGuardia Access Road runs parallel to Grand Central Parkway to the north and provides access to Grand Central Parkway and local roads. Runway Drive curves around the Runway 4 end to connect the main terminals with the airport facilities on the west side of the property, including the Marine Air Terminal (Terminal A serving the Delta Shuttle) and the fuel farm.

As part of the CTB Redevelopment Program (under construction), the central terminal area roadways are being reconfigured to accommodate free flowing traffic through the reconstructed terminal complex, including the new CTB. The roadway improvements will include three levels of frontage roadways accessing the new CTB, connecting roadways to the new West Garage, air traffic control tower (FAA only), and shipping/receiving facility, and connecting roadways to Grand Central Parkway (east and west). The roadway design will require reconstruction of a portion of the 102nd Street Bridge to the airport and realignment of Grand Central Parkway's eastbound flyover entrance ramp. Four signalized intersections will be incorporated into the new terminal roadway network.

Grand Central Parkway

The Grand Central Parkway is an eight-lane roadway that handles approximately 180,000 vehicles per day through western Queens.[59] The Parkway runs along the northern part of western Queens, past the southern border of LaGuardia Airport, before turning south to central Queens and intersecting with I-495 (Long Island Expressway). It connects to I-278 (Brooklyn-Queens Expressway) to the west of the airport and I-678 (Van Wyck Expressway and Whitestone Expressway) to the east via Northern Boulevard.

Eastbound entry to the airport from Grand Central Parkway is available via two exit ramps (94th Street and the "flyover"), and there is one exit from the airport via the loop ramp from the 94th Street Bridge. Westbound entry to the airport from Grand Central Parkway is available via the LaGuardia Access Road and two ramp connections (near Terminals C and D and the CTB). Airport exits are provided via two on-ramps from the frontage road (near the 94th Street Interchange). An additional exit to 82nd Street provides access to the west side of the airport, including Terminal A.

Local Roads

Connections between the airport and the communities south of Grand Central Parkway are via bridges at 82nd, 94th, and 102nd Streets over Grand Central Parkway, intersecting with Ditmars Boulevard and 23rd Avenue. Ditmars Boulevard is a surface street following Grand Central Parkway to the south, but elevated

[59] *http://www.nycroads.com/roads/grand-central/*

significantly above Grand Central Parkway. Astoria Boulevard is a principal east-west arterial through the East Elmhurst neighborhood. Analysis of existing intersections near the airport using data collected in 2015/2016 and the Highway Capacity Manual (HCM) methodology indicate that *most* turning movements operate at LOS "D" or better during weekday morning and evening peak hours.

Since commercial traffic is not allowed on Grand Central Parkway, all construction vehicles, cargo vehicles, and delivery trucks must use local roads, staying on NYC Department of Transportation (NYCDOT)-established truck routes to the extent possible. In the vicinity of the airport, Astoria Boulevard serves as a major through truck route and 94th Street; 19th Avenue and a portion of 23rd Avenue and Ditmars Boulevard are also established local truck routes.

Public Transportation

Five Metropolitan Transportation Authority (MTA) bus lines serve the airport. The M60, Q47, Q48, Q72 and Q70 express service routes connect airport passengers and employees to Queens, the Bronx, and Manhattan. The bus routes include stops at various airport terminals and administrative buildings. Private operator express bus service is also provided between the airport and various Manhattan locations, as well as to and from JFK International Airport.

4.2.7 Water Resources

The study area includes wetlands, floodplains, surface water, and groundwater resources. There is also a network of drainage basins, conveyances, and control mechanisms in place to help reduce the risk of flooding while minimizing the effects of airport activities on the quality and quantity of storm runoff. This subsection identifies the water resources and management systems that may be affected by this Proposed Action. The assessment of impacts on water resources is discussed in *Section 5.14*.

Wetlands

The few acres of pervious land within the airport property include both upland and lowland wetland cover types. The lowland areas consist of tidal wetlands and open water associated with the shoreline where Flushing Bay borders the airport; there are no wetlands or other water resources located within the interior of the property.

U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland mapping, NYSDEC Tidal Wetland mapping, State Soil Geographic Database (STATSGO) soils mapping, and aerial mapping, were reviewed and a preliminary field investigation was conducted on December 22, 2015. The USFWS NWI maps identified estuarine wetlands along the north, east, and west perimeter of the airport. *Estuarine wetlands* are characterized as deepwater tidal habitats with a range of brackish-marine water chemistry and daily tidal cycles. No freshwater wetlands are mapped near the airport. NYSDEC Tidal Wetland Maps depict tidal wetlands located along the perimeter of airport property and adjacent to Bowery Bay, Rikers Island Channel, and Flushing Bay.

The wetlands nearest to the project site are tidal marsh located along Flushing Bay on the north and east sides of the airport (see Figure 4-3). NYSDEC regulates tidal wetland adjacent areas (land immediately adjacent to a tidal wetland) in accordance with the Tidal Wetlands Act. The width of the adjacent area

within the boundaries of New York City is 150 feet. Although the tidal wetlands are not within the project limits, the project would encroach on the state-regulated tidal wetlands adjacent area. However, existing sheet piling forms a barrier between the airport and offsite tidal wetlands at the eastern end of the property, providing a confining feature that defines the limit of the landward side of the tidal wetland adjacent area.

Floodplains

According to the Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM), the majority of LaGuardia Airport lies within a tidal floodplain, primarily areas subject to a 1% annual chance flood (AE) with some portions designated a coastal flood zone with velocity hazard (wave action; VE) (see Figure 4-3).[60] Tidal floodplains consist of areas subject to coastal or tidal flooding by high tides, hurricanes, tropical storms, and steady on-shore winds. Coastal high hazard areas consist of coastal shorelines subject to high velocity wind and wave action in addition to tidal flooding. The 1% annual chance flood area extends to the southern edge of LaGuardia Road and in some areas south of Grand Central Parkway. The coastal flood zone generally follows the shoreline, except where it extends within Parking Lot #5 at the eastern side of the airport. Almost all (99%) of the 80-acre project site is within the 1% annual chance flood area. Within that area, 7.8 acres (10% of the project site) is designated coastal flood zone with velocity hazard.

Surface Water

LaGuardia Airport is surrounded on three sides by surface waters – adjacent bay areas located off of the main stem of the East River as it flows north of the airport, eventually discharging into Long Island Sound. Importantly, no surface waters are present within the interior of the airport or within the project limits.

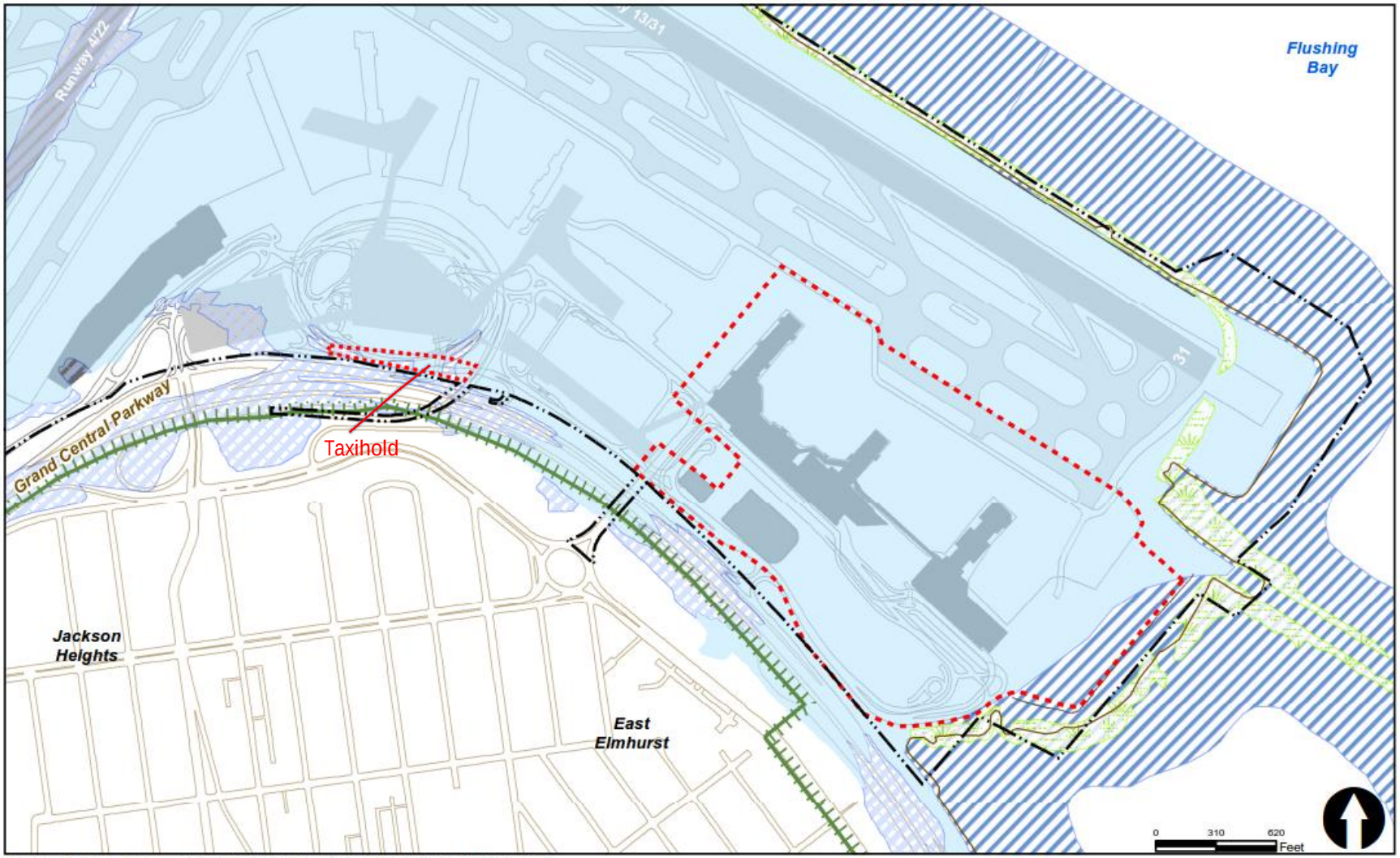
Flushing Bay is surrounded by a heavily urbanized region containing a very high population density (Borough of Queens) and is fed by Flushing Creek, which defines a heavily urbanized watershed. Flushing Bay is a saline surface water classified in NYSDEC Regulations as a Class I water suitable for secondary contact recreation and fishing.[61] Class I waters are suitable for fish propagation and survival but are the next to last level of classification for saline surface waters, indicative of water quality impairment.

The water quality of Flushing Bay near the airport is reported by the NYC Department of Environmental Protection (NYCDEP) to be somewhat impaired, although water quality has improved over the last decade or so. The Flushing Bay ecosystem has been degraded as a result of fill activities, bulk-heading, dredging, landfills, sewage discharges and combined sewer overflow (CSO) discharges. In highly modified and developed watersheds such as Flushing Bay, it is presumed that water quality and aquatic habitat characteristics will always be less than optimal due to irreversible changes to the watershed, as suggested by its classification as a Class I waterway. Flushing Bay is not designated as a Protected Water under the Protection of Waters Program administered by NYSDEC.[62]

[60] Preliminary FIRMs have been developed by FEMA for certain communities in New York and New Jersey affected by Superstorm Sandy; revised January 30, 2015.

[61] New York Codes, Rules and Regulations (NYCRR), Chapter X – Division of Water, Subchapter A: General, Article 2: Classes and Standards of Quality and Purity, Part 701: Classifications-Surface Waters and Groundwaters (6 NYCRR § 701.13)

[62] Article 15 pursuant to Chapter V – Resource Management Services, Subchapter D: Water Regulation, Part 608: Use and Protection of Waters (6 NYCRR § 608).



Source: FEMA (01/30/2015), NYC DCP, NYS Dept of State, NWI, ESRI
Prepared by: AECOM (January 2017)

Figure 4-3

LaGuardia Airport
East Side Reconfiguration

Legend
- 100-Year Floodplain
- Coastal Flood Zone with Velocity Hazard
- Other Flood Areas
- Tidal Wetlands
- Coastal Zone Management Area
- Project Limit

Water Resources

The USEPA has delegated the New York State to implement the federal National Pollutant Discharge Elimination System (NPDES) program through the State Pollutant Discharge Elimination System (SPDES) program administered by NYSDEC. LaGuardia Airport holds a New York SPDES permit for the discharge of stormwater (Permit No. NY 0008133). The permit requires the implementation of a Stormwater Pollution Prevention Plan (SWPPP) to reduce or prevent stormwater contamination during construction activities. In addition to regulating stormwater discharges, the SPDES permit requires the airport to track and report any noncompliance with the permit, such as planned releases and unanticipated releases (spills and leaks).

Groundwater

Groundwater resources in the project study area are part of the Brooklyn-Queens Aquifer System, which is part of the Long Island aquifer system underlying all of Nassau, Suffolk, Kings, and Queens Counties, and is listed by the USEPA as a Sole Source Aquifer.[63] The upper glacial aquifer is the uppermost hydrogeological unit on Long Island and is found in nearly all of Kings and Queens Counties.[64] Ranging in thickness from 0 to 300 feet below the surface, this aquifer consists mainly of till deposits (clay, silt, sand, gravel, and boulders) along the north shore and outwash deposits (mostly sand, gravel and clay) to the south. The local water table is within the upper glacial aquifer throughout most of Kings and Queens Counties and, according to the U.S. Geological Survey (USGS), the average water level measurement ranges from nine to 19 feet below sea level.[65]

The water table beneath LaGuardia Airport is generally near the surface. Groundwater is not withdrawn or otherwise used for any airport purposes. NYC drinking water is delivered from large upstate reservoirs—some more than 125 miles from New York City. There are no public water supply wells or drinking water resources near the airport. The nearest groundwater supply system is located in southwestern Queens, most of which has not operated in more than 10 years.

Stormwater

Runways, taxiways, buildings, aprons, roadways, and parking lots, cover approximately 95% of the airport property. These man-made impervious surfaces generate storm runoff, which is managed by the airport's drainage system. The drainage system consists of nine drainage basins with two inflow and 17 outfall locations. All outfalls drain into Flushing Bay, Rikers Island Channel, or Bowery Bay. Runoff is collected in seven of the drainage basins and conveyed via underground pipes to outfall locations. No collection system is identified with the two smallest basins, where the northern end of each runway is supported by piers that extend into the Rikers Island Channel.

[63]Although the Brooklyn-Queens aquifer is not utilized as the sole source of drinking water for the area, the counties are the recharge zone for the aquifers underlying the southeastern portion of Queens County and the streamflow source zone for aquifers underlying parts of Nassau County. Since Nassau County is under sole source protection, the sole source aquifer designation extends to encompass the Boroughs of Brooklyn and Queens (USEPA, Region 2 Water, Brooklyn-Queens Aquifer System Support Document, December 1983).

[64]For the purpose of this EA, the affected environment does not extend to the lower aquifer units (i.e., Jameco, Magothy, Lloyd Aquifers) because groundwater below the water table would not be affected by this Proposed Action.

[65]Water-Table Altitude in Kings and Queens Counties, New York in March 1997. Fact Sheet FS 134-97 prepared by USGS.

Water quality best management practices are in place to reduce or prevent pollution of surface and groundwater resources. In compliance with the requirements of the SPDES program, the *LaGuardia Airport Best Management Practices Plan* (BMPP, July 2009) is used by PANYNJ and its tenants and contractors to provide consistent and effective management of stormwater runoff quality.[66] The BMPP describes the drainage system, discusses airport activities and potential pollutant sources, identifies existing stormwater management controls and best management practices (BMPs), and addresses how BMPs are used to reduce or eliminate pollutants from entering the surrounding surface waters.

[66] *www.panynj.gov/airports/pdf/LGA-BMPP-2011.pdf*

5 Environmental Consequences

This chapter provides analysis of the environmental categories that could be affected by this Proposed Action, the No Action Alternative, or other reasonable alternatives. *Chapter 3, Alternatives*, determined that only this Proposed Action and No Action Alternative would be carried forward for environmental analysis.

This chapter discusses the following types of impacts for each environmental impact category:

- Direct impacts, which are caused by the action and occur at the same time and place[67]
- Indirect impacts, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable[68]
- Cumulative impacts, which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions

The analysis of each impact category follows the implementation guidance presented in Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policy and Procedures*, and the FAA *Environmental Desk Reference for Airport Actions*. This Proposed Action's analysis of construction impacts (e.g., apron, terminal and roadways)—for air quality, noise and traffic—assumed a 96-month construction schedule developed by Delta; however, an updated construction schedule (as of January 2017) shows completion in 106 months, with the same start date. Since the longer timeline would spread out the activity and reduce the peak amount of traffic and construction equipment use, the results shown in this chapter and the appendices represent a more conservative analysis of impacts (i.e., actual impacts would be lower than what numerical data indicate).

Cumulative Impacts

Council on Environmental Quality (CEQ) regulations require that all federal agencies consider the cumulative effects of Proposed Actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. If a Proposed Action would not cause direct or indirect impacts on a resource, then it may be concluded that it will not contribute to a cumulative impact on the resource.

Delta assessed the cumulative impacts resulting from this Proposed Action for projects on and off the airport. The geographic boundary of the analysis varied by resource but generally included the existing airport property and adjacent properties, including Flushing Bay to the north and Grand Central Parkway to the south, and the Queens neighborhoods of Ditmars/Steinway, Jackson Heights, East Elmhurst, and College Point. The timeframe for the analysis also varied by resource, but the time limits generally

[67] 40 CFR 1508.8(a)

[68] Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8(b)).

extended five years into the past (2011–2016) and into the future through the aviation activity forecast period (2016–2029).

The following list of past, ongoing, and reasonably foreseeable projects within the defined geographic area and timeframe could affect the same environmental resources as this Proposed Action and could result in a larger cumulative effect on those resources.

Past Projects

Airport projects and upgrades to existing facilities necessary for maintaining the airport in a state-of-good repair are typically excluded from the need for further analysis under National Environmental Policy Act (NEPA). These projects are by definition minor projects that do not individually or collectively have a significant impact on the environment; therefore, no further analysis is required for categorically excluded projects. The FAA allowed for categorical exclusions (CATEX) after review of the following projects at the airport:

- Rehabilitation of Taxiways R, S, P, and G (CATEX signed 06/07/2012)
- Rehabilitation of Taxiways A, M, ZA, and B (CATEX signed 06/07/2012)
- Pump House 4 Upgrades (CATEX 06/07/2012)
- Taxiway Rehabilitation (west of Runway 4-22) (CATEX signed 04/28/2015)

In addition, an environmental assessment (EA) was prepared to construct the east end substation and east garage in front of Terminal C. This project installed buried duct banks for commercial electric service feeder lines (provided by ConEdison) underneath Grand Central Parkway.[69] The FAA signed a Finding of No Significant Impact (FONSI) on February 5, 2013 and construction was completed in 2015.

The following off-airport projects near LaGuardia Airport were recently completed:

- New York State Department of Transportation (NYSDOT) Grand Central Parkway/94th Street Interchange Improvements – This state highway project implemented operational and capacity improvements by eliminating the weaving section between the eastbound entrance ramp from 94th Street/Ditmars Boulevard and the Exit 7 ramp to LaGuardia Airport. NYSDOT prepared an EA for this project and no significant impacts were identified.
- North Shore Marine Transfer Station – The New York City Department of Sanitation reopened a closed facility located approximately two miles east of LaGuardia Airport along the North Shore of Flushing Bay in College Point, Queens Borough.[70] The fully enclosed building was designed for the transfer of municipal solid waste from collection vehicles into sealed, leak-proof containers for export by barge and rail. The station was completed in November 2014 and opened in early 2015.

[69] *Final Environmental Assessment for the East End Substation and East Garage at LaGuardia Airport* (PANYNJ, February 2013)

[70] *Solid Waste Management Plan, Final Environmental Impact Statement* (NYC Department of Sanitation, April 2005).

Ongoing Projects

Two CATEX projects are underway at LaGuardia Airport:

- Runway Deck Structural Rehabilitation (CATEX signed 09/29/2016; construction to be completed in 2019)
- Runway 13-31 Rehabilitation (CATEX signed 10/21/2014; construction to be completed first quarter of 2017)

One major project at the airport is nearing completion:

- Runway Safety Area (RSA) Enhancements – The project involves improving the Runway Safety Area (RSA) at the Runway 4 and Runway 31 ends by extending the existing decks farther into Flushing Bay, the future construction of a new section of restricted vehicle service road (RVSR) south of the Runway 22 end, and establishing a construction staging area at Ingraham's Mountain to support the development of the RSA and RVSR project elements. FAA signed the FONSI on December 31, 2013. Construction was initiated in 2014, with the RSA portion completed at the end of 2015.[71]

One major project at the airport has recently been initiated:

- Central Terminal Building (CTB) Redevelopment Program – The program will demolish the CTB, parking garage (P1), and three hangars, construct a new terminal building and west garage, and reconfigure the terminal airside apron and landside roadways. The design will accommodate larger aircraft with increased seating capacity in order to meet the projected increase in passenger demand. The FAA approved a Written Reevaluation/Record of Decision on December 30, 2015. Construction began in the second quarter of 2016 and will continue through 2021.

One significant off-airport project is underway:

- National Tennis Center Strategic Vision Project – New York City Department of Parks and Recreation (NYCDPR), in coordination with the U.S. Tennis Association National Tennis Center (NTC), is working to improve and expand the facilities at the NTC located in Flushing Meadows in Corona Park, Queens.[72] The 41-acre NTC is one of the world's largest public recreation tennis facilities and is host to the U.S. Open. The project will improve the NTC site plan, circulation, amenities, and landscaping, will construct two new stadiums to replace the two existing stadiums (Stadiums 2 and 3), and will add a retractable roof to Arthur Ashe Stadium (Stadium 1). NYCDPR issued a Notice of Completion per City Environmental Quality Review (CEQR) on May 10, 2013. The project was initiated in the fall of 2013, the roof was completed in 2016, and the remainder of the project is expected to be completed by summer of 2018.

[71] *LaGuardia Airport Runway Safety Area Enhancements, Final Environmental Assessment* (PANYNJ, December 2013).

[72] For more information: *www.nycgovparks.org/park-features/fmcp/usta-ntc-strategic-vision-project*

Reasonably Foreseeable Projects

Within the next five years, the Port Authority New York and New Jersey (PANYNJ) plans to do the following projects at the airport: [73]

- Relocate the Remote Transmitter/Receiver (an FAA navigational aid)
- Rehabilitate runway deck wearing surface
- Rehabilitate Taxiway B (from G to CY)
- Rehabilitate Taxiways B, AA, BB and associated taxiways
- Replace Air Operations Area (AOA) light circuit
- Replace Pump House 6 substation
- Rehabilitate runway deck priority structural elements
- Construct underground glycol storage
- Replace runway deck expansion joints

The following off-airport projects are planned in the neighborhoods surrounding LaGuardia Airport:

- Environmental Dredging of Flushing Bay – New York City Department of Environmental Protection (NYCDEP) is proposing to dredge approximately 16.8 acres of Flushing Bay near two combined sewer overflow (CSO) outfalls located east of the airport, near the World's Fair Marina.[74] The proposed project will remove accumulated sediment mounds exposed at low tide and reduce associated nuisance odors. The dredging project also includes removing deteriorated timber piles and restoring wetlands along the shoreline to further improve the aesthetics of the bay. The project started January 2017 and will be completed by the end of 2017. Wetland mitigation will continue for several years.
- Willets Point Redevelopment – The Office of the Deputy Mayor for Economic Development acting as lead agency for this project proposes to rezone Willets Point, create an urban renewal area, and implement the Willets Point Development Plan in Willets, Queens.[75] The proposed plan's main goal is to transform a largely underutilized site—with substandard conditions and substantial environmental degradation—into a lively, mixed-use, sustainable community and regional destination. The approximately 61-acre Willets Point Development District would be redeveloped with residential, retail, hotel, convention center, entertainment, commercial office, community facility, open space, and parking uses at a cost of approximately $3 billion. In addition, the proposed plan would connect the Van Wyck Expressway with the district. The Office of the Deputy Mayor for Economic Development issued a Notice of Completion per CEQR on August 9, 2013. According to the Final Supplemental Environmental Impact Statement, the District would be redeveloped in several phases over approximately 19 years. Although groundbreaking has occurred for off-site infrastructure improvements, other aspects of the project have been delayed because of litigation related to

[73] As described in *Section 1.4*, Governor Cuomo's goal to transform LaGuardia Airport includes components, such as a hotel, AirTrain connection to Willets Points and ferry terminal, which are still pending consideration and have not yet completed feasibility analyses, identified funding or received PANYNJ Board authorization. They are not considered reasonably foreseeable at the present time.

[74] For more information: *www.nyc.gov/html/dep/html/environmental_reviews/flushing_bay_environmental_dredging.shtml*

[75] For more information: *www.nycedc.com/project/willets-point-development*

transferring 47 acres of parkland to build a mall adjacent to Citi Field. The development cannot continue without a court decision or state legislative approval.

5.1 Air Quality

The Clean Air Act as amended (CAA) is the comprehensive federal law that regulates air emissions from mobile and stationary sources. This law authorizes the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants (HAP). Areas of the country where air pollution levels persistently exceed the NAAQS are designated "nonattainment areas." Areas that have a history of nonattainment but are now meeting NAAQS are designated "maintenance areas." According to the USEPA's Green Book,[76] Queens County in New York is a designated marginal nonattainment area for ozone and a designated maintenance area for fine particulate matter and carbon monoxide.

LaGuardia Airport is located in Queens County, which means project-related air emissions would occur within USEPA-designated nonattainment and maintenance areas. This Proposed Action is not exempt from the CAA nor is the project presumed to conform[77] to the state implementation plan (SIP).[78] Therefore, the USEPA's General Conformity Rule (40 CFR Part 93, §93.153)[79] applies to the project and an air quality analysis must be prepared. The General Conformity Rule's purpose is to ensure that federal activities do not cause or contribute to new violations of the NAAQS, increase the frequency or worsen existing violations of the NAAQS, or delay attainment of the NAAQS.

This report section, supplemented by the analysis and discussion contained in Appendix C: Air Quality and Noise Impact Analysis Memorandum, provides the information, materials, and evidence needed to demonstrate compliance pursuant to the CAAA, USEPA regulations, and NEPA.

General Conformity Review

According to the General Conformity Rule, if the total direct and indirect emissions from a Proposed Action do not exceed established screening criteria emission rates (known as *de minimis* thresholds), a General Conformity Determination[80] is not required. "Direct emissions" (such as construction-site emissions) occur

[76] *The Green Book Nonattainment Areas for Criteria Pollutants* (as of October 1, 2015) is available online at *https://www.epa.gov/green-book*.

[77] The FAA has designated a list of actions whose emissions are typically below USEPA's thresholds of significance (*de minimis*) for the various criteria pollutants. These actions, known as "presumed to conform actions," typically do not require air emissions analysis. For more information, see *Federal Register/Vol. 72, No. 145* [FR Doc. 07-3695 Filed 7-25-07].

[78] Under the Clean Air Act, states must develop state implementation plans (SIP) that outline how they will control air pollution in designated nonattainment and maintenance areas. A SIP is a collection of regulations, programs, and policies an individual state will use to attain and maintain the NAAQS.

[79] Under the Clean Air Act (§176(c)(4)) General Conformity Rule, federal agencies must work with state, tribal, and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan.

[80] A Conformity Determination demonstrates that total emissions for the project area, on a pollutant-by-pollutant basis are within the emissions limits established by the state implementation plan in order to protect public health. It is the formal process and documentation required when the emissions from the proposed project or action in a non-attainment or maintenance area are at or above *de minimis* levels and are not otherwise exempt or presumed to conform.

at the same time and place as the project. "Indirect emissions" are reasonably foreseeable emissions (such as emissions from aircraft operations and vehicular traffic) that may occur later and/or are further removed from the project. Per federal guidelines, other emissions at the airport that are not associated with the Proposed Action are part of the background emissions and are not included in the analysis.

Using forecast airport activity information and appropriate emission factors, Delta prepared emissions inventories for this Proposed Action and No Action Alternative (see Appendix C).[81] The USEPA's Motor Vehicle Emission Simulator (MOVES2014a) model predicted emissions factors related to heavy-duty diesel equipment. NYSDOT provided model inputs and guidance for the use of MOVES in Queens County. FAA's Office of Environment and Energy's Aviation Environmental Design Tool (AEDT) (version 2b) calculated aviation-related emissions (from aircraft, auxiliary power units [APU], ground service equipment [GSE], etc.). In evaluating project-related emissions, the net emissions are determined by subtracting future emissions without the project (the No Action Alternative) from the future emissions with the project (this Proposed Action). If project-related emissions would exceed the USEPA's *de minimis* threshold levels, then a Conformity Determination must be prepared.

Emission Reduction Strategies

In accordance with PANYNJ's *Sustainable Design Guidelines*, this Proposed Action would reduce project-related emissions during and after construction. This is a normal part of the design process; therefore, these emissions reductions are included in the net emissions for the total direct and indirect emissions for this Proposed Action. For example, during construction, contractors would be required to use ultra-low sulfur diesel (ULSD) fuel; all off-road equipment would be required to be retrofitted with emission control devices using Best Available Technology; and diesel-powered generators would be limited to situations where commercial electric power may not readily be available.

After construction, this Proposed Action would also include component projects designed to reduce emissions from aircraft and GSEs. For example, a 400 Hz power unit would be installed at each gate to deliver standby power sized for all potential aircraft operating systems that may use that gate, and pre-conditioned air (PCAir) devices would be installed to provide heated/cooled air as needed to maintain a comfortable cabin temperature between flights. Using 400 Hz power and PCAir devices would reduce the time aircraft are otherwise required to operate their APUs, which burn aircraft fuel and generate exhaust emissions while the aircraft is parked at the gate. In addition, charging stations would be installed in the new terminal, providing the ability to use electric bag tractors, belt loaders, and push-back tractors that run on batteries, which require periodic recharging. Unlike conventional GSE, which burn gasoline and diesel fuel, the electric GSE would generate no on-site emissions since they are electrically powered vehicles.

5.1.1 Direct Impacts

Construction-related air emissions would be generated by on-road vehicles and non-road equipment. On-road sources of emissions include private automobiles used by construction workers commuting to and from work, shuttle buses used to transfer workers between the parking lot and the project site, and

[81] An "emissions inventory" is a database that lists, by source, the amount (e.g., tons per year) of air pollutants discharged into the atmosphere of a community during a specified period of time.

contractor vehicles certified to operate on local roadways (e.g. tractor trailers, cement mixers). Non-road sources consist of contractor vehicles and equipment used on-site and include a wide variety of engine types, ranging from portable generators to heavy-duty pieces of equipment such as cranes, excavators, and asphalt pavers.

Delta prepared engineering estimates of vehicle traffic and equipment operations for each component of the construction process (see Appendix F: Supporting Data). Assuming Delta's eight-year construction schedule—beginning spring 2017 and ending early 2025—Delta used USEPA-approved simulation software and modeling techniques to prepare emissions inventories for each calendar year (see Appendix C). Equipment emissions' estimates were based on the estimated hours of usage and emission factors of each motorized source during both demolition and construction activities. Delta used USEPA's MOVES model to predict emission factors, using NYSDOT supplied model inputs and guidance and typical load factor values from the model. Table 5-1 presents the results of the air quality analysis. As shown, 2021 would be the peak emissions year for all criteria pollutants, which is consistent with the activities proposed in the construction schedule. As shown in Table 5-1, the construction emissions would be a small percentage of the applicable *de minimis* threshold levels; therefore, federal guidelines indicate that no significant air quality impact would occur during the construction period.

Table 5-1. Annual Emissions Inventory – Construction Phase

Year	Annual Emission Rate (tons)					
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_2
2017	3.685	29.998	16.858	2.775	2.612	0.035
2018	4.626	33.401	19.202	3.167	2.979	0.046
2019	2.993	22.693	12.121	2.067	1.931	0.030
2020	2.894	21.636	12.711	2.064	1.932	0.030
2021	5.100	38.097	24.888	3.882	3.690	0.048
2022	3.747	29.448	15.583	2.724	2.575	0.041
2023	2.697	18.965	12.884	2.060	1.921	0.027
2024	1.226	8.352	5.464	0.935	0.825	0.013
2025	0.206	1.412	0.920	0.157	0.139	0.002
De minimis Threshold	50	100	100	n/a	100	100

Source: AECOM, 2017; Appendix C.
Note: Bold values indicate the maximum (peak) year of emissions.

As described in Section 3.1.5, the Proposed Action would be constructed over the course of nearly nine years (106 months) as opposed to the eight years (96 months) evaluated in the air quality analysis. As the more conservative eight-year analysis indicates, there would be no significant air quality impacts from construction of the Proposed Action, and the longer nine-year program would result in even less of an impact since the longer schedule would allow for more-efficient use of resources when compared to the 96-month schedule. Under the 106-month schedule, Concourse F would be constructed as a single building, rather than in two completely separate halves as contemplated under the 96-month program, thereby requiring fewer construction vehicles, equipment, and manpower. There would be fewer overlap and concurrent activities, which would reduce the peak and spread out the same amount of emissions over a longer period. At the peak of construction, there would be a 17-percent decrease in construction manpower and a 12-percent decrease in construction trucks for the 106-month construction schedule, compared with the 96-month program (as shown in comparative graphs in *Section 5.12.1*). This would

reduce the actual emissions during that peak period by a comparable percentage and increase emissions for nearly one year beyond what was originally calculated (for the year 2025 and into 2026). Based on the manpower and vehicle estimates presented in Appendix F, the emissions added to the end of the construction program would be less than 35 percent of those calculated for the peak construction year and would be well below *de minimis* thresholds.

Traffic Intersection "Hot-Spot" Analysis

Delta conducted a hot-spot screening analysis in accordance with established methodologies in the *CEQR Technical Manual* to determine whether carbon monoxide and particulate matter emissions caused by construction traffic volumes would result in unacceptably high concentration levels in public areas. A $PM_{2.5}$ hot spot screening was first performed at each intersection studied for the construction traffic analysis (see Section 5.12.1 and Appendix E). CEQR's screening worksheet was used to determine the incremental truck equivalency for peak-hour traffic, which was then compared to the screening threshold. Hot-spot modeling is typically performed with the CAL3QHCR model, which models hourly concentrations of pollutants based on hourly traffic data and the most recent five years of hourly meteorological data. However, this screening analysis found that all intersections passed the Tier 1 screening and no study intersection would require further dispersion modeling analysis; therefore, no significant air quality impacts would occur at local hot spots as a result of this Proposed Action. Appendix C provides more detail on the methodology, input data, and results for the hot spot screening.

5.1.2 Indirect Impacts

After construction, day-to-day airport and airline operations would continue to generate emissions of criteria pollutants. Aircrafts, vehicles, and equipment that can be moved from one location to another emit "mobile source" air pollution. Mobile source emissions from airside operations include aircraft engines, aircraft APUs and GSE. FAA's Aviation Environmental Design Tool (AEDT) software was used to compute the aviation-related emissions inventories for the USEPA criteria air pollutants and their precursors. The model was used to predict the net change in aircraft operation-associated taxi and idling emissions as a result of this Proposed Action. On the landside, mobile source emissions are generated by vehicles on the roadways and in parking lots, including personal automobiles and commercial vehicles such as taxis, limousines, shuttle buses, delivery trucks, etc. However, since this Proposed Action would not result in a change in the passenger forecast when compared with the No Action Alternative, it is assumed that there would be no change in landside mobile source emissions (i.e., no increase in passenger vehicles, taxis, etc.); therefore, Delta did not analyze operational vehicular traffic emissions.

A "stationary source" of air pollution refers to an emissions source that does not move, also known as a point source. The proposed central utility plant (CUP) for the East Terminal would be a stationary source of emissions, resulting from heating and cooling the terminal building. Delta used the actual annual fuel usage data from the existing stationary source operations at Terminals C and D and the size of each source was the basis to establish the emissions levels for the existing sources. The existing emissions estimates were then prorated based on the proposed design heating and cooling capacity to determine the expected emissions under this Proposed Action. This approach is considered conservative since the new sources are designed with greater energy efficiency and are anticipated to result in a lower unit emission rate for each applicable nonattainment or maintenance pollutant.

Emissions inventories for the future year 2029 were prepared for mobile and stationary sources with and without this Proposed Action (see Appendix C). Emissions were calculated for aircraft operations and the CUP.

The assessment demonstrates that the emissions resulting from this Proposed Action would be higher than the emissions from the No Action Alternative for only three pollutants, and lower for the other three pollutants. This Proposed Action would reduce aircraft congestion and gate-wait delays in and around the aircraft parking apron. Since there would be no change in the number of operations or the fleet mix (compared with the No Action Alternative), emission would decrease because of the reduction in aircraft taxi time-in-mode (i.e., average number of minutes for the taxiing portion of the aircraft operation) and reduced use of aircraft APUs and conventional GSE, which, for the purpose of this discussion, translate into reduced fuel consumption and, by extension, fewer air emissions.

Table 5-2 shows that the difference between this Proposed Action and the No Action Alternative (net) emissions would be below the applicable *de minimis* thresholds. In fact, this Proposed Action would decrease net emissions of fine particulate matter (PM_{10} and $PM_{2.5}$) and sulfur dioxide (SO_2), while limiting the net increase of volatile organic compounds (VOCs) and carbon monoxide (CO) emissions. Emissions of nitrogen oxides (NO_x) would be 23.5 tons per year (tpy) as a result of the upgrade in the terminal heating and cooling system, but would still be well below the 100 tpy threshold. Appendix C provides more detail on the approach, methodology, input data, and results for the emissions inventory analysis.

Table 5-2. Net Annual Emissions – Operations Phase

Source	Annual Emissions (tons)					
	VOC	NOx	CO	PM10	PM2.5	SO2
Aircraft	-1.0	-5.7	-11.4	-0.7	-0.7	-1.1
Stationary Sources	6.8	29.2	15.2	0.6	0.6	0.0
Total	5.8	23.5	3.8	-0.1	-0.1	-1.1
De Minimis Thresholds	50	100	100	n/a	100	100

Source: AECOM, 2017; Appendix C.

Because this Proposed Action (both construction and operations) would not result in emissions above the applicable *de minimis* thresholds, no further analysis is required under the General Conformity Rule. This Proposed Action conforms to the New York SIP and the Clean Air Act. Consequently, no adverse impact on local or regional air quality is expected to occur as a result of this Proposed Action.

5.1.3 Cumulative Impacts

Under this Proposed Action, construction-related air emissions would be generated by on-road vehicles and non-road equipment from 2017 through early 2026. The CTB Redevelopment Program is currently under construction and activities would continue through the year 2021.

Table 5-3 presents the estimated emissions from construction of both the CTB Redevelopment Program and this Proposed Action. As shown, the construction-related air emissions for each project are clearly *de*

minimis.[82] By definition, incremental impacts that are so small as to be *de minimis* do not contribute to significant impacts. Nevertheless, if both airport construction projects were to be considered together, the combined emissions during each year of construction for each criteria pollutant would still be less than the *de minimis* threshold levels.[83] Therefore, the incremental increase in construction-related air emissions attributable to this Proposed Action would not contribute to a significant adverse impact on the air environment.

Other major construction projects near the airport that are proposed to be underway at approximately the same time include the following:

- Environmental Dredging of Flushing Bay
- Willets Point Redevelopment

The respective City agencies have evaluated both projects and determined them to have no significant adverse air quality impacts. Therefore, the cumulative construction-related air emissions attributable to this Proposed Action and the above-referenced projects would not contribute to a significant adverse impact on the air environment.

After construction, day-to-day airport and airline operations would continue to generate emissions of criteria pollutants. Emissions inventories were prepared for the future year emissions from both the CTB Redevelopment Program (year 2030) and this Proposed Action (2029). Table 5-4 presents the annual emissions attributable to each project. The assessment demonstrates that, with the exception of NO_x, all criteria pollutant emissions would be reduced during the operational condition, as compared to the No Action Alternative. The total NO_x emissions resulting from the projects would total almost 50 tons per year but still be below *de minimis*. Therefore, the incremental emissions resulting from the future operation of this Proposed Action would not contribute to a significant adverse impact on the air environment.

[82] The estimates in Table 5-3 represent the worst case scenario. The same methodology was used for both analyses, which assumed all equipment for a given month would run every work day, for 8 hours per day (significantly more than what would actually occur). In addition, the most updated construction phasing plan for the East Side Reconfiguration has been extended 10 months from what was assumed in the analysis presented in Table 5-3. This would reduce the most intense period of construction since the same construction equipment usage and construction vehicle emissions would be spread across a longer period of time.

[83] Accumulating total air emissions from independent construction projects at LaGuardia Airport is for demonstration only; under the USEPA's General Conformity Rule, individual projects that have been determined to have *de minimis* emissions do not contribute to significant impacts.

Table 5-3. Annual Emissions Inventory – Cumulative Construction Analysis

Pollutant	Annual Emissions (tons per year)										*De Minimis* Threshold
	2016		2017		2018		2019		2020		
	CTB	PA	CTB	PA	CTB	PA	CTB	PA	CTB	PA	
VOC	1.33	—	4.16	3.69	3.71	4.63	3.03	2.99	0.90	2.89	50
	1.33		7.85		8.34		6.02		3.79		
NO_X	15.22	—	44.98	30.00	40.41	33.40	33.03	22.69	8.68	21.64	100
	15.22		74.98		73.81		55.72		30.32		
CO	10.31	—	32.23	16.86	27.19	19.20	20.98	12.12	8.71	12.71	100
	10.31		49.09		46.39		33.10		21.42		
PM_{10}	0.85	—	2.66	2.78	2.33	3.17	1.90	2.07	0.55	2.06	—
	0.85		5.44		5.50		3.97		2.61		
$PM_{2.5}$	0.77	—	2.39	2.61	2.11	2.98	1.74	1.93	0.50	1.93	100
	0.77		5.00		5.09		3.67		2.43		
SO_2	0.03	—	0.10	0.04	0.08	0.05	0.06	0.03	0.02	0.03	100
	0.03		0.14		0.13		0.09		0.05		

Pollutant	Annual Emissions (tons per year)										*De Minimis* Threshold
	2021		2022		2023		2024		2025		
	CTB	PA	CTB	PA	CTB	PA	CTB	PA	CTB	PA	
VOC	0.99	5.10	0.54	3.75	—	2.70	—	1.23	—	0.21	50
	6.09		4.29		2.70		1.23		0.21		
NO_X	10.10	38.10	6.16	29.45	—	18.97	—	8.35	—	1.41	100
	48.20		35.61		18.97		8.35		1.41		
CO	7.25	24.89	2.43	15.58	—	12.88	—	5.46	—	0.92	100
	32.14		18.01		12.88		5.46		0.92		
PM_{10}	0.65	3.88	0.32	2.72	—	2.06	—	0.94	—	0.16	—
	4.53		3.04		2.06		0.94		0.16		
$PM_{2.5}$	0.57	3.69	0.31	2.58	—	1.92	—	0.83	—	0.14	100
	4.26		2.89		1.92		0.83		0.14		
SO_2	0.02	0.05	0.01	0.04	—	0.03	—	0.01	—	0.00	100
	0.07		0.05		0.03		0.01		0.00		

Source: PANYNJ December 2015 Technical Report: *Proposed Design Changes to the Central Terminal Building Redevelopment Program at LaGuardia Airport;* Appendix C, *Air Quality and Noise Impact Analysis Memorandum for LaGuardia Airport East Side Reconfiguration* (AECOM; January 2017).
PA = Proposed Action; CTB = Central Terminal Building

Table 5-4. Net Annual Emissions – Cumulative Operations Analysis

Source	Annual Emissions (tons per year)					
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_2
CTB	-20.24	25.17	-215.33	-3.97	-4.02	-10.01
East Terminal	5.8	23.5	3.8	-0.1	-0.1	-1.1
Total	-14.44	48.67	-211.53	-4.07	-4.12	-11.11
De Minimis Thresholds	*50*	*100*	*100*	*n/a*	*100*	*100*

Source: Central Terminal Building Redevelopment Program at LaGuardia Airport, Final Environmental Assessment (PANYNJ, November 2014); Appendix C, *Air Quality and Noise Impact Analysis Memorandum for LaGuardia Airport East Side Reconfiguration* (AECOM; January 2017).

5.2 Biological Resources

Biologic resources include all species of fish, wildlife, plants, and their habitats. Numerous statutes, regulations, Executive Orders, and guidance that may need to be addressed under NEPA and may require consultation with various federal and state agencies relate to biological resources. The U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and New York State Department of Environmental Conservation (NYSDEC) were all consulted as part of this Final EA.

A preliminary site assessment was performed to verify the presence/absence of biotic resources within the project site.[84] Secondary source data and agency resource mapping were used to establish baseline environmental conditions. As discussed in *Chapter 4, Affected Environment*, the project site is entirely developed with buildings and pavement interspersed with urban landscaping consisting of trees, shrubs, and grasses. Approximately 95 percent of the project site is covered with impervious surfaces. The remaining landscaped areas, including roadway medians and drainage basins, provide limited habitat value because they are actively maintained using best management practices (BMP) for minimizing the potential to attract hazardous wildlife on or near the airport.[85]

5.2.1 Direct Impacts

Due to the nature and extent of existing development and the corresponding lack of natural habitat, there have been limited observations of wildlife within the central terminal area or the project site. Various trees, shrubs, and mowed grasses associated with the landscaped medians between the internal and external roadways provide highly fragmented habitat with little or no value. A small section of upland vegetation south of Grand Central Parkway would be disturbed during construction of a buried utility ductbank that would connect the previously installed ductbanks under Grand Central Parkway and the ConEdison connection under the 102nd Street Bridge. The area to be disturbed was previously disturbed to install ductbanks for the EES project in 2013. No trees would be affected, and the site would be restored to its original condition at the completion of the project.

Wildlife documented to occur within the project site are principally avian species (birds) adapted to an urban environment, such as grackles, starlings, pigeons, doves, crows, etc. Reconfiguration of the terminal building and roadways would redistribute the surrounding landscaped areas, which would decrease the total landscaped area by no more than 1 acre. The limited wildlife species that do occupy these areas are

[84] Site visit by AECOM on December 22, 2015.

[85] FAA Advisory Circular (AC) 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports* (December 7, 2012).

expected to temporarily relocate to similar habitat during construction and return when the project is complete. New landscaping would comply with the PANYNJ Engineering Department's *Aviation Landscape and Sustainable Design Criteria (2011)* and the *LaGuardia Airport Wildlife Hazard Management Plan (2012),* both of which comply with FAA Advisory Circular 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports*.

Federally Listed Endangered and Threatened Species

The Endangered Species Act (ESA) of 1973, as amended, provides for the protection of endangered, threatened or candidate species and their associated habitats, as designated by USFWS and NMFS.

> Endangered Species Act
>
> Section 7(a)(2) requires federal agencies, in consultation with USFWS and NMFS, to ensure that any action the agency 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.
>
> 50 CFR Part 402

Using the USFWS Information Planning and Consultation System, four species were identified as possibly occurring within the boundary of the project limits (see letter dated May 21, 2017, in Appendix A):

- Threatened:
  - Piping plover (Charadrius melodus)
  - Red knot (Calidris canutus rufa)
  - Seabeach amaranth (Amaranthus pumilus)
- Endangered
  - Roseate tern (Sterna dougallii dougallii)

The presence/absence of federally listed and candidate species, and critical habitat, near the project site is based on secondary resources, incidental sightings by PANYNJ environmental personnel, a Wildlife Hazard Assessment for the airport,[86] and agency records and consultations. Except for incidental piping plover sightings, none of the federally listed or candidate terrestrial or freshwater species have been reported at LaGuardia Airport. The piping plover is a small shore bird that nests and feeds in coastal areas. According to the USFWS, piping plovers are found in Suffolk and Nassau Counties; however, their early successional habitat is found at the shoreline, on barrier islands, sandy beaches, and dredged material disposal islands. Therefore, occasional sightings at LaGuardia Airport are most likely to coincide with foraging during migratory periods and only along the outer edges of the airport near the shores. This Proposed Action would not affect (coastal) habitats associated with any of these four species; therefore, consultation (formal or informal) with USFWS is not warranted.

Regarding marine and anadromous fish species, in a letter dated February 12, 2016, NMFS stated the following (see Appendix A):

[86] Wildlife Hazard Assessment (10/1/2009 – 9/30/2010). Prepared for LaGuardia Airport, Flushing, New York, by USDA-APHIS Wildlife Services (March 3, 2011).

> "Although shortnose sturgeon and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur in the East River, based on the activities associated with the project, and that no in-water work is being proposed, we believe that ESA-listed species under our jurisdiction will not be exposed to any direct or indirect effects of the action."

There would be no adverse impact to fish or other aquatic species as a result of this Proposed Action. No further analysis or consultation is required.

State-Listed Endangered and Threatened Species

New York State-listed species of animals and plants are protected by the New York Endangered Species Act and its implementing Endangered and Threatened Species Regulations.[87] There are no records of rare or state-listed animals or plants, significant natural communities, or other significant habitats, at or within 0.5 mile of the project site.[88] (AECOM conducted a field visit in December 2015 and confirmed that no state-listed species or significant habitats were present within the project site.) No state-listed threatened, endangered, or special concern species are documented to breed at LaGuardia Airport, although incidental sightings of some species have been reported.[89] Those species are transient and/or forage in the tidal wetlands, mudflats, and shoreline along the perimeter of the airport or the open grass adjacent to the runways. The habitat necessary to support the life requirements for the reported state-listed species is not present within this Proposed Action's site.

Migratory Birds

According to the Wildlife Hazard Assessment, the snowy owl (*Bubo scandiacus*) has been observed at the airport. The species is listed as protected under the Migratory Bird Treaty Act. Since the bird can pose a hazard to aircraft, PANYNJ personnel are allowed to trap and relocate individual species, when identified on-site, as stipulated in the Migratory Bird Depredation Permit from USFWS and the Migratory Bird Depredation License from NYSDEC. This Proposed Action would not affect the species.

Summary

This Proposed Action would have no direct effect on any federal- or state-listed (or candidate) species of fish, wildlife, plants, or critical habitat.

Under the No Action Alternative, the existing landside roadways will not be reconfigured and the surrounding landscaped areas will not be altered. There will be no effects to any federal- or state-listed (or candidate) species of fish, wildlife, plants, or critical habitat. The No Action Alternative will avoid the temporary displacement of local indigenous species and habitat.

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[87] NYCRR, Chapter I – Fish and Wildlife, Subchapter J: Miscellaneous Regulations, Part 182: Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern; Incidental Take Permits (6 NYCRR Part 182).

[88] Letter from Nicholas B. Conrad, NYNHP, dated February 17, 2016 (see Appendix A).

[89] Wildlife Hazard Assessment (10/1/2009 – 9/30/2010). Prepared for LaGuardia Airport, Flushing, New York, by USDA-APHIS Wildlife Services (March 3, 2011).

5.2.2 Indirect Impacts

Under both this Proposed Action and No Action Alternative, there would be no change in the use of the east side terminal area or the operations of the airport. As a result, there would be no changes in facility lighting, noise or air emissions, or water quality or quantity that could adversely impact biological resources. Delta and PANYNJ would continue to actively manage landscaped areas to reduce hazardous wildlife attractants.

5.2.3 Cumulative Impacts

This Proposed Action would result in a net loss of no more than 1 acre of pervious surface and landscaped area within the project limits. The various shrubs and mowed grasses associated with the landscaped medians between the roadways provide highly fragmented habitat with little or no value. The following listed projects would affect upland habitats on LaGuardia Airport:

- East End Substation/East Garage – Less than 1 acre of upland vegetation was disturbed during construction of a buried utility ductbank crossing Grand Central Parkway. The construction impacts were localized, temporary, and minor, and the site was restored to its original condition at the completion of the project. As part of the project, 32 trees were removed in compliance with a NYCDPR Construction and Forestry Permit, including mitigation pursuant to New York City Rules Governing Tree Replacement. The portion of this project that affected vegetation and trees was completed in 2013.
- RSA Enhancements – According to the Final EA for this project, approximately 9 acres of upland habitat, including numerous trees, were removed for site preparation and development of the Ingraham's Mountain construction staging area (completed in 2015), which is now used for airport employee parking. The remaining upland habitat within perimeter areas of the same property has been left undisturbed since construction, along with the associated vegetation at Ingraham's Mountain.
- CTB Redevelopment Program – The program will result in the net loss of approximately 4 acres of urban landscaping located between the airport and Grand Central Parkway. Preliminary engineering indicates that approximately 200 trees may be removed (63 of them located off airport property). The tree removal will be permitted and mitigated as required by NYCDPR. Construction is underway with impacts to vegetation and trees expected to occur throughout the CTB Redevelopment Program.

Upland habitats located on and near the airport support a limited variety of common wildlife species that have adapted to the surrounding developed urban community. No potential for significant impacts to upland resources has been identified for any of the airport projects discussed above. Furthermore, no other off-airport project has been identified as having a potentially significant impact on upland resources. Therefore, this Proposed Action would not cause or contribute to significant adverse impacts to upland species or habitats.

5.3 Climate

Significant, lasting change to existing weather patterns is commonly called "climate change." The term "greenhouse gases" refers to a variety of gases in the Earth's atmosphere that react with sunlight in a way that influence global air temperature. Greenhouse gases (GHGs) include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.[90] These GHGs are typically reported in units of carbon dioxide equivalent (CO_2e).

Research has shown a direct correlation between fuel combustion and GHG emissions. The General Accountability Office reports that "domestic aviation contributes about 3% of total carbon dioxide emissions, according to [Environmental Protection Agency (EPA)] data" compared with other industrial sources, including the remainder of the transportation sector (20 percent) and power generation (41 percent).[91] The International Civil Aviation Organization estimates that greenhouse gas emissions from aircraft account for roughly 3% of all anthropogenic greenhouse gas emissions globally. Climate change due to greenhouse gas emissions is a global phenomenon, so the affected environment is the global climate.

In 2012, the FAA issued its own guidance for assessing GHGs and climate change (Order 1050.1F, Guidance Memo #3: *Considering Greenhouse Gases and Climate Change under the National Environmental Policy Act*; Interim Guidance to FAA Order 1050.1F [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 Council on Environmental Quality 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 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.

While no significance thresholds have been determined for climate, FAA Order 1050.1F requires an evaluation of climate impacts from Proposed Actions. This Proposed Action would minimize its individual impact on climate through efficient building design, aircraft apron and taxiway design, and a commitment to meeting a minimum Silver LEED rating certification for construction. In addition, PANYNJ's *Sustainable Design Guidelines* require projects to achieve energy cost decreases of 30 percent over American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) 90.1-1999. Finally, the use of electric baggage tugs, belt loaders, and push-back tugs along with the deployment of 400 Hz gate power and pre-conditioned air at every gate will reduce greenhouse gas emissions from aircraft support activities.

Most of the USEPA tools that are widely used for NEPA study purposes (e.g., NONROAD emission factor model) do not provide emission factors for CO_2e. The recent USEPA inventory report demonstrates that

[90] *www.epa.gov/ghgemissions/overview-greenhouse-gases*

[91] U.S. General Accountability Office, Report to Congressional Committees: Aviation and Climate Change (June 2009).

the GHG contribution from methane and nitrous oxide is less than 1 percent of the total CO_2e for fossil fuel combustion sources.[92] Given such small contributions from other GHG equivalents to carbon dioxide, for the purposes of this Final EA, CO_2e levels were predicted as 101 percent of estimated carbon dioxide levels.

5.3.1 Direct Impacts

Construction activities would result in the burning of fossil fuels by construction equipment as well as an increase in construction-related vehicle traffic over the eight-year construction period (see Appendix C, Air Quality and Noise Impacts Analysis Memorandum). As shown in Table 5-5, during the peak year for construction air emissions (2021), this Proposed Action would emit approximately 7,600 tons of GHGs (presented as CO_2e).[93] The GHGs would be emitted from a variety of construction equipment (Table 5-6).

Under the No Action Alternative, there will be no construction activities, and therefore no increase in GHG emissions.

Table 5-5. Annual Carbon Dioxide Emissions Inventory—Construction

Construction Year	Carbon Dioxide (CO_2) (tons per year)	Carbon Dioxide Equivalents (CO_2e) (tons per year)
2017	5,436.2	5,490.6
2018	7,480.9	7,555.7
2019	4,693.4	4,740.3
2020	4,855.6	4,904.2
2021	7,523.3	7,598.5
2022	6,649.3	6,715.8
2023	4,325.5	4,368.8
2024	1,867.9	1,886.6
2025	316.2	319.4
Maximum	7,523.3	7,598.5

Source: AECOM, 2017; Appendix C.
Note: CO_2e calculated as 101 percent of CO_2 emissions.

[92] USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*, April 15, 2009.

[93] Results reflect analysis of 96-month construction schedule. The Proposed Action would actually be constructed over a 106-month period, which would reduce peak emissions and spread a similar total amount of emissions over a longer period, increasing emissions for the year 2025 and into the year 2026.

Table 5-6. Carbon Dioxide Emissions by Construction Equipment (2021)

Equipment Type	Horsepower	Equipment Hours	Carbon Dioxide (CO_2) (tons per year)	Carbon Dioxide Equivalents (CO_2e) (tons per year)
Application Equipment	350	16	3.00	3.03
Asphalt paver, 130 HP	130	16	1.12	1.13
Backhoe loader, 80 HP	80	23,088	1,280.60	1,293.41
Centrif. water pump, 6”	57	14,296	479.84	484.64
Concrete pump, small	210	5,280	587.67	593.55
Crane, 40 ton	177	7,560	709.85	716.95
Diesel hammer, 41k ft-lb	101	1,864	99.86	100.86
Dozer, 300 HP	300	4,072	655.16	661.71
Front end loader, TM, 2.5cy	97	5,648	326.21	329.47
Gas welding machine	66	9,984	456.52	461.09
Manlift	62	21,944	729.46	736.75
Motor grader, 30,000 lb	193	744	77.01	77.78
Pavement removal bucket	168	5,544	499.52	504.52
Pavement breaker, 60lb	49	6,472	187.01	188.88
Paving machinery & equipment	450	3,328	802.95	810.98
Vibratory drum roller	137	1,296	95.21	96.16
Total Emissions			6,991	7,061

Source: AECOM, 2017; Appendix C.

Notes: CO_2e calculated as 101 percent of CO_2 emissions. Emissions do not include contributions from on-road vehicles, and therefore do not match the total value in Table 5-5.

5.3.2 Indirect Impacts

Airport operations in the form of aircraft takeoffs and landings and associated GSE would result in fossil fuel combustion and associated GHG emissions. However, under this Proposed Action, GHG emissions from aircraft operations would decrease for the following reasons:

- There would be no increase in flight operations or change in the fleet mix.
- The reconfigured apron design would reduce average taxi times by 2.1 minutes and average delays by 1.5 minutes per aircraft.
- Charging stations built into the terminal would allow the use of electric GSE.
- 400 Hz ground power and PCAir at each gate would reduce the use of the aircraft’s APUs, which consume aircraft fuel.

Although increasing heat and power capacity to serve a greater amount of terminal square footage, the proposed upgrade of the terminal heat and power system within a new CUP would decrease GHG emissions under this Proposed Action. The more modern models of hot water heaters, boilers, and generators would be more efficient than older model years and be fueled largely by natural gas (lower CO_2 emissions than combustion of oil). In addition, there would be no increase in emissions from vehicular traffic since this Proposed Action would not result in an increase in forecast passengers. Table 5-7 presents the annual CO_2 and CO_2e emissions for this Proposed Action in the year 2029 (as calculated in the Air Quality and Noise Impacts Analysis Memorandum; Appendix C).

Table 5-7. Annual Carbon Dioxide Emissions—Operations Phase (2029)

Emissions Source	Carbon Dioxide (CO_2) (tons per year)	Carbon Dioxide Equivalents (CO_2e) (tons per year)
Aircraft	-756.1	-763.7
Central Utility Plant	-3,102.7	-3,133.7
Total	-3,858.8	-3,897.4

Source: AECOM, 2017; Appendix C.
Note: CO_2e calculated as 101% of CO_2 emissions.

As described in *Section 5.14.2, Floodplains*, this Proposed Action would comply with PANYNJ *Design Guidelines – Climate Resilience*. The guidelines are an updated standard for construction at PANYNJ facilities and establish rigorous flood-protection standards (i.e., building elevation levels). These standards adjust the building levels for the predicted sea level rise, taking into account the life of the asset. Critical areas or functions that cannot be constructed above the design flood elevation would be protected through "dry flood-proofing" in order to avoid a disruption of service during a flood event. The proposed terminal would provide some protection against the impacts of future climate change.

There will be no change in emissions from stationary sources at the airport under the No Action Alternative. Emissions from aircraft operations will also remain the same with the No Action Alternative and will not benefit from the decrease in taxi times and delays as a result of a reconfigured apron area with dual taxilanes. Under the No Action Alternative, the existing Terminals C and D will remain within the floodplain with no ability to relocate critical functions above the flood elevation, resulting in a greater risk to impacts from climate change.

5.3.3 Cumulative Impacts

The USEPA issued an Advance Notice of Proposed Rulemaking on June 1, 2015, to provide an overview of and seek input on a variety of issues related to setting an international CO_2 standard for aircraft emissions at the International Civil Aviation Organization. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., NASA, National Oceanic and Atmospheric Administration, USEPA, and U.S. Department of Energy), has developed the Aviation Climate Change Research Initiative in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions, with quantified uncertainties for current and projected aviation scenarios under changing atmospheric conditions.[94]

At the ground level, LaGuardia Airport has a long history of proactively initiating projects that reduce GHG emissions from aircraft, buildings, and vehicles, including comprehensive energy efficiency retrofit programs in its buildings, use of biodiesel in PANYNJ vehicles, among many other actions. PANYNJ conducts annual GHG inventories for its facilities, and will continue to do so after both the CTB Redevelopment and this Proposed Action are constructed.

The cumulative impact of this Proposed Action on the global climate when added to other past, present, and reasonably foreseeable future actions is not scientifically predictable. Aviation has been calculated to contribute approximately 3 percent of global carbon dioxide (CO_2) emissions; this contribution may grow to 5 percent by 2050. Actions are underway within the U.S. and by other nations to reduce aviation's

[94] Nathan Brown, et. al. The U.S. Strategy for Tackling Aviation Climate Impacts, (2010). 27th International Congress of the Aeronautical Sciences.

contribution through such measures as new aircraft technologies to reduce emissions and improve fuel efficiency, renewable alternative fuels with lower carbon footprints, more-efficient air traffic management, market-based measures, and environmental regulations, including an aircraft CO_2 standard. At present, there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO_2 emissions.

Under this Proposed Action, construction-related air emissions would be generated by on-road vehicles and non-road equipment from early 2017 through early 2026, overlapping with the construction of the CTB Redevelopment Program. The CTB Redevelopment Program is under construction and activities would continue through the year 2021. For disclosure purposes, the estimated CO_2e from each year of construction for both projects are presented in Table 5-8.

Table 5-8. Annual Carbon Dioxide Equivalents Emissions—Cumulative Construction

Construction Year	CTB Redevelopment Program (tons per year)	Proposed Action (tons per year)	Total Emissions (tons per year)
2016	2,713.7	—	2,713.7
2017	8,280.5	5,490.6	13,771.1
2018	7,279.4	7,555.7	14,835.1
2019	5,742.3	4,740.3	10,482.6
2020	1,712.4	4,904.2	6,616.6
2021	1,951.1	7,598.5	9,549.6
2022	853.2	6,715.8	7,569.0
2023	—	4,368.8	4,368.8
2024	—	1,886.6	1,886.6
2025	—	319.4	319.4

Source: PANYNJ December 2015 Technical Report: *Proposed Design Changes to the Central Terminal Building Redevelopment Program at LaGuardia Airport*; Appendix C, *Air Quality and Noise Impact Analysis Memorandum for LaGuardia Airport East Side Reconfiguration* (AECOM; January 2017).

After construction, day-to-day airport and airline operations would continue to generate GHG emissions. Emissions inventories were prepared for the future year emissions from both the CTB Redevelopment Program (year 2030) and the East Side Reconfiguration (2029). The annual CO_2e emissions attributable to each project are presented in Table 5-9. Both projects would result in a reduction in CO_2e from aircraft operations due to the decrease in taxi times and delays from the respective airside improvements, with the East Terminal further decreasing emissions from a modernized heating/cooling system and the approved CTB producing an increase in emissions from on-road vehicles and an upgraded heating/cooling system.

Table 5-9. Annual Carbon Dioxide Equivalents Emissions – Cumulative Operations

Emissions Source	CTB Redevelopment Program (2030) (tons per year)	Proposed Action (2029) (tons per year)
Aircraft	-14,519.0	-763.7
On-Road Vehicles	593.2	—
CHRP/CUP	1,375.0	-3,133.7
Total	-12,550.8	-3,897.4

Source: *Central Terminal Building Redevelopment Program at LaGuardia Airport, Final Environmental Assessment* (PANYNJ, November 2014); Appendix C, *Air Quality and Noise Impact Analysis Memorandum for LaGuardia Airport East Side Reconfiguration* (AECOM; January 2017).

5.4 Coastal Resources

NEPA categorizes coastal resources as coastal barriers and coastal zones and includes resources within coastal waters and the adjacent shorelines, such as wetlands, floodplains, and fish and wildlife habitat.

Coastal barriers are unique landforms that protect diverse aquatic habitats and serve as the mainland's first line of defense against the impacts of severe coastal storms and erosion. The John H. Chafee Coastal Barrier Resource System identifies federally listed coastal barriers, which are governed by the Coastal Barrier Resources Act of 1982, as amended. The act prohibits, with some exceptions, federal financial assistance for development within the resource system. There are no coastal barriers near LaGuardia Airport.[95]

Coastal zones—broadly defined as near-coast waters and the adjacent land areas—form a dynamic interface of land and water of high ecological diversity and critical economic importance. LaGuardia Airport and much of the surrounding area is located within the New York City Coastal Zone. This Proposed Action would redevelop airport property within the city's designated Coastal Zone Management Area.

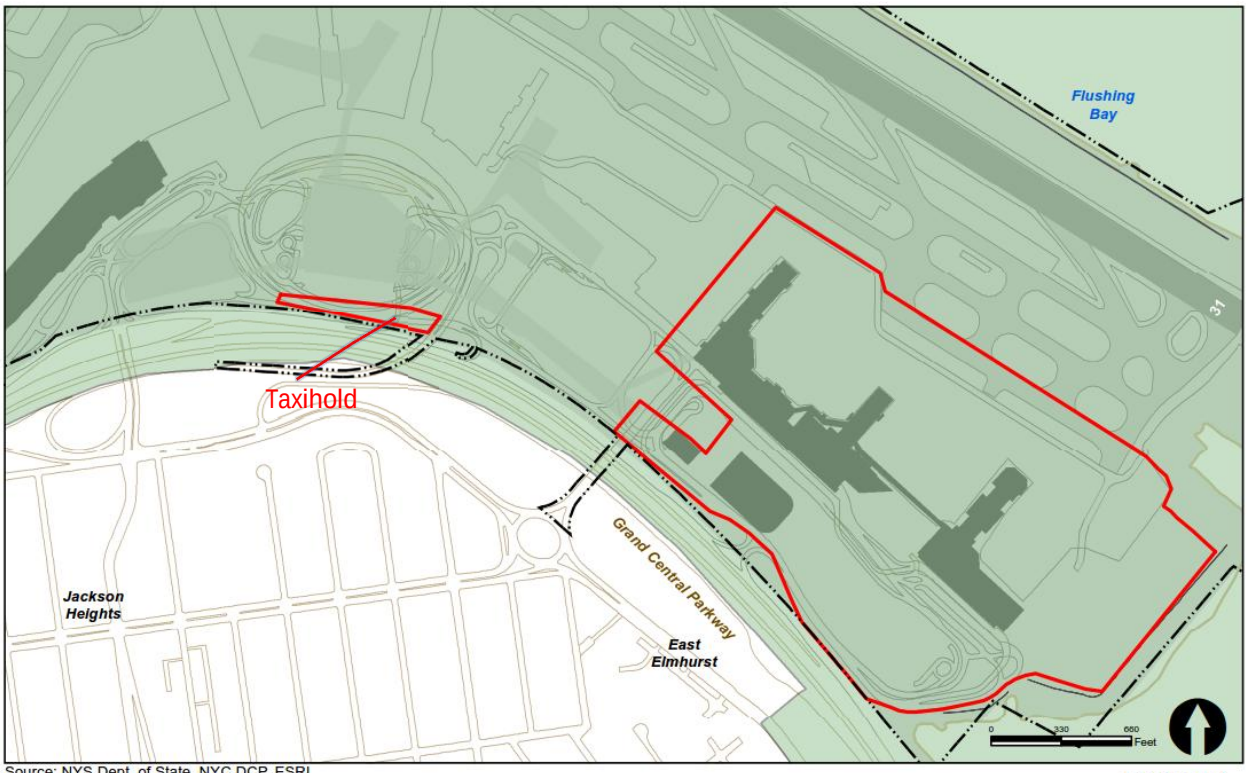
The Federal Coastal Zone Management Act of 1972 recognizes the nation's coastal resources and directs coastal states to create Coastal Zone Management Programs. In 1981, New York State adopted the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. This act enables municipalities to adapt statewide policies to local coastal management programs. New York City was the first municipality in the state to do so. The Waterfront Revitalization Program (WRP), adopted in 1982 and amended in 2002, is the City's principal coastal zone management tool. It establishes the City's policies for development and use of the waterfront and provides the framework for evaluating the consistency of local, state, and federal, discretionary actions in the coastal zone.[96]

The New York State Department of State (NYSDOS) administers the state's coastal zone management program and is responsible for determining whether federal actions are consistent with the coastal program. Pursuant to state regulations, federal actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies, and the City of New York must be given the opportunity to comment on all state and federal projects within its coastal zone.

The Coastal Zone Management Area extends landward to encompass the airfield, the terminal area, and Grand Central Parkway (Figure 5-1). In fact, 99 percent of LaGuardia Airport's property is within the boundary of the coastal zone. For this reason, it is not practicable to avoid development within the coastal zone for any airport actions.

[95] The nearest Coastal Barrier Resource System unit (NY-60P) is associated with Jamaica Bay, which is located approximately eight miles south of LaGuardia Airport along the southern shore of Long Island. Coastal Barrier Resources Act map for New York – Long Island, U.S. Fish and Wildlife Service. Available online at *www.fws.gov/cbra/Maps/Locator/NY_Long_Island.pdf*.

[96] The Waterfront Revitalization Program (WRP) is in the process of being revised. The New York City Department of City Planning is proposing a series of revisions to the WRP to proactively advance the long-term goals laid out in *Vision 2020: The New York City Comprehensive Waterfront Plan*, released in 2011. The City Council approved the proposed revisions to the WRP on October 30, 2013, and the New York State Department of State approved them on February 3, 2016. The U.S. Department of Commerce must also approve the revisions before they go into effect.



5.4.1 Direct Impacts

Direct impacts on the Coastal Zone Management Area would result from construction activities as part of the reconfiguration of the area of Terminals C and D. The entire Proposed Action's site is located within the coastal zone. The site consists entirely of uplands (although a portion of the project limits is within the wetlands adjacent area) and is substantially developed with either airport or roadway infrastructure. The site is primarily covered with buildings or pavement, with no more than 5 percent of the area identified as urban landscaping.

Except for tidal floodplains, the site is devoid of coastal features identified by the WRP as resources to be considered. *Section 5.14.2* discusses the assessment of impacts on floodplains and states that the proposed development activities within the tidal floodplains cannot be avoided, that the nature and extent of the impacts are not considered to be significant by U.S. Department of Transportation (U.S. DOT) standards, and that this Proposed Action includes a flood hazard mitigation plan to avoid or minimize potential harm. There would be no adverse impact on the floodplain's natural or beneficial values and no effect on the 100-year flood elevation. No significant adverse impacts on floodplains are expected to occur as a result of this Proposed Action.

Other coastal features near the airport would be avoided. *Section 5.2* discusses the assessment of impacts to biological resources, and states that there would be no in-water activities associated with this Proposed

Action, so there would be no adverse impacts on coastal fish and wildlife habitats. *Section 5.14.3* addresses project-related impacts on water quality and measures to minimize harm; it states that no adverse impacts have been identified that cannot be adequately controlled by water quality BMPs and control measures. Finally, *Section 5.14.1* discusses the assessment of impacts on tidal wetlands, and states that no wetland impacts would occur and activities within the 150-foot wetlands adjacent area would occur on previously disturbed land and would not affect the nearby tidal wetlands.

PANYNJ has reviewed this Proposed Action for compliance with the state's coastal zone management program and the City of New York's coastal zone policies, and determined there would be no foreseeable adverse effects on coastal resources. PANYNJ submitted a state Consistency Assessment Form to the NYSDOS along with supporting documentation.[97] PANYNJ also submitted a WRP Consistency Assessment Form and supporting documentation to the NYCDCP requesting their concurrence.[98] In an email dated April 20, 2016, the Waterfront Open Space Division, on behalf of the New York City Coastal Commission, found that the actions would not substantially hinder the achievement of any WRP policy and provided its finding to the NYSDOS that this action would be consistent with the WRP policies and the local program. NYSDOS determined that the proposal meets the Department's general consistency concurrence criteria (see letter dated May 16, 2016). (Appendix A contains all agency correspondence.) No adverse direct impacts to the coastal resources are anticipated as a result of this Proposed Action, no mitigation measures are proposed, and no further analysis is required.

The No Action Alternative will avoid undertaking major improvements within the designated Coastal Zone Management Area. On this basis, there will be no foreseeable adverse direct impacts on the coastal zone resulting from the No Action Alternative.

5.4.2 Indirect Impacts

No secondary or induced development has been identified that would cause or contribute to indirect effects on the surrounding coastal zone. Under this Proposed Action, the project site would be reconfigured, but the existing use of the land for transportation purposes would not change and aircraft operations and passenger demand would not increase. As evaluated in the Consistency Assessment Forms described previously, there would be no increase in runoff or changes to stormwater management that would affect water quality or quantity. This Proposed Action would not change snow management practices at the airport or increase the potential for contamination or spills within the coastal resources. Operations of the proposed terminal would not increase facility lighting that could affect wildlife on nearby shorelines. There would be no indirect impacts to coastal resources as a result of this Proposed Action or No Action Alternative.

[97] Letter to Jeffrey Zappieri, NYSDOS Division of Coastal Resources, from Marc Helman, PANYNJ, Environmental Engineering Unit (March 10, 2016); see Appendix A.

[98] Letter to Michael Marrella, NYC Department of City Planning, from Marc Helman, PANYNJ, Environmental Engineering Unit (March 10, 2016); see Appendix A.

5.4.3 Cumulative Impacts

No adverse impacts to coastal resources would occur as a result of this Proposed Action; therefore, it would not contribute to cumulative impacts on the resource. Other recent and ongoing development projects within the coastal zone near the airport include the following:

- North Shore Marine Transfer Station (complete)
- East End Substation/East Garage (complete)
- Runway Safety Area Enhancements (substantially complete)
- Environmental Dredging of Flushing Bay (under construction)
- CTB Redevelopment Program (under construction)

NYSDOS evaluated these projects and determined they will not result in potential significant adverse impacts to coastal resources. Development actions along the city's waterfront are strictly regulated. Compliance with applicable state and local coastal policies and programs for the protection of coastal resources provides adequate assurance that no significant individual or cumulative impacts would occur.

5.5 Department of Transportation Act, Section 4(f)

The U.S. Department of Transportation Act of 1966 (DOT Act) includes a special provision, U.S.C. § 303 Section 4(f), which regulates the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuge areas, or public and private historical sites by U.S. DOT agencies. Section 4(f) applies to all agencies within the U.S. DOT, including FAA.

Delta has not identified any public parks, recreational lands, open space, or wildlife or waterfowl refuges within the project construction limits, although some are within the outer limits of the airport's noise contours. In addition, as discussed in *Section 5.8, Historical, Architectural, Archaeological and Cultural Resources*, the National Register of Historic Places (NRHP) contains no buildings that are listed or eligible for listing within the project limits.[99]

Public Parks and Recreation Areas

A park or recreation area is afforded federal protection under Section 4(f) if:

1. It is publicly owned;
2. It is open to the public for visitation for more than a select group of the public at any time during normal hours of operation;
3. The primary purpose of the property is recreation; and
4. It is significant as a park or recreation area.

The surrounding area was evaluated to identify any Section 4(f) resources. No wildlife or waterfowl refuges were identified. Public parks and recreational areas and historic sites near the project site were further evaluated for relevance to the DOT Act, Section 4(f):

- LaGuardia Airport is located immediately adjacent to Grand Central Parkway, which consists of travel lanes as well as grassy medians and landscaped sections. The unpaved embankment adjacent to Grand Central Parkway is under the of NYSDOT jurisdiction, is designated as parkway land, and is

[99] See letter from the New York State Historic Preservation Office dated March 21, 2016 in Appendix A.

neither designed nor intended for public access or recreation; rather, it provides a visual amenity to automobile drivers as they pass by. Near the project area, only the landscaped area north of Grand Central Parkway is under the jurisdiction of the NYC Department of Parks and Recreation. The area south of Grand Central Parkway—to be disturbed to install duct banks to connect feeders between the proposed electrical substation and ConEdison—is not a Section 4(f) resource.

- Hangars 1, 3, and 5—located west of the project site, immediately adjacent to the existing CTB—were built between 1939 and 1940. These resources were determined to be eligible for listing on the NRHP by the New York State Office of Parks, Recreation, and Historic Preservation. As part of the CTB Redevelopment Program, Hangar 1 is expected to be demolished in the year 2020.

5.5.1 Direct Impacts

Direct Use

As part of this Proposed Action to construct a new terminal building and aircraft apron area, there would be no permanent use of Section 4(f) property.

The No Action Alternative will not permanently affect any Section 4(f) resource.

Temporary Use

There would be no temporary occupancy or temporary impacts to Section 4(f) property as a result of the construction of this Proposed Action or the No Action Alternative.

Use of Section 4(f) Resources

A "use" of Section 4(f) property may be one of the following:

- Direct use – Property is permanently incorporated into the transportation project
- Temporary use – Property is temporarily occupied in a way that is adverse to the property's purpose
- Constructive use – The project's proximity impacts substantially impair the protected activities, features, or attributes of the property.

5.5.2 Indirect Impacts

Delta analyzed potential indirect impacts to (or constructive use of) any property protected by Section 4(f), based on the proximity impacts to five major features or attributes:

- Noise – There would be no change in noise from aircraft activity as a result of this Proposed Action. This Proposed Action would not substantially interfere with the use and enjoyment of any noise-sensitive facility or property protected by Section 4(f).
- Aesthetic Features – This Proposed Action would not indirectly affect the remaining NRHP-eligible Hangars 3 and 5 since the proposed terminal would be blocked from view by the existing and future (approved) CTB and the planned West Garage. In addition, the setting of the hangars has already been altered over the 70 years of the airport's operations. The proximity of this Proposed Action and changes in setting would not substantially impair the aesthetic features or attributes of Hangars 3 and 5 or any other property protected by Section 4(f).
- Access – This Proposed Action would not result in a restriction of access, which would substantially diminish the utility of a significant publicly owned park, recreation area, or a historic site.

- Vibration – The vibration impact from construction or operation of this Proposed Action would not substantially impair the use of any Section 4(f) properties (see *Section 5.11* for a description of construction-related noise impacts).
- Ecological Intrusion – There are no wildlife or waterfowl refuges adjacent to the airport; therefore, the ecological intrusion of this Proposed Action would not substantially diminish the value of wildlife habitat in a wildlife and waterfowl refuge.

There would be no constructive use of Section 4(f) properties as a result of this Proposed Action.

Since there will be no construction under the No Action Alternative and no change in airport operations, there will be no constructive use of Section 4(f) properties as a result of the No Action Alternative.

5.5.3 Cumulative Impacts

If this Proposed Action would not cause or contribute to an impact on Section 4(f) resources, then there would be no significant cumulative impacts on Section 4(f) resources.

5.6 Farmlands

For the purposes of NEPA, "farmlands" are those agricultural areas considered important and protected by federal, state, and local regulations. They include pasturelands, croplands, and forests considered to be prime, unique, or of statewide or local importance. No farmlands are located near LaGuardia Airport.[100]

Farmlands Protection Policy Act

The Farmland Protection Policy Act of 1984 (as amended) is administered by the Natural Resources Conservation Service, which regulates actions with the potential to convert existing important farmlands to a non-agricultural use.

5.6.1 Direct Impacts

The construction of this Proposed Action would not convert farmlands to non-agricultural use; therefore, there would be no direct impacts to farmland as a result of this Proposed Action.

No direct impacts to farmland will occur as a result of the No Action Alternative.

5.6.2 Indirect Impacts

This Proposed Action would not limit access to farmable land and there would be no change in noise or airport operations under either this Proposed Action or the No Action Alternative that could affect livestock operations or restrict agricultural practices. Therefore, no indirect impacts to farmland would occur as a result of this Proposed Action or the No Action Alternative.

5.6.3 Cumulative Impacts

If this Proposed Action would not cause or contribute to an impact on farmlands, then there would be no significant cumulative impacts on farmlands.

[100] Gridded Soil Survey Geographic (gSSURGO) Database for New York, U.S. Department of Agriculture, Natural Resources Soil Conservation Service. Available online at *http://datagateway.nrcs.usda.gov/*.

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.

Delta identified hazardous substances and other contaminants, including oil and grease, VOCs, semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons, and metals in soils and groundwater within and around the proposed project site. In addition, lead-containing paint and universal waste products have been observed in buildings to be demolished.[101] There are no National Priorities List sites near the project area.[102] There is one de-listed site (Radium Chemical Co.) located within 1.5 miles southwest of the property. Reconfiguration of the east side terminals and ancillary facilities would not interfere with ongoing remediation of existing contaminated sites at or near the project area.

Generally, airport and aircraft operations require the use, handling, and storage of hazardous materials, primarily fuel. Hazardous materials are stored in aboveground storage tanks (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.

Definitions

- Solid Waste is any discarded material that meets specific regulatory requirements under Resource Conservation and Recovery Act (e.g., refuse, scrap metal, spent materials, chemical by-products and sludge).

  40 CFR 261.2

- Hazardous Waste is a type of solid waste that possesses at least one of the following characteristics: ignitability, corrosivity, reactivity, or toxicity.

  40 CFR 261.3

- Hazardous Material is any substance that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

  40 CFR 171.8

PANYNJ'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. PANYNJ has a Spill Prevention Control and Countermeasure (SPCC) Plan for LaGuardia Airport. 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.

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

[101] Universal wastes are hazardous wastes that are widely produced by households and businesses, such as electronic devices, batteries, fluorescent lamps, and mercury thermostats.

[102] The National Priorities List was established by USEPA in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986.

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.

5.7.1 Direct Impacts

This Proposed Action would generate demolition and construction waste, most of which would result from demolishing the terminal building, roadways, and other paved areas. Prior to demolition, environmental site assessments would be prepared for each structure to determine the presence of asbestos, lead, polychlorinated biphenyls (PCBs), or other hazardous materials.[103] All necessary precautions for the safe removal of hazardous materials and wastes would be coordinated with the appropriate state and local permitting agencies. In addition, contaminated soils and/or groundwater may be encountered during excavation and dewatering associated with the installation of utilities and construction of foundations. 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.

If hazardous materials are expected to be encountered or are otherwise discovered during construction, Delta and PANYNJ will implement appropriate safety procedures and remediation strategies as needed to protect human health and the environment. The following preventive measures are appropriate for construction activities associated with each of the previously identified hazardous materials:

- If asbestos is encountered in locations such as utility duct banks, it will be removed prior to any demolition or construction work. Removal protocols, established by PANYNJ, the City of New York, and the State of New York would be followed, thereby minimizing potential risks to human health and the environment. The asbestos waste generated during the abatement process would be disposed of according to NYSDEC regulatory requirements.
- Materials coated with lead-based paint will be removed from the buildings during demolition and the waste will be recycled or disposed of as appropriate. Construction protocols will ensure that dust is minimized and contained. Workers will be provided with protection from lead dust. Local and state permitting and notification will apply to the removal, transportation, recycling, and/or disposal of lead-containing materials.
- PCB-containing ballasts will be incinerated, recycled, or disposed of in an approved landfill, subject to federal, state, and New York City regulations. Transformers containing PCBs will be incinerated or recycled at approved facilities, also subject to federal, state, and New York City regulations. Incineration and recycling are more protective of the environment.
- Mercury-containing lamps will be removed prior to demolition in accordance with federal and state hazardous waste requirements. Removal protocols will ensure that lamps are protected from breakage and that waste lamps handled by qualified waste handlers and transporters are directed to appropriate recycling or disposal facilities. Mercury and lead in elemental form—such as thermostats,

[103] See PANYNJ, Sustainable Infrastructure Guidelines, Appendix 05-Toxic and/or Hazardous Materials (March 23, 2011).

thermometers, switches, and solders—will be removed and disposed of or recycled at approved facilities in accordance with federal and state hazardous waste requirements.

- Soils from excavation will be tested and disposed of either as solid waste or petroleum-contaminated soil in accordance with NYSDEC requirements. Groundwater from dewatering activities will also be tested for pollution concentration levels, treated (if necessary) in accordance with an individual SPDES permit, and discharged into the airport's stormwater system operated by PANYNJ under SPDES Permit #NY0008133.

Excess soil and construction debris that is not hazardous waste may be disposed of as solid waste. On-road vehicles (trucks) will be used to transport waste to receiving landfills and that the construction contractors will 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 will be identified that is properly permitted to receive excess soils and/or construction debris. There is sufficient disposal capacity (out-of-state landfills, recycling centers, and incinerators) in the greater New York City metropolitan area to handle the construction waste load from this Proposed Action. No problems are anticipated with respect to meeting applicable federal, state, or New York City requirements for construction waste management or disposal.

Soil and construction debris will be reused or recycled to the greatest extent possible. As part of the LEED certification for the new terminal building and PANYNJ's *Sustainable Infrastructure Guidelines*, a construction waste management program will be implemented with a goal of diverting at least 75 percent of all construction debris from receiving landfills. 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.

Adherence to the aforementioned BMPs and control measures would effectively reduce potential risks to human health and the environment during construction. Because this Proposed Action would likely remove and remediate some hazardous materials from the buildings and subsurface areas, the existing levels of contamination would be expected to be reduced or eliminated. These hazardous materials would be properly disposed of, reclaimed, or recycled, as appropriate. Pollution prevention measures would limit the potential for adverse human health or environmental impacts from these materials.

Based on the combined effects of the measures discussed previously, this 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.[104]

[104] Although the exact level and location of contamination is not known, there is a high likelihood that hazardous materials would be encountered during construction since hazardous substances and other contaminants have been identified in soils and groundwater within and around the project site and lead-containing paint and universal waste products have been observed in buildings to be demolished. The implementation of the Proposed Action would likely require the removal and remediation of some hazardous materials from the buildings and subsurface areas.

The No Action Alternative will result in the existing hazardous materials remaining in their current locations for the foreseeable future, although there will be no construction-related hazardous or solid waste requiring handling and disposal.

5.7.2 Indirect Impacts

There would be no change in the number of operations (takeoffs and landings) or the fleet mix as a result of this Proposed Action; therefore, the quantity of fuel and other potentially hazardous materials stored and handled on-site would not increase. There would be no change to fueling operations under this Proposed Action. Aircraft would continue to be serviced at the terminal gate using conventional equipment and methods.[105] However, this Proposed Action would include control measures that cannot be reasonably accomplished under the No Action Alternative. Water quality treatment devices—such as subsurface oil/water separators—would be installed in the airside apron to allow potential contaminants to be isolated, pumped out, and properly disposed. The oil layer would be drawn off and disposed of safely. In addition, this Proposed Action would reduce the airlines' use, handling, and storage of fuel, oil, grease, and other materials associated with the operation and maintenance of conventional diesel- and gasoline-powered GSE by providing charging stations for the use of electric bag tractors, belt loaders, and push-back tractors.

MSW generated by the operation of the new terminal would include residual trash or garbage generated by passengers, staff, and retail operations. Delta would collect and dispose of solid wastes generated from terminal services. Delta would recycle waste in accordance with PANYNJ's *Sustainable Design Guidelines*. A recycling program would cover 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.). No problems are anticipated to meet applicable federal, state, or New York City requirements regarding solid waste management or disposal.

There would be reduced risk for future contamination during operations with this Proposed Action as a result of control measures installed within the airside apron. Under this Proposed Action, the quantity and type of solid waste generated and the method of collection and disposal would not be different compared to the No Action Alternative.

5.7.3 Cumulative Impacts

This Proposed Action would not cause or contribute to an impact on hazardous materials, solid waste and pollution prevention; therefore, there would be no significant cumulative impacts applicable to the resources.

Construction of the CTB Redevelopment Program will occur at the same time as construction of this Proposed Action (from start of the East Side Reconfiguration construction through the completion of the approved CTB in 2021). However, construction activities—including handling and disposal of hazardous

[105] The design provides underground hydrant fueling pits at each aircraft gate position and distribution lines leading up to but terminating at the limits of the project site. No action would be taken to complete the underground hydrant fuel system, which would involve installing a buried fuel transfer line somewhere between the fuel storage facility and the aircraft parking apron. If necessary, separate NEPA documentation will be prepared prior to beginning construction on any portion of the underground hydrant fuel system outside of the project limits of this Proposed Action.

and solid waste—will be independent of each other and will be the responsibility of each project's contractor(s). As described above, there is sufficient disposal capacity (out-of-state landfills, recycling centers, and incinerators) in the greater New York City metropolitan area to handle the construction waste load from both projects simultaneously. Both projects would implement appropriate safety procedures and remediation strategies as needed to protect human health and the environment. There would be no cumulative impact to hazardous materials, solid waste, and pollution prevention.

5.8 Historical, Architectural, Archaeological, and Cultural Resources

This section addresses the potential effects of this Proposed Action on historic properties.[106] Historic properties affected by this Proposed Action would be federally regulated under the National Historic Preservation Act[107] (NHPA) as well as other applicable laws and regulations intended to protect historic properties that are listed or eligible to be listed on the NRHP. Pursuant to Section 106 of the NHPA, through consultation with stakeholders, federal agencies must account for the effects of their actions on eligible or listed historic properties, work together to avoid, minimize, or mitigate adverse effects, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The process by which the federal agency decides whether a project or action affects historic properties is called a Section 106 review.

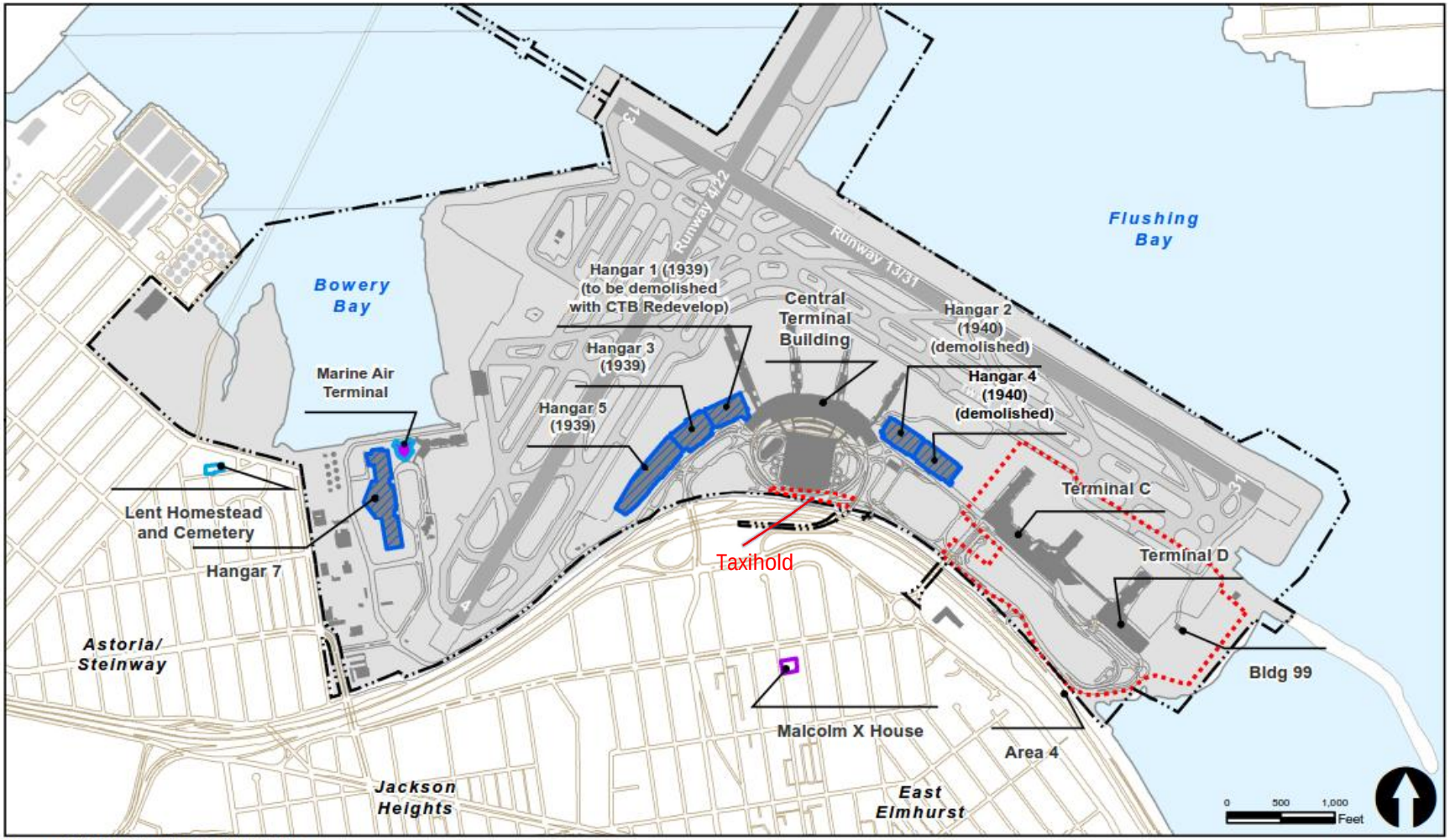
Delta consulted with the New York State Historic Preservation Office (SHPO) to determine the effects of this Proposed Action on historic properties and to work to avoid or mitigate adverse effects in compliance with the Section 106 process. Correspondence in Appendix A and a Phase 1A archaeological survey report contained in Appendix D provide the materials and information needed to demonstrate the FAA's compliance with Section 106.

Area of Potential Effect

The area of potential effect (APE) is the geographic area or areas within which this Proposed Action may cause changes in the character or use of historic properties, if any such properties are subsequently identified within the APE. For architectural resources, the APE for this Proposed Action encompasses the entire central terminal area of the airport, from Flushing Bay to the north to Grand Central Parkway to the south, and from Flushing Bay to the east to Runway 4-22 to the west. The APE for archaeology is three-dimensional. The horizontal APE represents the total extent in which impacts to ground surfaces may be anticipated (i.e., the construction limits for the entire project). The vertical APE represents the depth below existing grade of all impacts within the horizontal APE. The vertical APE was developed using geotechnical reports of existing soil conditions and preliminary engineering plans for earthwork and grading, trenching for subsurface utilities, and installing deep foundation piles. Figure 5-2 shows the archaeological APE.

[106] "Historic property" in this context applies to any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places maintained by the Secretary of the Interior (National Park Service).

[107] Public Law 89-665; 16 U.S.C. 470 et seq.



Source: NYC DCP, NYC DoITT, ESRI
Prepared by: AECOM (January 2017)

Figure 5-2

LaGuardia Airport
East Side Reconfiguration

Legend
- Airport Lease Line
- Project Limit and Archaeological APE
- Area of Archaeological Sensitivity

National Register of Historic Places
- NR-Listed Property
- NR-Eligible Property

NYC Landmarks Pres Commission
- LPC-Listed Property
- LPC-Eligible Property

Historic Resources

Resource Identification

There are no historic properties listed in the NRHP located within the APE. Two NRHP-listed sites are located near the project site but outside the APE:

- The Marine Air Terminal (built 1939) is located on the west side of the airport; it is also an interior and exterior landmark designated by New York City Landmarks Preservation Commission.
- The Lent Homestead and Cemetery (est. 1654-56) is located farther west of the airport.

Also outside of the APE are the NRHP-eligible Hangar 7 (built 1939; located west of the Marine Air Terminal) and the LPC-eligible Malcom X House (built 1925; located south of the airport).

As part of the Section 106 process for the CTB Redevelopment Program, six aircraft hangars (built 1939-1940) were determined to be eligible for listing on the NRHP, five of which were within the APE.[108] Hangars 1, 2, 3, 4, 5, and 7 were part of the original LaGuardia Airport. Hangars 2 and 4 were demolished in 2015 as part of the CTB Redevelopment Program. The other hangars have remained relatively unaltered. All of the hangars were recommended eligible based on their place in aviation history (Criterion A), and as representations of early 20th century industrial design (Criterion C).[109] According to SHPO, the existing CTB (circa 1964) does not meet NRHP criteria because of major alterations that occurred in the 1970s and the 1990s. Hangar 1 and the existing CTB are expected to be demolished in the year 2020. In 2014, after SHPO issued an adverse effect finding, the FAA, SHPO, and PANYNJ and three consulting parties executed a memorandum of agreement (MOA). The unavoidable adverse effects of demolishing Hangars 1, 2, and 4 are being reduced through standard mitigation measures including photographic documentation and Historic American Buildings Survey (HABS)/Historic American Engineering Record (HABS/HAER) recordation[110] of the eligible hangars.

The APE for this project includes Terminals C and D and adjacent airside and landside areas. In 1983, Delta constructed Terminal D at the eastern end of the airport, the east concourse of Terminal C was constructed in the early 1980s and in 1992, US Airways constructed the west concourse of Terminal C. In 2012, a new pedestrian bridge was opened that allows passengers to walk between Terminals C and D without having to reenter through security. Building 99, within the Terminal D apron area, was constructed in 1990.

Using Section 106 guidelines, an archaeological survey was also conducted to identify the presence, potential presence, or absence of archaeological sites within the APE.[111] According to the report, large portions of the APE, including most of the north and western portions, consist of made-land created by the infilling of Flushing Bay and Bowery Bay and contain no potential for historic or prehistoric

[108] Letter from Beth A. Cumming (NYSOPRHP) to Edward Knoesel (PANYNJ) dated May 10, 2013.

[109] Criterion A – Associated with events that have made a significant contribution to the broad patterns of our history; Criterion C – Embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction (National Register Evaluation Criteria, ACHP).

[110] HABS)/HAER recording combines drawings, history, and photography to produce a comprehensive, interdisciplinary record that ranges in scope with a site's level of significance and complexity (National Park Service, 2013).

[111] Phase IA Archaeological Survey Report, Delta Air Lines Reconfiguration Project, prepared by AECOM, April 2016.

archaeological resources. U.S. Geological Survey maps from 1891 indicate that some portions of the APE include areas that were once the shoreline of Flushing Bay and Bowery Bay prior to the infilling that was associated with the earliest development of LaGuardia Airport. The report concluded that there was one area of archaeological sensitivity within the APE (corresponding to Archaeological Potential Area 4 from the CTB Redevelopment Program Phase IA Report and EA; see Figure 5-2). The area may contain prehistoric and/or historic archaeological deposits beneath fill deposits of unknown depth (up to 8 feet deep).

5.8.1 Direct Impacts

This Proposed Action would demolish Terminals C and D to provide more spacing for dual taxilanes between concourses. Based on a review of available reports and past findings, no additional surveys and evaluations of historic architectural resources would be required based on the following:

- Terminals C and D and Building 99 do not meet the 50-year age criterion to be considered for NRHP eligibility, and are unlikely to meet Criterion G—Properties that have Achieved Significance in the Past 50 Years—because they are commonplace terminals that lack architectural distinction.
- Terminals C and D would be replaced with contemporary structures and adjacent areas would be reconfigured.
- As part of the CTB Redevelopment Program, LaGuardia Airport will be reconfigured when the CTB and NRHP-eligible Hangars 1, 2, and 4 are removed, which will change the context of Terminals C and D and the adjacent areas.
- The MOA has been fully executed in accordance with Section 106 to mitigate the adverse effects of the CTB Redevelopment Program, including removal of Hangar 1 and Hangars 2 and 4 located west of Terminals C and D.

In a letter dated March 21, 2016, SHPO indicated that they concur with the recommendation of no further evaluation, stating "We have no further concerns regarding standing buildings and structures."[112] In a subsequent letter dated July 6, 2016, they stated that they have "no concerns regarding the demolition of Building 99." Similarly, LPC indicated the project had no architectural significance in correspondence dated March 21, 2016 (see Appendix A).

As described previously, the Phase IA archaeological survey report concluded that there was one area of archaeological sensitivity within the APE (located in the southeast of the project limits). The area may contain prehistoric and/or historic archaeological deposits beneath fill deposits of unknown depth (up to 8 feet deep). Since proposed utility installation in that area would be expected to require excavation up to 15 feet deep, there is the potential for adverse impacts to archaeological resources; therefore, archaeological monitoring of construction was recommended. The *Phase IA Archaeological Survey Report, Delta Air Lines Reconfiguration Project at LaGuardia Airport* (AECOM, April 2016) was submitted to SHPO and in a letter dated April 29, 2016, the office concurred with report findings (see Appendix A). SHPO requested that a monitoring protocol for the activities within the archaeologically sensitive area be

[112] Letter from Phillip A Perazio (SHPO) to Allison Rachleff (AECOM); see Appendix A.

submitted for review and comment. An archaeological monitoring protocol was approved by SHPO in a letter dated May 15, 2017 (see Appendix A). LPC indicated that the site had no archaeological significance in a letter dated March 21, 2016 (see Appendix A)

In accordance with the approved archaeological monitoring protocol, a professional archaeologist would facilitate the use of the appropriate mechanical equipment for excavation and appropriate safety measures, access and inspection of trench excavations in the sensitive area (see Appendix D). While select earthwork and construction activities might affect an area of potential archaeological sensitivity, construction monitoring would be implemented to reduce the effects of this Proposed Action on historic resources at the airport.

The No Action Alternative will have no adverse effect on potentially eligible resources; therefore, no mitigation measures will be necessary.

5.8.2 Indirect Impacts

Indirect impacts to historic resources can result from factors such as noise, vibration, lighting, and increased traffic. There would be no operational changes as a result of this Proposed Action that would produce indirect impacts to the historic resources within the APE or those further removed from the airport. The construction of the new terminal, garage extension, or substation would not obstruct the view of any historic resource. The number of aircraft operations and fleet mix would not change as a result of the terminal reconfiguration; therefore, there would be no change in future noise contours when compared to the No Action Alternative. The site would continue to operate as an airport, and the associated lighting and visual impacts would not change. Since there would be no increase in passenger demand under this Proposed Action, and no change in off-airport roadways, traffic would not be expected to increase in any location. There would be no adverse indirect impacts to historic resources as a result of this Proposed Action or the No Action Alternative.

5.8.3 Cumulative Impacts

Improvements and changes to LaGuardia Airport over the past 75 years of operation have been necessary to achieve and maintain the highest levels of airport safety and efficiency while keeping pace with changes in the U.S. airline industry, such as increasing passenger volumes, larger aircraft, new technologies, and more stringent federal regulations. As older buildings face the challenge of age and obsolescence, PANYNJ and FAA are under pressure to provide new facilities within the limited space available. As decades have passed, in order to accommodate the growing demand for passenger terminals and support facilities, buildings have been both altered and removed from LaGuardia Airport.

PANYNJ and FAA have strived to balance the need for new facilities at LaGuardia Airport with the need to preserve its historic resources. For example, the Marine Air Terminal has been designated a New York City Landmark (Landmarks Preservation Commission, 1980), and it is listed on the NRHP (1982). When the FAA removed the second generation Airport Traffic Control Tower, mitigation measures included HABS/HAER recordation as well as a booklet that chronicles LaGuardia Airport's history and accomplishments with photographs of original buildings, vintage aircraft, key persons, and important events created collaboratively by the FAA and PANYNJ (FAA, 2011).

The FAA determined that the CTB Redevelopment Program, including the demolition of Hangars 1, 2, and 4 (which are eligible for listing on the NRHP) would adversely affect historic resources at LaGuardia Airport. When an adverse effect to historic properties cannot be avoided, the Section 106 participants identify measures to mitigate the individual and cumulative effects of the project. For the CTB Redevelopment, the unavoidable adverse effects of removing NRHP-eligible Hangars 1, 2, and 4 were reduced through standard mitigation measures, including photographic documentation and HABS/HAER recordation of Hangars 1, 3, and 5, Hangars 2 and 4, and Hangar 7 (completed and submitted to the National Park Service in 2015), thereby establishing a permanent public record of all six airport buildings. Under the Section 106 process, the MOA signed in November 2014 stipulates the mitigation measures needed to reduce the effects of the CTB Redevelopment Program.

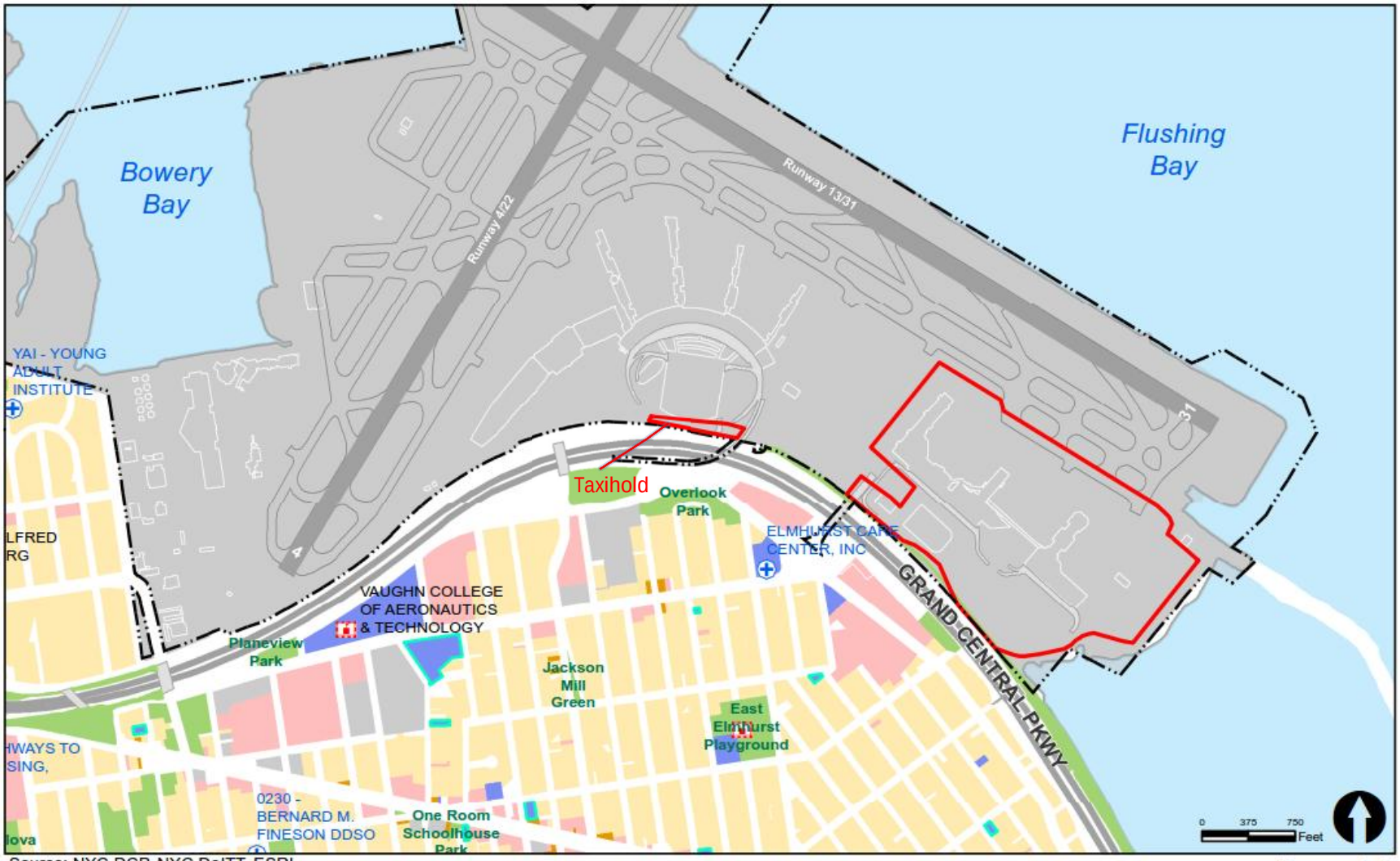
Compliance with the Section 106 process, including evaluation of existing resources in consultation with SHPO, provides adequate assurance that the effects of this Proposed Action have been considered and that this Proposed Action, with mitigation measures, would not cause or contribute to a significant adverse cumulative impact on historic resources at the airport.

5.9 Land Use

The compatibility of existing and planned land uses near an airport is typically divided between those issues associated with noise impacts and all other land use concerns. *Section 5.11* addresses noise-compatible land use.

Flushing Bay and Bowery Bay border LaGuardia Airport to the north and Grand Central Parkway to the south. The Rikers Island correctional facility is located across Rikers Island Channel and the College Point neighborhood is across Flushing Bay. South and west of the airport, past Grand Central Parkway, are the neighborhoods of Astoria (Steinway), Jackson Heights, and East Elmhurst. Land uses south of Grand Central Parkway are densely developed and consist mostly of residential areas with retail stores, commercial buildings, and office space concentrated along Ditmars Boulevard, 23rd Avenue, and Astoria Boulevard. Other notable land uses near the project site include Vaughn College of Aeronautics and Technology, Overlook Park, and World's Fair Marina (see Figure 5-3 for Surrounding Land Use).

Airport property is zoned for Manufacturing, Light Industrial (M1-1). Zoning around the airport is primarily residential and mixed-used development (General Residence, R3-2, and Regional Commercial Center, C4-2).



Source: NYC DCP, NYC DoITT, ESRI
Prepared by: AECOM (January 2017)

Figure 5-3

LaGuardia Airport
East Side Reconfiguration

Legend
- Project Limit
- Airport Lease Line
- Health Facilities
- Education Facilities
- Religious Facilities
- Residential
- Mixed Use
- Commercial/Industrial
- Transportation/Utility
- Public Facilities & Institutions
- Parks / Open Space

Surrounding Land Use

5.9.1 Direct Impacts

This Proposed Action would occur entirely within airport property, with the exception of minor duct bank installation south of Grand Central Parkway. Since this Proposed Action would effectively replace similar facilities (i.e., terminals, parking, and airport roadways), it would be compatible with existing zoning, surrounding area land use plans, and the land uses on the airport. There would be no changes in land use on or off the airport and no changes to local zoning plans. To the extent not already covered in other sections in this Final EA (i.e., floodplains, coastal zones, etc.), this Proposed Action would be compatible with existing and planned land uses near the airport.[113] There would be no impact to historic resources or other land uses protected under Section 4(f) of the DOT Act.

As discussed in *Section 5.12*, this Proposed Action would not involve any land acquisition, move any homes or businesses, or divide or disrupt an established community. No local (off-airport) surface transportation patterns would be altered during construction. Delta and PANYNJ have consulted with New York City Department of Transportation (NYCDOT) and NYSDOT regarding the roadway design and any potential impacts from the project (see Appendix A for correspondence). This Proposed Action would not create a wildlife hazard as defined in FAA Advisory Circular (AC) 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*, or otherwise adversely affect safe aircraft operations. This Proposed Action would be compatible with existing and planned land uses near the airport; therefore, there would be no direct impacts to land use.

There will be no direct land use impacts as a result of the No Action Alternative. There will be no changes in land use on or off the airport, no land acquisition, and no changes to local zoning plans. The No Action Alternative will be compatible with existing and planned land uses near the airport.

5.9.2 Indirect Impacts

There would be no long-term increase in airport operations, no induced traffic, and no impact to the local roadway network as a result of this Proposed Action. The project would be compatible with normal airport operations and would not restrict the future use of land adjacent to or in the immediate vicinity of the airport. This Proposed Action would have no indirect land use impacts such as disruption of the community, induced socioeconomic impacts or interference with orderly/planned development.

There will be no indirect land use impacts as a result of the No Action Alternative.

5.9.3 Cumulative Impacts

This Proposed Action would not cause or contribute to an impact on land use; therefore, there would be no significant cumulative impacts on land use.

5.10 Natural Resources and Energy Supply

The operation of an airport requires energy in the form of electricity, natural gas, aviation fuel, diesel fuel, and gasoline to power, cool, heat, and provide lighting. Energy requirements associated with airport development generally fall into two categories: those for stationary facilities (e.g., terminal buildings) and

[113] As discussed in Section 5.4, this Proposed Action is consistent with the Coastal Zone Management Program and the New York City Waterfront Revitalization Program.

those for engines (e.g., aircraft, GSE, and vehicles). Natural resources such as sand, gravel, water, wood, and steel are typically consumed during airport construction projects.

5.10.1 Direct Impacts

During construction, additional gasoline and diesel fuel would be consumed by contractors and their employees traveling to and from the project 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 airport's power grid. These increases would be temporary and would diminish as the project nears completion.

The terminal would be constructed to achieve LEED certification (minimum rating of Silver). As part of PANYNJ's sustainability initiatives, during construction, preference would be given to materials and products with a high percentage of recycled content and those that have been harvested, extracted, and manufactured locally. This Proposed Action would not require any scarce or unusual building materials, and the volume of consumable materials would be available from local or regional suppliers.

5.10.2 Indirect Impacts

This Proposed Action would not change the amount of consumed fuel. Since the number of aircraft operations and fleet mix would not change, there is no potential for increase in fuel consumption associated with additional operations or the use of larger aircraft. The forecast passenger demand would not increase; therefore, there would be no additional traffic volumes and resulting increase in fuel consumption. Fuel consumption would decrease in the future, after construction of reconfigured apron and new terminal, as compared to the No Action Alternative, as a result of efficiencies associated with the design:

- Average daily aircraft fuel (Jet A) consumed by aircraft activity would likely decrease because (1) the dual (two-way) taxilanes would reduce aircraft taxi times and (2) equipping each gate with 400 Hz ground power and PCAir would reduce the use of the aircraft's APUs, which also consume aircraft fuel. As calculated by the AEDT model, fuel usage would be reduced by 240 short tons per year (for the model year 2029).
- Average daily gasoline and diesel fuel consumed by conventional bag tractors, belt loaders, and push-back tractors would be reduced because comparable electric ground support equipment (eGSE) would be available for use at the new terminal building.
- The electrical load required to cool the new terminal during peak hours would be reduced through the off-peak production of ice that would be stored and then used to cool the air circulated throughout the building.

The results of the air quality analysis demonstrate the benefits of this Proposed Action in terms of fuel efficiency. There would be no emissions increase or an increase that is clearly *de minimis* (see *Section 5.1, Air Quality*). Assuming that engine emissions correspond to fuel consumption, any project-related increase/decrease in average daily fuel consumed would be modest when compared to the No Action Alternative.

This Proposed Action would increase the demand for electricity. Consolidated Edison (ConEdison) provides electricity to the airport using high voltage (feeder) lines leading to two separate substations owned and operated by PANYNJ: East End Substation (EES) and the West End Substation (WES). The EES was constructed in 2015 to replace the aging Central Electric Substation adjacent to the existing CTB. Capacity of the WES is 12 MVA and capacity of the new EES is 24 MVA. The total 36 MVA capacity—which Delta calculated based on existing airport loading analysis at Terminals C and D, anticipated load expansion from the increased terminal size and added functionality, and a reasonable allowance for an unanticipated peak load increase–would not meet the projected overall airport load after the new terminal was constructed under this Proposed Action. Therefore, the construction of a new substation on the roof of Concourse G of the proposed terminal is included in this Proposed Action in order to increase the capacity by up to 12 MVA and meet the foreseeable needs of the airport. PANYNJ is coordinating with ConEdison to ensure that there will be ample supply and sufficient infrastructure to deliver the energy required. No upstream/off-airport infrastructure improvements would be required to accommodate this Proposed Action.

Sustainability

With regard to sustainable design, White House Executive Order 13123, *Greening the Government Through Efficient Energy Management*, encourages each federal agency to expand the use of renewable energy in its facilities and for its actions.[114] Further, FAA policy directs a review of a federal action to discern the conservation of resources, use of pollution prevention measures, minimization of aesthetic effects, and to address public (both local and traveling) sensitivity to these concerns.

Delta is committed to developing a design for this Proposed Action that constructs and operates the airport in a sustainable manner by conserving natural resources and protecting the environment. Delta would pursue LEED certification through the U.S. Green Building Council's *Application Guide for Multiple Buildings and On-Campus Projects*. The proposed terminal would be certified under LEED for New Construction (minimum rating of Silver).[115] The garage extension is not appropriate for LEED certification, but its design and construction would still comply with *PANYNJ's Policy on Sustainable Design* and implementing strategies outlined in *PANYNJ's Sustainable Design Project Manual* or *PANYNJ's Sustainable Infrastructure Guidelines*.

As per PANYNJ policy and guidelines, this Proposed Action would be designed to comply with established environmental goals for emissions reductions, energy and water efficiency, and waste reduction. These environmental goals have targets to be met by 2050 and beyond. Thus, this Proposed Action would meet PANYNJ's and FAA's goals for promoting sustainable design.

Under the No Action Alternative, the existing Terminals C and D and ancillary facilities will not be reconfigured and a new substation will not be constructed. The airport will continue to operate within the electrical capacity provided by the EES and existing WES with no anticipated interruptions. However, there will be no additional compliance with PANYNJ sustainability guidelines and LEED certification for New Construction will not be achieved.

[114] 64 FR 30851 (June 8, 1999). Available online at *http://www.gpo.gov/fdsys/pkg/FR-1999-06-08/pdf/99-14633.pdf*.

[115] Version 4 / 2016

5.10.3 Cumulative Impacts

PANYNJ has been working for the past five years to meet the predicted electrical supply needs of LaGuardia Airport. The 24 MVA EES was constructed in 2015 to replace the aging Central Electrical Substation and meet the additional load from past airport infrastructure improvements. The CTB Redevelopment Program has incorporated energy saving elements throughout the design in order to offset the increased demand from larger aircraft and additional passengers, which are forecasted to use the airport. The cumulative impacts to energy supply are being managed through airport-wide planning and sustainable design. Both the CTB Redevelopment Program and this Proposed Action would reduce fuel usage through efficiencies in the airside apron, charging stations for eGSE and improvements in the airport roadways that will allow for free-flowing traffic.

Despite these efforts, the capacity of the EES would not adequately handle the following loads that were not previously contemplated for the expanded parking garage and Terminals C and D:

- The need to accommodate electric charging stations in parking garages for patron vehicles
- The full range of electric GSE that will be used at the new terminals
- The conversion of all existing hardstand gates to jetbridge-supported contact gates at the new East Terminal
- The increase in square footage of the East Terminal compared to the existing Terminals C and D.

PANYNJ expects continued customer adoption of electric vehicles (EV), since the five available on-airport charging stations are fully occupied several days per week. The proposed East Garage extension would include five additional charging stations with infrastructure to support more as demand dictates. It is possible that once the new terminals open and with the current pace of EV adoption, that 50 to 100 charging stations would be needed in patron parking garages. In addition, in accordance with Local Law 130 of 2013, 20 percent of spaces in all new parking garages would be "charger ready" and would support electric capacity so that 20 percent of all spaces could accommodate electric chargers. This demand was not forecasted several years ago during the design of the EES, since market demand for electric vehicles had not been firmly established yet, and Local Law 130 of 2013 had not yet been enacted when the East Garage was planned. Second, advances in eGSE technology have allowed airlines to use the equipment for almost all GSE applications, including push-back tractors. The scale of the expected eGSE deployment was not anticipated. Both of these factors increase the demand for electricity, but ultimately result in improved air quality and reduced consumption of fossil fuels on airport, which PANYNJ supports. The larger size of the proposed terminal would require additional electrical capacity, despite sustainable design measures and increased energy efficiency per square foot as a result of a modern and efficient CUP. Therefore, Delta would construct a new substation on the roof of Concourse G to accommodate these unforeseen electric demands, and the cumulative impacts to energy supply would be being managed through airport-wide planning and sustainable design.

5.11 Noise and Noise-Compatible Land Use

Airport development actions could cause or contribute to changes in community noise levels. Changes in aircraft noise could be attributable to differences in aircraft types, approach and/or departure

procedures, and the frequency of flights. Ambient noise levels could also be affected by re-aligned airport access roads, increased automobile and truck traffic, and increased vehicle speeds. In addition, construction activities typically generate noise impacts that are short-term or temporary in nature, with the effects diminishing as the project nears completion. High existing background noise levels exist in the area around LaGuardia Airport.

Appendix C presents the results from a detailed noise assessment. The analysis encompassed two sources of noise attributable to this Proposed Action: on-road vehicles and on-site construction equipment (both during construction of the project only). There is no detailed analysis of operational noise impacts since this Proposed Action would not result in a change in aircraft operations (affecting noise contours for the airport) or an increase in passengers that would generate additional traffic (increasing noise on local streets near the airport). Appendix C includes detailed discussions about the fundamentals of noise, methodologies for assessing the different types of noise impacts, noise monitoring for determining baseline conditions, the impact analysis and assessment, and mitigation measures to reduce the effects of noise on the surrounding environment.

5.11.1 Direct Impacts

Noise would be generated throughout the construction of this Proposed Action, by on-site equipment and by increased traffic (from trucks and construction worker vehicles) using local streets near the airport.

Construction Equipment

A wide range of construction equipment would be required for demolition and construction phase activities. FHWA-approved Roadway Construction Noise Model (RCNM) is used to predict construction noise levels from on-site construction equipment. In order to assess the construction noise impacts from on-site equipment operations, the loudest projected hourly noise level in any given month was predicted by assuming that all likely equipment would be operating within the same hour.[116] These cumulative noise levels were then adjusted based on applicable usage factors. Based on the equipment type, the distance between the work zone, and the selected receptor, the RCNM computes the maximum noise (L_{max}) and/or equivalent sound level (L_{eq})[117] at each receptor location. The RCNM does not account for excess ground attenuation or the rate of atmospheric absorption that would help shield the sound made by the construction noise, so the resulting predicted noise levels are higher than would actually be perceived.

Predicted levels of construction noise were compared with existing background levels at two noise monitoring sites near the airport. In accordance with the *CEQR Technical Manual*, typical weekday 24-hour noise monitoring was conducted to determine the existing (baseline) conditions. Table 5-10 lists (and Figure 1 in Appendix C depicts) the selected monitoring sites.

Construction equipment noise was compared with existing monitored background levels at four noise-sensitive sites located south of the airport, across Grand Central Parkway. Since these selected receptor sites are the closest noise-sensitive receptor locations to the proposed construction activities, the

[116] Estimates of construction equipment usage were generated for this Proposed Action using preliminary designs and assumptions based on standard industry practices (see Appendix F).

[117] L_{eq} is used to describe the sound energy for fluctuating noise heard over a specific time period by averaging these values and representing them as a steady, unchanging sound over that time period.

predicted noise impacts are expected to be representative of the worst-case conditions. According to NYSDOT's *Noise Analysis Policy and Procedures*, in New York City an impact to any sensitive receptor from construction noise would occur when levels are only above 85 decibels (dB). In *Assessing and Mitigating Noise Impacts* (policy dated February 2, 2001), the NYSDEC identified an increase of 10 dB above background levels as deserving consideration of avoidance and mitigation measures.

Table 5-10. Existing Ambient Noise Monitoring Results

			Noise Level (dBA)			
Site	Location	Land Use	Peak Hour	Leq	L10	L90
M1	Overlook Park	Park	A.M.	64.6	67.3	60.4
			Midday	64.3	66.1	59.9
			P.M.	64.5	67.1	60.6
M2	100th St. & Ditmars Blvd.	Residential	A.M.	63.5	66.0	58.1
			Midday	63.6	65.7	57.9
			P.M.	63.7	65.9	58.5

Source: AECOM, 2017 (Appendix C); monitoring performed on January 16, 17, 29, and 30, 2013.

Table 5-11 presents the current noise levels and the expected increase in noise levels at each noise-sensitive receptor location during the construction period. According to the results of the analysis, this Proposed Action would likely result in noticeable noise increases that range from 3 to 9 dBA above existing background levels at the two receptors located immediately across from the project site near Ditmars Boulevard: M3 (at 102nd Street and Ditmars Boulevard) and M4 (at 105-05 Ditmars Boulevard). The relatively high noise increases would occur as a result of the impact pile driving. However, the construction equipment noise levels are predicted to be well below the 85 dBA criterion established by NYSDOT in all cases. As described previously, the Proposed Action would be constructed over the course of nearly nine years (106 months) as opposed to the eight years (96 months) evaluated in the noise analysis. Under the 106-month construction phasing, there would be fewer impactful activities since the piles for Concourses F and G would not be driven concurrently and demolition would be more spread out. This would extend noise impacts into 2025 and a small portion of 2026; however, based on the type of work that would be occurring, construction-generated noise levels would not exceed measured background levels.

Construction activities would require a construction Noise Control Plan (NCP) to minimize construction noise as mandated in Chapter 28, Title 15 of the City of New York Administrative Code, *Citywide Construction Noise Mitigation.* The NCP 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) (see *Chapter 6, Mitigation*). The following noise control measures are recommended to minimize these potentially adverse effects in the community:

- 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.

Table 5-11. Roadway Construction Noise Model Predicted Worst-Case Daytime $L_{eq}(1)$ Noise Levels at Select Sites

	Weekday Peak Hour	Measured background L_{eq} (dBA)	Construction Generated Noise Level L_{eq} (dBA)								
			2016	2017	2018	2019	2020	2021	2022	2023	2024
M1 – Overlook Park	A.M.	65	55.7	62.9	62.6	58.5	62.3	58.0	56.9	62.4	62.4
	Midday	64									
	P.M.	65									
M – 100th St. & Ditmars Blvd.	A.M.	64	59.3	66.6	66.3	62.2	65.9	61.7	60.6	66.0	66.0
	Midday	64									
	P.M.	64									
M3* – 102nd St. & Ditmars Blvd.	A.M.	65	60.2	67.4	67.1	63.0	66.8	62.5	61.4	66.9	66.9
	Midday	66									
	P.M.	66									
M4* – Backyard of 105-05 Ditmars Blvd	A.M.	65	66.8	74.0	73.7	69.7	73.4	69.1	68.0	73.5	73.5
	Midday	66									
	P.M.	66									

Source: AECOM (2017); Appendix C.
*Background levels are based on the highest measured data obtained at M1 and M2.

Construction Traffic

There would be a temporary increase in truck and vehicle traffic during the construction period. Trucks would be limited to local roads near LaGuardia Airport because of NYCDOT restrictions on Grand Central Parkway. Due to space limitations within the terminal area, construction workers would park at the Citi Field baseball stadium located southeast of the airport and would commute to and from the construction site via shuttle buses.

Per the *CEQR Technical Manual*, the methodology for predicting future on-road traffic noise levels assumes that existing noise levels are dominated by existing traffic volumes. Changes in future noise levels can be estimated by evaluating the proportional increase in traffic as a result of a given project. A doubling of traffic volume would increase noise levels by approximately 3 dBA (the minimum change in sound level that an average human ear can detect and the equivalent of doubling a sound's intensity). Passenger Car Equivalents (PCE) can be used to create a common unit of measurement for different types of vehicles (cars, trucks, buses, etc.) to conservatively estimate noise from traffic. If this Proposed Action were to double PCE traffic and thus result in a 3 dBA increase in noise level, a more detailed analysis would be performed; however, if the increase were less than double the existing PCE, this Proposed Action would not cause a significant adverse vehicular noise impact.

Delta calculated the mid-block PCE volumes along the roadway immediately adjacent to the noise-sensitive receptors for each of the peak traffic periods (morning and afternoon) for which construction traffic was predicted (see traffic analysis in Appendix E). The peak period with the highest incremental PCEs was selected for the analysis. The analyses determined that the maximum incremental noise predicted for each roadway link within the project-related traffic network was below 3 dBA in all cases. Therefore, traffic noise impacts from constructing this Proposed Action would not be significant, and no mitigation measures related to construction traffic are warranted to comply with CEQR guidelines.

With the exception of pile-driving activities at various points during construction, the noise generated during construction activities would not be discernible from the normal background noise levels in the area. Mitigation measures will be implemented and an NCP will be drafted to minimize the potential for adverse effects on the community. The temporary increase in vehicular traffic caused by construction traffic would not result in noise impacts to residential or other sensitive land uses because of the distance between the construction site and the receptor.

Under the No Action Alternative, there will be no construction activities and therefore no construction-related noise impacts.

5.11.2 Indirect Impacts

Neither this Proposed Action nor the No Action Alternative would result in an increase in forecast passenger demand. There would be no additional aircraft operations and no change in the aircraft fleet mix under either alternative. Therefore, there would not be any indirect increase in noise due to increase vehicular traffic or variation in the future aircraft operations at the airport. All other operations at the airport would remain similar to existing conditions and have no impact on noise.

5.11.3 Cumulative Impacts

Construction

Cumulative noise impacts during construction may result from two conditions:

- Multiple construction activities occurring simultaneously in proximity to the same noise receptor, such that the total construction noise level from the multiple sources exceeds the impact threshold
- Multiple construction activities occurring during non-overlapping but consecutive time periods proximate to the same noise receptor

At the airport, the simultaneous construction of two major projects could produce cumulative noise impacts. The CTB Redevelopment Program is under construction and will continue through the year 2021. As with this Proposed Action, construction work will occur on weekdays, primarily 7:00 a.m. – 3:00 p.m., with some later shifts. However, the peak period of construction for the CTB Redevelopment will be within the second quarter of 2017, while the peak construction for this Proposed Action would be during the third quarter of 2019. The CTB Redevelopment will include demolition activities at night for a six-month period in 2017; however, the predicted noise levels will be well below the NYSDOT 85 dBA noise criteria. There would be no nighttime pile driving as part of this Proposed Action.

As with this Proposed Action, pile driving is anticipated to be the worst-case noise activity during the construction of the approved CTB. The highest noise levels would occur during the early construction phases (between 2016 and 2018), with the highest exposure expected to occur in 2016, corresponding with the greatest amount of pile-driving activities. The earliest that construction of this Proposed Action would begin is late spring or early summer 2017, and so it would not contribute additional pile-driving noise during that period. The extended periods of pile-driving activities from multiple individual projects would not cause a significant noise impact because of noise control measures to be implemented in compliance with the City's *Noise Control Code*.

No nearby off-airport projects are scheduled to be under construction at the same time as this Proposed Action. Other projects in Queens—including the Environmental Dredging of Flushing Bay (started January 2017) and Willets Point Redevelopment—could be underway at the same time as this Proposed Action, but those projects are located farther away. The distance between these simultaneous projects translates to no cumulative impact to the noise receptors that would be affected by construction noise resulting from this Proposed Action.

Operations

If this Proposed Action would not cause or contribute to an indirect noise impact, then there would be no significant cumulative indirect noise impacts. Nevertheless, past, ongoing, and reasonably foreseeable future projects and/or actions were considered to determine if there is potential for cumulative exposure of individuals to aircraft noise in areas surrounding the airport.

The CTB Redevelopment Program will result in a minor, but not significant, increase in noise levels near the airport. The changes will not begin to occur until after 2021 and will not reach predicted levels until 2030. As part of the NEPA process for the CTB Redevelopment Program, an aircraft noise analysis was performed using the Integrated Noise Model (Version 7.0d). The model produces day-night average sound

level (DNL) noise contours. The DNL metric represents the cumulative noise level in an area over a 24-hour period.[118] DNL noise exposure contours were prepared for the existing condition, the opening year of the new Central Terminal Building (2021), and the horizon year for forecasted demand with the CTB Redevelopment (2030) for the With Action (i.e., CTB Redevelopment) and No Action Alternatives.

The only other major development projects at LaGuardia Airport in recent years were two infrastructure projects: the East End Substation/East Garage and the Runway Safety Area Enhancements projects; neither project affected the airport noise exposure contours. Finally, no off-airport projects—past, present or future—would affect aircraft operations or noise levels near the airport. On this basis, no past, ongoing, or reasonably foreseeable project undertaken by PANYNJ would combine to result in significant cumulative noise impacts for the operations phases of these projects.

5.12 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The FAA must evaluate proposed airport development actions to determine if they would cause socioeconomic impacts (i.e., elements of the human environment such as population, employment, housing, public services, and transportation), and is consistent with executive orders governing environmental justice and children's environmental health and safety risks.

The following types of social impacts are typically associated with airport development:

- Extensive relocation of people's homes or businesses
- Substantial induced economic growth in an area or a substantial change in the community tax base
- Disruption of local traffic patterns that substantially reduce the levels of service on roads serving the airport and the surrounding communities

Federal agencies require that the *Uniform Relocation Assistance and Real Property Acquisition Policy Act* (Uniform Act) of 1970 be implemented if displacements would be a result of a proposed federal project or action. An impact is considered adverse under NEPA if people are displaced from their homes, businesses, or farms.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* requires all federal agencies to identify and address disproportionate and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Executive Order also directs federal agencies to incorporate environmental justice into their overall missions by conducting their programs and activities in a manner that provides minority and low-income populations an opportunity to participate in agency programs and activities. As stated in FAA Order 1050.1F, FAA must provide for meaningful public involvement of by minority and low-income populations.

[118] Noise produced by all aircraft events during a 24-hour period are added together, with an extra 10 dB weight added to nighttime operations (10:00 p.m. - 6:59 a.m.). If any noise-sensitive land uses within the Day-Night Average Sound Level (DNL) 65 dB noise contour experience increases in noise of DNL 1.5 dB or greater as a result of an action, a significant noise impact would occur.

U.S. DOT Order 5610.2(a), *Environmental Justice in Minority and Low-Income Populations,* was issued to implement Executive Order 12898. U.S. DOT Order 5610.2(a) defines minorities as people who are Black, Hispanic, Asian American, American Indian, or Alaskan Native. The U.S. DOT Order defines a low-income population as "any readily identifiable group" of persons whose median household income is at or below the poverty guidelines of the U.S. Department of Health and Human Services.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies, to the extent permitted by law and appropriate, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

The areas adjacent to the airport that are most likely to be affected by this Proposed Action include Queens Community Districts 1 and 3. LaGuardia Airport immediately borders Community District 1 to the west (including the neighborhoods of Astoria Heights and Steinway) and Community District 3 to the south (including the neighborhoods of East Elmhurst and Jackson Heights). Because of their close proximity to the airport and the project site, Districts 1 and 3 and the neighborhoods they represent have the greatest potential to be directly and indirectly affected by the construction and operation phases of this Proposed Action.

LaGuardia Airport generates economic activity by supporting employment, contributing to wage earnings, and generating economic activity for the local and regional economy. In 2015, LaGuardia Airport employed about 12,000 people. According to the 2015 *PANYNJ Air Traffic Report*, the annual economic impact of the airport accounts for roughly 129,100 job-years and $6.4 billion in salaries and wages, which translates into more than $15.6 billion in sales or other economic activities.[119]

An evaluation of population statistics for the adjacent communities to LaGuardia Airport shows that there are environmental justice populations, defined by high rates of minorities, to the south in the neighborhoods of Jackson Heights and East Elmhurst.[120] Minorities make up 71 to 99 percent of the population, grouped by census block group. The Astoria/Steinway neighborhood to the west of the airport has a lower minority percentage – 20 to 50 percent. This racial diversity represents the borough of Queens, one of the most culturally diverse urban areas in the world. Overall, according to the U.S. Census Bureau, the Queens County population is 70.3 percent minority.

The rate of poverty in the neighborhoods near the airport is consistent with the borough of Queens as a whole. Households below the poverty level (as specified by the Office of Management and Budget Statistical Policy Directive 14) make up 13.7 percent of Queens, while 2 - 15 percent of airport-adjacent block groups are below the poverty level.[121] There are no low-income communities within the study area for this Proposed Action.

[119] *PANYNJ Air Traffic Report*, 2015; *http:www.panynj.gov/airports/pdf-traffic/ATR_2015.pdf*

[120] Based on U.S. Census Bureau's 2010 Census and 2007-2011 American Community Survey 5-year Summary.

[121] Based on U.S. Census Bureau's 2010 census and 2007-2011 American Community Survey 5-year Summary.

5.12.1 Direct Impacts

Socioeconomics

This Proposed Action would be located on existing airport property and within NYSDOT right-of-way immediately adjacent to the airport—all of which is public property designated for transportation purposes. No homes, businesses, or farms would be displaced by this Proposed Action.

Capital development (i.e., construction projects) generates additional income and employment opportunities, albeit on a temporary basis. This Proposed Action would take approximately eight years to construct, and peak employment during that period is projected to require 600 full-time local trade workers. The project is expected to cost $3.8 billion. There would be direct economic impacts to the community as the result of expenditures associated with the construction of the project, in the form of labor, materials, and supplies.

Under the No Action Alternative, there will be no economic benefits from construction.

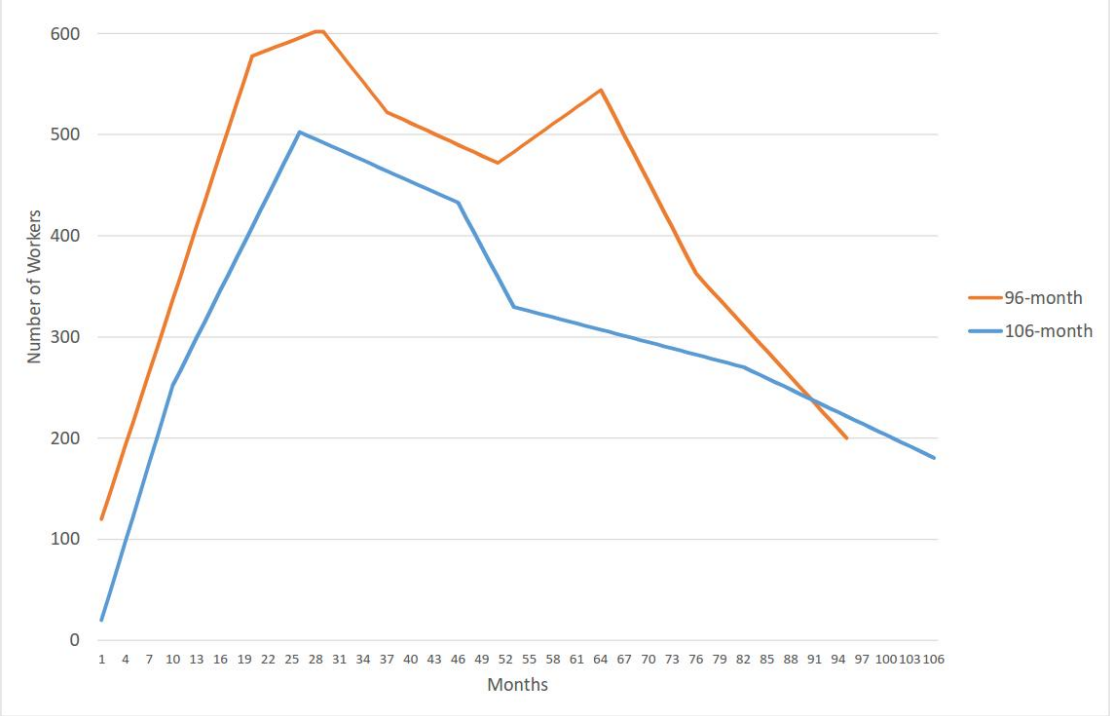
Construction Vehicular Traffic Impacts

During construction, this Proposed Action could affect the level of service on local roads serving the airport and the surrounding communities. PANYNJ and Delta have coordinated closely with representatives from both the NYSDOT and NYCDOT to ensure that the analysis construction traffic impacts met the technical and procedural expectations of both agencies. The analyses were conducted in accordance with the guidance in the *CEQR Technical Manual* (see Appendix E).

Construction traffic associated with this Proposed Action would consist of passenger vehicles generated by construction personnel (including laborers, managers, and administrative staff), as well as construction trucks associated with the movement of materials and equipment traveling directly to the construction site via established New York City truck routes. For the purposes of construction traffic analysis, this Proposed Action was assumed to take place over an eight-year period, beginning spring 2017 and continuing until the beginning of 2025 (96 months). An updated construction phasing plan (see Appendix F) indicates that construction would actually take 106 months, which would reduce the peak traffic by spreading the number of construction personnel vehicles and trucks over a longer period of time. At the peak of construction there would be a 17-percent decrease in construction manpower and a 12-percent decrease in construction trucks for the 106-month construction schedule, compared with the 96-month program (as shown in comparative graphs for construction workers, Figure 5-4, and trucks, Figure 5-5). Therefore, the peak quarter would remain the same, but the analysis presented in this section and in Appendix E is a worst-case scenario.

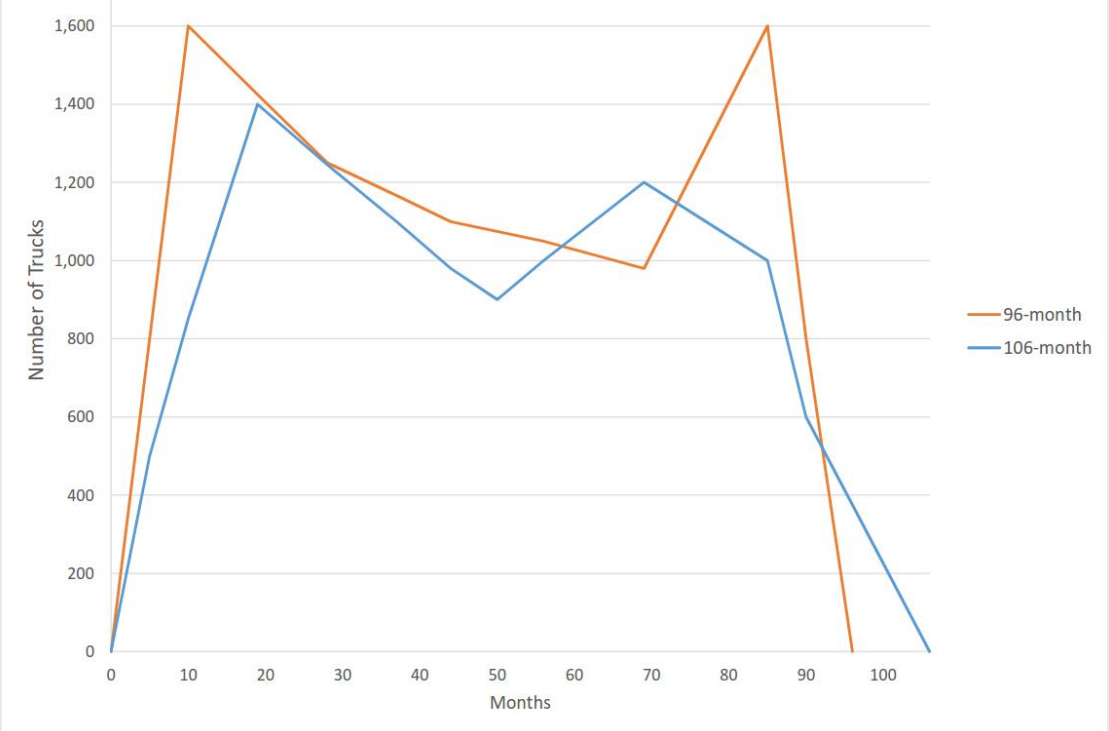
To establish baseline conditions, traffic-data collection was performed that included two-day manual turning movement and vehicle classification counts, supplemented by nine-day Automatic Traffic Recorder counts. In addition, a comprehensive inventory of the physical and operational characteristics of each study intersection was conducted in the field. Data were initially collected at four of the 11 study intersections from November 14 to November 22, 2015. Data at the additional seven intersections (which were identified subsequent to the November 2015 data collection effort) were collected from March 19 to March 28, 2016.

Figure 5-4. Comparison of Construction Workers



Sources: STV (January 2016); Delta Air Lines (January 2017).

Figure 5-5. Comparison of Monthly Construction Trucks



Sources: STV (January 2016); Delta Air Lines (January 2017).

During the peak construction month, it is anticipated that daily parking for construction personnel would be accommodated at the Citi Field parking lot, located southeast of the project site.[122] All construction personnel parking at Citi Field would be transported by private shuttles to and from work at the construction site. There is ample parking capacity at Citi Field to accommodate the peak 270 contractor personnel vehicles that are projected to require parking, and Delta has been negotiating with the New York Mets regarding the terms of use for the spaces (see letter from Haeda Mihaltses in Appendix E). During Mets baseball day games at Citi Field and during the United States Tennis Association's U.S. Open tennis tournament, the construction schedule would be altered to either eliminate construction that day or avoid a conflict with the events, or construction workers may be offered transit vouchers to take mass transit to and from work. As such, construction worker parking would not overlap with day-game or U.S. Open parking at Citi Field.

For each month of the construction schedule, the total number of daily construction personnel and daily construction trucks were forecast using industry standards for the building sizes, material quantities, man-power rates, and other factors. These calculated numbers of workers and trucks were then aggregated to estimate the average daily number of construction workers and trucks projected to travel to the site in each calendar quarter. The proposed construction schedule assumes construction-related vehicle trips would peak in July of 2019. During this quarter, an average of approximately 300 construction personnel vehicles (approximately 20 shuttle buses) and approximately 58 trucks would travel to and from the Citi Field parking and construction sites on a daily basis. For construction personnel, travel by means other than single-occupant vehicle will be encouraged and supported by Delta through specific contract arrangements with contractors. LaGuardia Airport is served by the M60, Q47, Q48, Q72, and the Q70 express service bus lines, which also provide connections to subway stations in Manhattan and Queens and can accommodate travel for construction personnel.

All construction activities were assumed to take place during two construction shifts. The first shift is assumed to occur from approximately 7:00 a.m. - 3:00 p.m. and comprise approximately 90 percent of the total construction personnel workforce. The second shift was assumed to occur from approximately 3:00 p.m. - 11:00 p.m. and comprise approximately 10 percent of the total construction personnel workforce. Given these construction hours, worker trips would largely be concentrated during off-peak hours and would not represent a substantial increment during peak travel periods near the airport.

Delta will coordinate with its contractors and PANYNJ to establish a daily schedule of goods deliveries that ensures on-time deliveries by minimizing truck travel during peak traffic periods, which can result in delays in transporting materials to and from the site. Construction truck trips to and from the site would generally be made 4:00 a.m. – 10:00 p.m. It is assumed that there will be no significant amount of truck staging or queuing at the construction site; "just-in-time" delivery will be applied. Truck arrivals are expected to be generally uniform throughout this time period with slightly higher numbers of trips during the midday hours (8:00 a.m. – 2:00 p.m.) when on-site work activities are expected to peak. Some truck deliveries would also be made during off-peak times to ensure that materials are on-site prior to the start of the

[122] The parking lot is located off the Route 25A (West)/Northern Boulevard/Citi Field exit (Exit 13D) of westbound Grand Central Parkway and along the Flushing Bay Promenade. Along eastbound Grand Central Parkway, this lot is located off the Route 25A (East)/Northern Boulevard/Citi Field exit. Access to Citi Field parking lots would occur via 126th Street and Shea Road.

first shift. Trucks would typically remain on-site for relatively short durations (typically one hour or less). All trucks would be required to use NYCDOT-established truck routes.

The construction traffic analysis examined the potential operational effects of additional construction-related vehicle trips generated at 11 key intersections near the airport and Citi Field during the peak calendar quarter of the entire construction duration (i.e., the third quarter of 2019). All traffic impact analyses were conducted in accordance with the guidance published in the *CEQR Technical Manual* and in consultation with NYCDOT, including the determination of potential significant traffic impacts for each intersection.

The No Action Alternative traffic analysis identifies how the study area's transportation system is projected to operate in the future *without* the construction traffic associated with this Proposed Action. Projected construction conditions on a typical weekday during the peak month of July 2019 were analyzed for this purpose. Regardless of the planned construction at Terminals C and D, traffic volumes at the study intersections during this timeframe will increase because of a combination of normal background growth, as well as traffic generated from other construction activities at LaGuardia Airport.

To establish year 2019 No Action Alternative traffic volumes, the existing traffic volumes from November 2015/March 2016 were first increased by applying a compounded background growth rate in accordance with the *CEQR Technical Manual* to account for regional growth between 2015/2016 and 2019. In addition, the projected increase in vehicular traffic associated with overlapping construction activities for the CTB Redevelopment Program was included in the traffic volumes. Weekday peak-hour traffic generated by the CTB construction during its peak construction quarter (second quarter of 2017) was included in the No Action Alternative. Although the peak construction years for the CTB and this Proposed Action do not coincide, to be conservative, the 2017 peak-hour construction volumes associated with the CTB were included without any adjustment to reflect higher construction traffic volumes in 2019.[123]

Vehicle trips estimated to be generated on a typical construction workday in the peak month of July 2019 were added to the No Action Alternative traffic volumes to produce this Proposed Action's traffic volumes. Intersection operations analyses were then performed to evaluate the performance of the transportation system including construction traffic associated with this Proposed Action. The results of the No Action Alternative and this Proposed Action conditions analyses were then compared in accordance with *CEQR Technical Manual* criteria to identify any critical changes in projected traffic operations associated with construction of the proposed project.

At Northern Boulevard/Junction Boulevard—during the weekday morning and afternoon peak periods—1 second of green time from the east-west phase to the north-south phase would be reallocated. These improvements are recommended as temporary measures to reduce delays at these intersections and ensure the most efficient traffic operations during periods of peak construction activity (Figure 5-6).

[123] Although this Proposed Action is independent from the recently initiated CTB Redevelopment Program and has its own utility, the study of potential traffic impacts in this Final EA relies in part on data and analyses presented in the CTB Redevelopment Program EA. The traffic projections contained in this EA rely on the assumption that those CTB analyses remain accurate, and that the full panoply of CTB traffic mitigation measures are in place and effective.

Source: NYC DOT, NYC DCP, NYC DoITT, ESRI
Prepared by: AECOM (January 2017)

Figure 5-6

LaGuardia Airport
East Side Reconfiguration

Shuttle Bus Route for Construction Workers
NYCDOT-Designated Truck Route
Construction Improvement
Operational Improvement

Traffic Improvements

With this improvement in place—subject to review and approval by NYCDOT—no significant traffic impacts would occur under this Proposed Action.

Under the No Action Alternative, there will be no additional construction traffic from this Proposed Action. The CTB Redevelopment construction traffic will affect local roads during the peak period, requiring some temporary improvements to reduce delays at certain intersections. Those improvements are described in the Written Reevaluation/Record of Decision for the CTB Redevelopment Program.

Environmental Justice

In determining whether a proposed project or activity is in compliance with Executive Order 12898, two factors must be considered:

- Whether the proposal is likely to have adverse effects on minority or low-income populations
- Whether the proposal is likely to have disproportionately high and adverse impacts on minority or low-income populations.

The U.S. DOT Order defines "adverse effects" as "the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects." The U.S. DOT Order also defines "disproportionately high and adverse effects" as those that are "predominately borne by a minority population and/or a low-income population, or will be suffered by the minority population and/or low-income population and [are] appreciably more severe or greater in magnitude than the adverse effect[s] that will be suffered by the non-minority population and/or non-low-income population."

This Proposed Action would have no adverse impacts on human health or the environment; therefore, there would be no disproportionately high and adverse effects on low-income or minority populations. As described in Chapter 7, Public Involvement, residents of the communities surrounding LaGuardia Airport will be given an opportunity to participate in the NEPA process through the public hearing and public comment period planned for this Final EA.

Children's Environmental Health and Safety Risks

No environmental health risks or safety risks have been identified in this Final EA that would adversely affect any person of any age; therefore, there would be no disproportionate effects on children or that any potential effects would be less than significant.

Summary of Direct Impacts

Under this Proposed Action, there would be a positive direct impact as the result of the capital expenditures associated with the construction, and any disruption to local roads caused by increased traffic from contractors and trucks would be mitigated through recommended improvements (reallocation of green time) at one intersection. There would be no adverse or disproportionate impact to environmental justice communities or any impacts to children's environmental health and safety as a result of either this Proposed Action or the No Action Alternative.

The No Action Alternative will not have any of the traffic impacts; however, there will be no positive impacts from the increased economic activity associated with the Proposed Action.

5.12.2 Indirect Impacts

Socioeconomics

Major airport development proposals often involve the potential for induced or secondary impacts on the surrounding community. Examples of these impacts include shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by airport development.

In addition to the direct economic impacts of a construction project (i.e., spending on labor, materials, and supplies), indirect impacts can be expected in the form of business transactions as a result of the project, including suppliers purchasing goods and services from contractors and vendors to meet the demand, which would not occur but for the proposed construction project. The construction would also produce secondary or induced economic impacts, which are the multiplier or "spin-off" effects of the direct and indirect impacts (i.e., increases in consumer spending by wage earners employed by the construction and support industries). This Proposed Action's significant capital costs would contribute to a major positive impact on local and regional economies over the eight-year construction period.

The annual economic impact of an airport to the region can be directly correlated to the number of passengers served. However, since there would be no incremental increase in passenger activity associated with this Proposed Action, there would be no significant economic benefits beyond those from construction.

Despite the airport's economic contribution to the community, there is minimal potential for secondary or induced development or growth to occur as a result of this Proposed Action. With a population of over 2.2 million people living within 23 square miles, Queens is the fourth most densely populated county in the United States. Though air transportation is a key component of the county's economy and a major employer in the neighborhoods around JFK and LaGuardia Airports, no single industry overwhelmingly dominates the Queens economy.[124] Health care and social assistance is also a major employer in Queens and has been steadily growing. Additionally, two-thirds of all businesses in Queens employ between one and four people, making small businesses an important part of its economic vitality. Because of Queen's large and diverse economy, the incremental changes associated with this Proposed Action are not likely to contribute to a major shift in local population, income, or employment.

There are also no expected induced changes in public service demands due to this Proposed Action. The airport maintains its own police department, provides fire rescue services for all aircraft-related incidents, and provides for its own waste management and disposal. New York City Fire Department responds to any non-airfield emergencies at the airport and has the capacity to serve the new facilities. With the exception of electricity, existing utilities and service providers (water, sewer, gas, etc.) are sufficient to meet current and projected demands; therefore, no new or additional off-site utilities would be needed. To meet the projected increase in electrical load as a result of the new East Terminal, this Proposed Action would include construction of a new electrical substation on the roof of the proposed terminal to provide additional electrical capacity to the airport. PANYNJ is coordinating with ConEdison to ensure that there will be ample supply and sufficient infrastructure to deliver the energy required. Only minor off-airport

[124] Queens Economic Development Corporation. For more information, go to *http://www.queensny.org/qedc/*.

trenching to connect the feeders south of Grand Central Parkway and no upstream infrastructure improvements would be required to accommodate this Proposed Action. For these reasons, public service demands are not expected to change with or without the project.

Under the No Action Alternative, this Proposed Action will not be implemented so there will be no short- or long-term economic benefits.

Operational Vehicular Traffic Impacts

Although this Proposed Action would not change off-airport roadways or increase the number of air passengers, this Proposed Action would relocate a taxi hold lot—intended to serve the future CTB (to be constructed as part of the previously approved CTB Redevelopment Program)—to in front of the future CTB headhouse, which would relocate some long-term passenger parking from the east side of the airport to the west side and reallocate employee parking on the west side of the airport. A traffic operations study was prepared to analyze the effects that the reallocation of airport-related traffic volumes and the resulting change in traffic patterns would have on on- and off-airport roadways (*LGA Traffic Operations Study prepared by the Port Authority in Support of Delta Air Lines Environmental Assessment* dated February 15, 2017; see Appendix E). The study considered the future allocation of passenger and employee parking and the siting of taxi hold lots throughout the airport under forecast demand for the year 2030.

Four key on-airport intersections and seven key off-airport intersections were analyzed using Synchro software. Traffic analysis was performed during the 8:00 – 9:00 a.m. and 5:00 – 6:00 p.m. peak hours, with the exception of the two intersections near Ingraham's Mountain. Due to the traffic to and from Rikers Island, those intersections have weekday peak hours 6:00 a.m. – 7:00 a.m. and 3:00 p.m. – 4:00 p.m. Volume-to-capacity ratios, delays and LOS were compared for this Proposed Action and the No Action Alternative, and traffic impacts were assessed using the *CEQR Manual* thresholds used by NYCDOT.

Of the 11 key intersections analyzed, three intersections would exceed the delay thresholds for individual movements. In coordination with NYCDOT, mitigation measures will be implemented at the following locations to address the potential operational traffic impacts with this Proposed Action:

- Grand Central Parkway westbound off-ramp and 82nd Street/Ditmars Boulevard – Reconfigure the travel lanes in the westbound approach and adjust the signal timing plan for the intersection.
- 19th Avenue and 45th Street – Install a permanent traffic signal, if warranted.
- 19th Avenue and Hazen Street – Adjust the signal timing plan for the intersection.

With the proposed mitigation measures in place at the three intersections, no significant traffic impacts would occur as a result of this Proposed Action. Furthermore, following the opening of the new CTB, PANYNJ would continue elements of the traffic monitoring program initiated during construction. The monitoring program, as described in *Section 3.1.5*, involves real time management of traffic conditions from the Landside Transportation Management Command Center. On-site traffic monitoring cameras and vehicle detection sensors are used to monitor traffic, report on traffic conditions, and implement mitigation measures, as needed. Post-construction monitoring efforts would be conducted at least

annually, or at a frequency and duration to be determined as part of future coordination efforts between PANYNJ and NYCDOT.

Environmental Justice

As described throughout Chapter 5, there would be no adverse impacts on human health or the environment as a result of this Proposed Action; therefore, there would be no disproportionately high and adverse effects on low-income or minority populations.

Children's Environmental Health and Safety Risks

No environmental health risks or safety risks have been identified that would have an indirect adverse effect on any person of any age; therefore, there would be no disproportionate indirect impacts on children.

Summary of Indirect Impacts

With or without the project, LaGuardia Airport would continue to generate economic activity. However, implementation of this Proposed Action would provide additional economic benefits when compared to the No Action Alternative. In either scenario, the added benefits would not cause or contribute to significant induced development or create an appreciable change in public service demands. Under this Proposed Action, mitigation will be required at one on-airport intersection to ensure that there are no adverse traffic impacts.

There would be no adverse or disproportionate impact to environmental justice communities or any impacts to children's environmental health and safety as a result of either this Proposed Action or the No Build Alternative.

There will be no adverse traffic impacts under the No Action Alternative.

5.12.3 Cumulative Impacts

The construction conditions' traffic analyses identify how the study area's transportation system is projected to operate in the third quarter of 2019—the peak time period for construction activity for the East Terminal—accounting for the cumulative effects of construction traffic generated by background traffic growth and the CTB Redevelopment Program construction, which will be occurring at the airport at the same time. Although the construction traffic for the CTB Redevelopment Program will peak more than two years earlier, the traffic volume assumed during that period was included in the analysis of this Proposed Action construction analysis as a conservative estimate of cumulative traffic impacts. The results of the traffic analyses for construction conditions indicate that only a few improvements may be necessary to provide for acceptable traffic operations, and would be implemented through consultation with NYCDOT.

The CTB Redevelopment Program and this Proposed Action would construct new parking facilities and displace several passenger parking and taxi hold lots that would require redistributing landside facilities. To evaluate the cumulative impacts that the redevelopment of a large portion of the airport's terminal area would have on the future operational traffic in and around the airport, PANYNJ prepared an airport-wide traffic operations study that analyzed the traffic conditions in the forecast year 2030, assuming both terminal construction projects were complete and incorporating the facility relocations necessary to meet

the airport's parking and taxi distribution needs (*LGA Traffic Operations Study Prepared by the Port Authority In Support of Delta Air Lines Environmental Assessment*; see Appendix E). The study accounted for the cumulative impacts on traffic patterns as a result of the change in passenger and employee parking and taxi hold areas. Mitigation measures such as striping improvements, signal timing changes, and the installation of a permanent traffic signal (if warranted) at three intersections would ensure that no significant cumulative traffic impacts would occur in the future, after construction of this Proposed Action is complete.

5.13 Visual Effects

This section provides an overview of the analysis of impacts from light emissions and visual effects from the components of this Proposed Action.

Different types of lighting systems are associated with the airport functions. Lighting impacts should consider the extent to which any light emissions would be recognizable to people in the vicinity or whether such lighting causes an annoyance or could interfere with their normal activities. Visual effects consider the relationship between this Proposed Action and specific elements of its surroundings and the degree of contrast likely to occur.

LaGuardia Airport is located within a densely developed urban area, and Grand Central Parkway provides a wide buffer between the project site and the nearest neighborhoods. The parkway is an eight-lane divided highway and is illuminated in the area of the airport, as is the eastbound flyover ramp and the bridges located at 94th Street and 102nd Street. Given the nature and extent of existing development within this area, including existing lighting, it is unlikely that airport-related light emissions would affect nearby homes or businesses.

5.13.1 Direct Impacts

Light Emissions

On the airside, high-mast flood lighting of the aircraft parking apron would increase proportionately with the added size of the apron area, but these emissions would be shielded from Grand Central Parkway and the community south of the airport by the replacement terminal building. In-pavement and edge lighting within and around the aircraft parking apron would be replaced-in-kind and the emissions would not change appreciably. All airfield lighting and signage would comply with FAA standards and specifications for design, installation, and maintenance. No runway lighting would be involved, and there would be no change to lights associated with visual or electronic navigational aids.

High-mast lighting currently in surface parking lot P5, adjacent to Flushing Bay, would be removed and replaced by low lighting along the AOA service road and interior lighting within the proposed Concourse G that would be directed west, away from the water. All exterior building lighting would be designed to comply with the NYC Building Code, applicable industry standards, and PANYNJ's *Sustainable Design Guidelines.* Narrow-beam, façade-grazing uplighting would illuminate architectural features of the proposed terminal building. Similar lighting would be integrated with the exterior screens of the proposed East Garage extensions. (The same lighting is already part of the recently constructed EES and East Garage.) The control of the exterior lighting of all buildings facing Grand Central Parkway would be linked

to provide a unified nighttime appearance, which would be dimmed during late night hours to conserve energy, and complemented by a roadway lighting system using a similar source color.

Roadway lighting and other public lighting including curbs and sidewalks would be designed to produce quick, accurate, and comfortable setting at night that would safeguard and facilitate vehicular and pedestrian traffic. All roadway lighting and associated signage would be designed to comply with applicable codes, U.S. DOT regulations, and standards, which specify the use of industrial high-mast area lamps pointed downward to illuminate only the surfaces below. Although the terminal area roadways would be reconfigured within the project site, there would be no changes to roadways or other public areas beyond the project site. Therefore, the lighting required for roadways and parking would be replaced in-kind, and the emissions would not change.

Light emissions from the construction and operation of this Proposed Action would cause or contribute to off-site annoyance or present a possible danger to persons living or driving near the airport. No nighttime construction is planned; however, if nighttime construction were to occur, the light emissions would be temporary. In addition, there are means and methods available to reduce or minimize potential lighting impacts such as shielding or angular adjustment of lights, or alternative placement of lighting sources consistent with operational requirements. After construction, ambient light emissions associated with the operation of this Proposed Action would not be appreciably different than existing conditions. This Proposed Action would reconfigure the terminal building, airside apron, landside roadways, and parking garage within the project site.

Visual Resources and Visual Character Effects

This Proposed Action would occur within existing land use and zoning envelopes and would not result in physical changes in urban design beyond the project site. Therefore, assessment of visual impacts is limited to the viewshed from key vantage points located along the south side of the airport.

The construction and operation of this Proposed Action would be seen by people driving east and west along Grand Central Parkway, by drivers and pedestrians looking north from Ditmars Boulevard, and by employees and guests of the multiple hotels located along Ditmars Boulevard east of the 102nd Street entrance to the airport. With the exception of the small number of residences along Ditmars Boulevard immediately opposite of the existing Terminals C and D, and views from multi-story buildings in the vicinity, there are few if any vantage points of the project site from businesses and residences.

Visually distinct landscape units within the viewshed include roadways and ramps associated with Grand Central Parkway and existing airport buildings. During the construction period, many of these features would change. People in the vicinity would see the existing surface parking lots be replaced with the new four-level terminal building and a landside connector between the East Terminal and the approved CTB, which would be aligned with the existing East Garage and EES. Setting the terminal closer to Grand Central Parkway would make it a more prominent feature and the proposed roof structure would unify the airport design, providing continuity to the landscape. Construction activities would be temporary and the visual impacts during construction would diminish as the project nears completion.

Assessing the degree of contrast using before-and-after images of the project site is highly subjective and would be determined in large part by the community's perception of the project. The current image is an

inconsistent set of aging airport buildings set back from Grand Central Parkway and separated by a substation, garage, surface parking lot, and terminal access roads. The visual impact of this Proposed Action on the viewshed would be determined in large part by the height of the proposed terminal building and the roof structure that would cover the headhouse and the landside connector, as well as the new construction's relationship to Grand Central Parkway and the nearby community. At its highest point, the proposed East Terminal and the unifying roof element would be 110 feet above ground level, which is comparable to the future CTB's maximum height of 112 feet above ground level. Figure 5-7 illustrates the proposed height in comparison to other buildings in the area and the view of the new terminal building from the neighborhood across Grand Central Parkway.

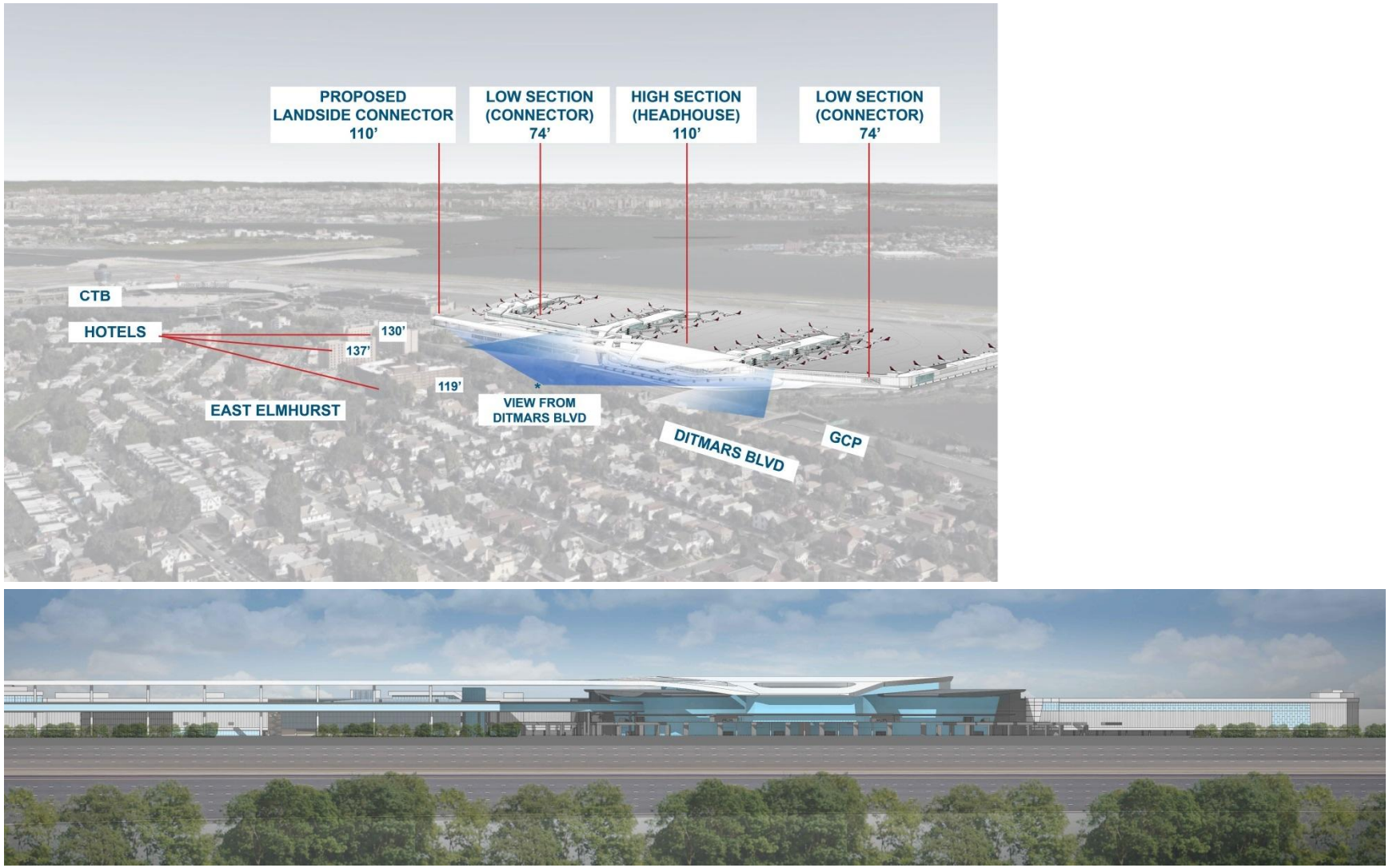
Using a rendering of the proposed terminal, Figure 5-8 further demonstrates the skyline of the airport from the community. As shown, the proposed terminal would be generally aligned with the recently constructed East Garage. Also, as shown, the proposed terminal and the East Garage extension would have a minimal impact on the view from the community when compared to the No Action Alternative. The additional height of the terminal and the roof element would not block any significant views, such as a skyline or water feature.

Using the architect's rendition of the proposed terminal, Figure 5-9 illustrates a driver's perspective view of the proposed development from an eastbound lane and Figure 5-10 illustrates a westbound view of the proposed buildings. As shown, visually distinct units within the viewshed would change, but this Proposed Action would have a minimal impact on a driver's view when compared to the No Action Alternative.

This Proposed Action would not partially or totally block a view corridor or a natural or built visual resource that is rare in the area or considered a defining feature of the neighborhood (i.e., Flushing Bay), nor would it change urban design features so that the context of a natural or built visual resource is altered.

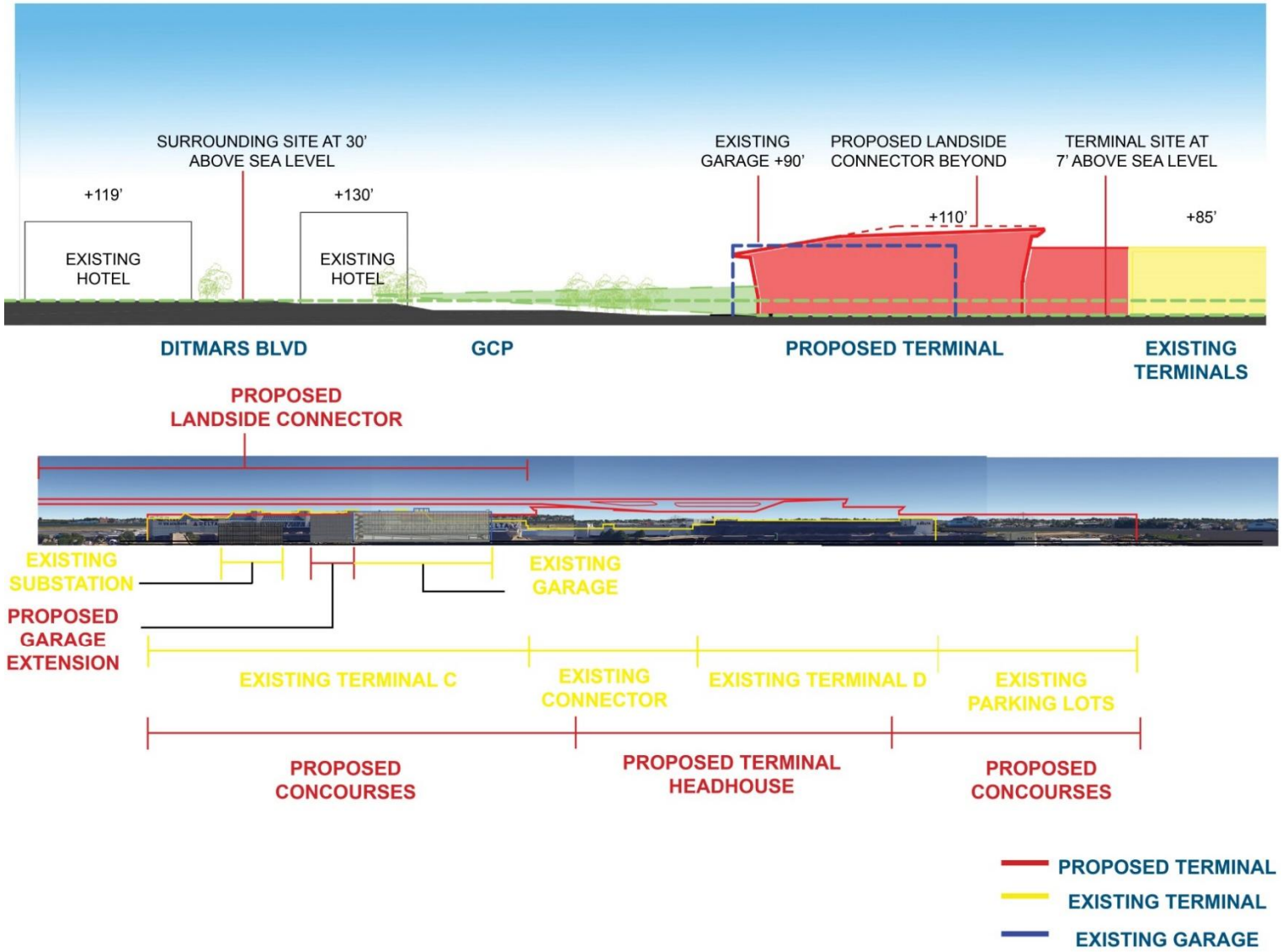
Under the No Action Alternative, existing light emissions and visual impacts will would not change; under this Proposed Action, changes to lighting and visual impacts would not create an annoyance or contrast with the existing environment.

Figure 5-7. Community Viewshed Impacts



Source: Corgan (October 2016)

Figure 5-8. Community Viewshed Impacts – Views from East Elmhurst



Source: Corgan (October 2016)

Figure 5-9. View from Grand Central Parkway (Eastbound) with Proposed Action

Source: Corgan (March 2017)

Figure 5-10. View from Grand Central Parkway (Westbound) with Proposed Action

Source: Corgan (March 2017)

5.13.2 Indirect Impacts

This Proposed Action would not change the operations of the airport (no increase in passengers or change in airport operations); however, the proposed terminal would change the view of the airfield from the vantage point of the air traffic control tower (ATCT). A shadow study and line of sight analysis were performed in order to demonstrate that this Proposed Action would not affect the view from the ATCT to the airfield.

Figure 5-11 illustrates the shadows that would be cast by the proposed East Terminal. The figure demonstrates that the shadow area would fall short of the RVSR, providing full visibility of Taxiways A and B.[125] Figure 5-12 presents a three-dimensional image of the terminal and airfield under this Proposed Action from the perspective of the ATCT. The analysis demonstrates that there would be an unobstructed view of the relocated RVSR and Taxiways A and B after construction of the new terminal.[126]

The operation of the proposed cooling towers, to be located on the roof of Concourse G, may occasionally generate vapor plumes. The cooling tower design would be in accordance with ASHRAE and would incorporate plume abatement in the towers (i.e., combination wet/dry cooling towers). To reduce the likelihood of vapor plumes, the design would include control devices that monitor ambient conditions and adjust water flow and fan speeds so that humidity could be spread across the towers. These measures would reduce the chance of vapor plumes to less than 1 percent of the design days. Such low frequency of vapor plumes would not adversely affect the visual resources surrounding the airport. As discussed in *Section 5.8*, the construction of the buildings associated with this Proposed Action would not obstruct the views of any historic resources in or around the airport and, per *Section 5.9*, there would be no induced development in the area surrounding the airport as a result of this Proposed Action that would change the visual character or lighting of the area.

Indirect visual effects would not be significant under this Proposed Action.

There will be no indirect impacts to light emissions or visual resources under the No Action Alternative.

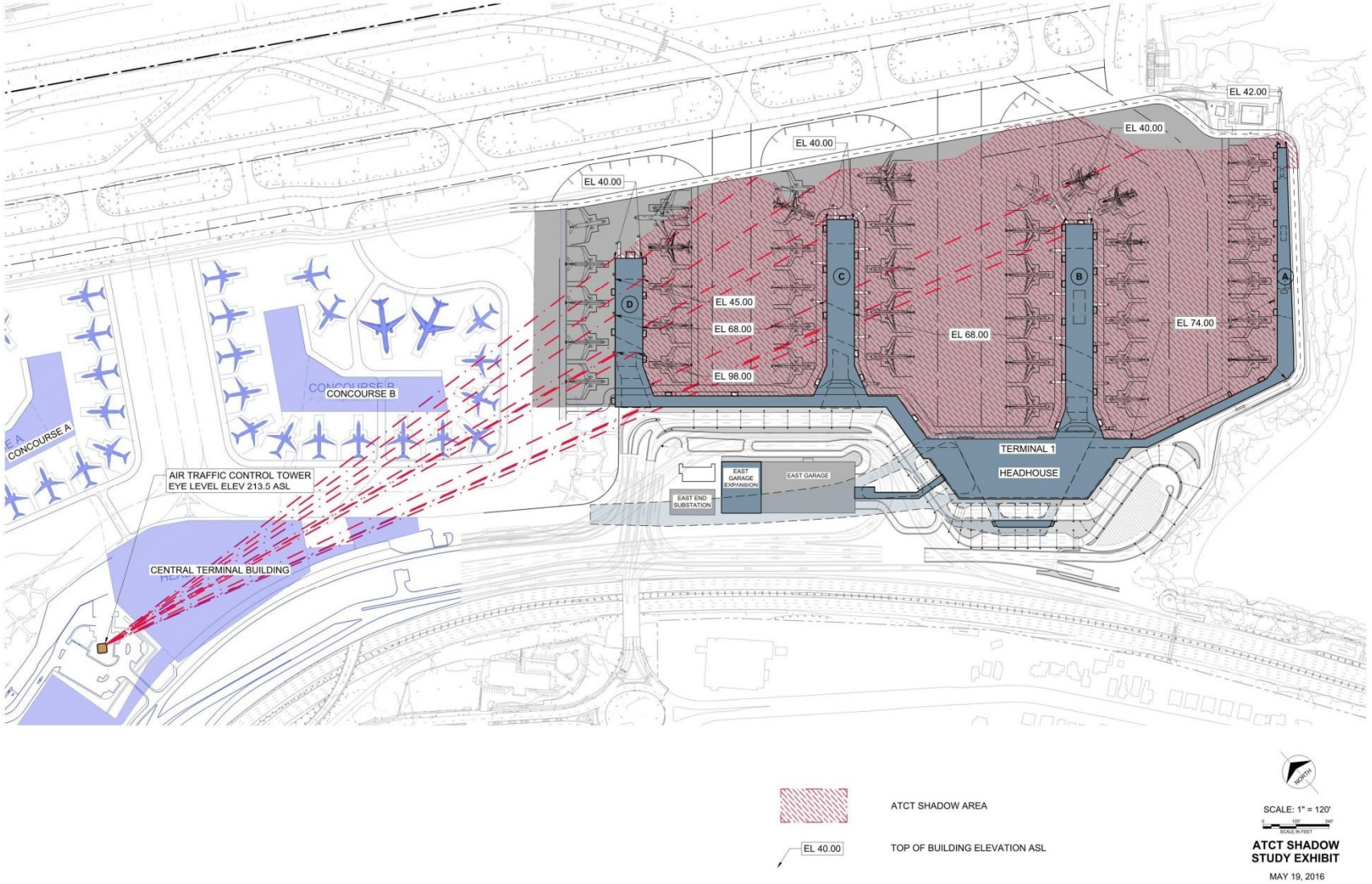
5.13.3 Cumulative Impacts

The recent, ongoing, and proposed future construction at LaGuardia Airport would significantly alter the look of the airport, replacing older, indistinct buildings with a row of modern airport buildings connected via a pedestrian bridge, with complementary architecture and a unifying roof element that would organize the central and eastern sections of the airport campus and would provide visual continuity. The approved CTB and the new East Terminal, along with the recently constructed EES and East Garage, would have a strong civic presence along Grand Central Parkway. These changes would have a cumulative, positive impact on the aesthetic value of the airport and the visual character of the surrounding area.

[125] The Restricted Vehicle Service Road would be relocated as part of this Proposed Action to accommodate the airfield Modification of Standard.

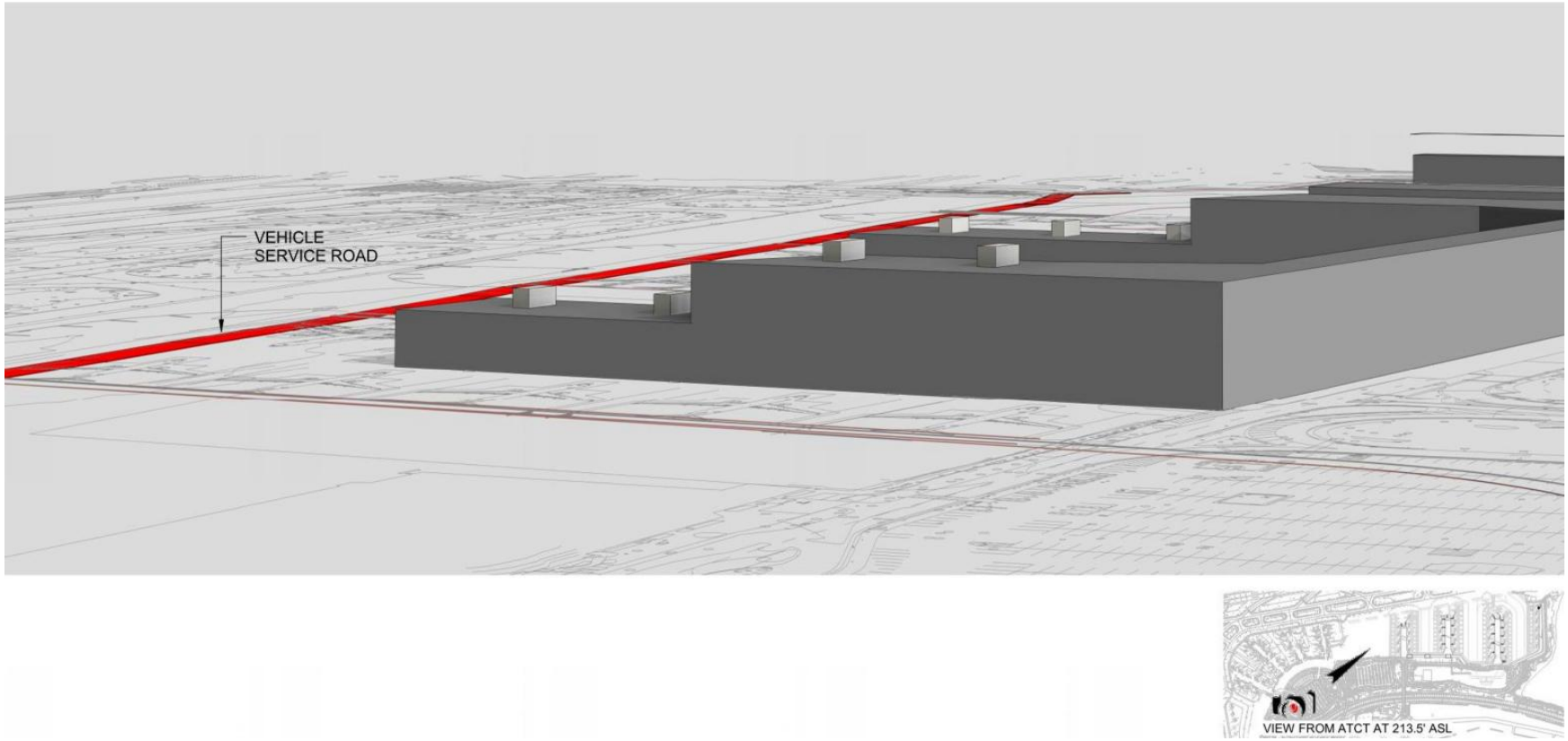
[126] The line of sight analysis was performed by Burns & McDonnell using Airport Traffic Control Tower criteria provided by the HOK Master Plan Team, consistent with the analysis used for the CTB Redevelopment Program.

Figure 5-11. ATCT Shadow Study



Source: Burns & McDonnell (October 2016)

Figure 5-12. Line of Sight Analysis



Source: Burns & McDonnell (October 2016)

5.14 Water Resources

5.14.1 Wetlands

A wetland is a topographically low area that is saturated with water, either permanently or seasonally, and consists of hydric soils capable of supporting aquatic habitat. Wetlands include swamps, marshes and bogs, and they are typically found alongside waterways and in floodplains.

> Finding for Unavoidable Wetlands Impacts
>
> "…each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds
>
> (1) that there is no practicable alternative to such construction, and
>
> (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use."
>
> - EO 11990, Section 2(a)

The U.S. Army Corps of Engineers regulates wetlands, including freshwater and tidal wetlands, under the authority of Section 404 of the Clean Water Act.[127] USFWS National Wetlands Inventory maps serve as a general planning tool to identify tidal and freshwater wetlands in and around the project area. In New York, wetlands are regulated by the NYSDEC according to the Freshwater Wetlands Act[128] and the Tidal Wetlands Act.[129] Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid impacts to wetlands wherever there is a practicable alternative. The implementing guidelines for E.O. 11990 are set forth in U.S. DOT Order 5660.1A, *Preservation of the Nation's Wetlands*.

The airport's airfield, buildings, roadways, and parking lots cover approximately 95 percent of the airport's property. Those few acres of undeveloped airport property include both upland and lowland wetland cover types. The lowland areas consist of tidal wetlands and open water associated with the shoreline where Flushing Bay borders the airport. The project site is covered with buildings and pavement interspersed with urban landscaping consisting of trees, shrubs, and grasses.

NYSDEC Tidal Wetland Maps depict tidal wetlands located along the perimeter of airport property and adjacent to Bowery Bay, Rikers Island Channel, and Flushing Bay. This is consistent with the estuarine wetlands identified on the USFWS National Wetland Inventory maps. Field investigations performed on May 3, 2012 and June 11, 2012 as part of the CTB Redevelopment Program EA concurred with the NYSDEC mapping and observed unmapped intertidal marsh along eastern and northern property boundaries along Flushing Bay and part of the western property boundary along Bowery Bay.

The field assessment conducted for this Final EA verified that there are no wetlands or other water resources located within the project site.[130] The nearest wetland is a tidal marsh located along the shoreline near the east end of the airport and within 150 feet of the project's limit of disturbance (see Figure 5-13).

[127] CFR 328.1 defines the Waters of the United States.

[128] Article 24 of the Environmental Conservation Law and implementing regulations 6NYCRR Part 663 through 665.

[129] Article 25 of the Environmental Conservation Law and implementing Tidal Wetlands Land Use Regulations 6NYCRR Part 661; mapped in the New York State Tidal Wetlands Maps.

[130] Field visit by AECOM on December 22, 2015.

Source: NYC DCP, NYC DoITT, NYS DEC, ESRI
Prepared by: AECOM (January 2017)

Figure 5-13

LaGuardia Airport
East Side Reconfiguration

Legend

- Project Limit
- Future CTB Redevelopment
- Tidal Wetlands
- Tidal Wetlands Adjacent Area

Wetlands Impacts

Direct Impacts

This Proposed Action would avoid a direct impact on the tidal wetland; however, the NYSDEC regulates tidal wetland adjacent areas (land immediately adjacent to a tidal wetland) in accordance with the Tidal Wetlands Act. The width of the adjacent area within the boundaries of New York City is 150 feet. The project's limit of disturbance includes a portion of the state-regulated 150-foot tidal wetlands adjacent area.

The eastern side of the project area, including the existing parking lot P5 and the approach roads to Terminal D, encroach on the tidal wetland adjacent area. Under this Proposed Action, the AOA Road, Concourse G, terminal approach roads, and a portion of the taxi hold lot would be constructed within the adjacent area.

Sheet piling forms a barrier between the airport and offsite tidal wetlands at the eastern end of the property, providing a confining feature that defines the limit of the landward side of the tidal wetland adjacent area.[131] All of the land within the tidal 150-foot buffer is graded and disturbed. In addition, some of the proposed activities within this area include milling, resurfacing, and restriping existing pavement, which would not adversely affect the tidal wetland adjacent area. Consultation with NYSDEC confirmed the mapping used and the evaluation of the adjacent area impacts (see letter to Stephen Watts, Regional Permit Administrator, in Appendix A). NYSDEC has indicated that a Tidal Wetlands Permit pursuant to the Tidal Wetlands Act, Environmental Conservation Law Article 25, 6 NYCRR Part 661 would be required for the construction within the adjacent area; however, no mitigation would be required.[132]

Under this Proposed Action, there would be no direct impact on tidal wetlands and no significant adverse direct impact on NYSDEC-regulated tidal wetlands adjacent area. No mitigation measures are proposed.

Under the No Action Alternative, there will be no construction and therefore no direct impact on freshwater or tidal wetlands and no direct impact on NYSDEC-regulated wetlands adjacent areas.

Indirect Impacts

This Proposed Action would not result in any indirect impacts to wetlands located upstream of the project area. There would be only a minor increase in impervious surface and no increase in runoff that could affect water quality in any nearby wetland. There would be no change to stormwater management at the airport. New, relocated, or modified drainage structures would comply with the airport's existing State Pollutant Discharge Elimination System (SPDES) permit. This Proposed Action would not promote development or secondary activities that would affect wetland function.

The No Action Alternative will not result in any indirect impacts to wetlands.

[131] Sheet piling is an earth retention and excavation support technique that retains soil, using steel sheet sections with interlocking edges.

[132] Phone conversation between Lisa Horowitz (NYSDEC) and Stacy Eastman (AECOM) on April 13, 2016; see Appendix A.

Cumulative Impacts

No adverse impacts to wetlands would occur as a result of this Proposed Action; therefore, it would not contribute to cumulative impacts on the resource. Other recent and ongoing development projects with potential to impact wetlands near the airport include:

- Runway Safety Area Enhancements (substantially complete) – There are no tidal wetlands or adjacent areas in the immediate vicinity of the runways and existing decks. Based on the results of the hydrodynamic modeling, there would be no indirect effects on tidal wetland habitats as a result of scour or sedimentation.
- Environmental Dredging of Flushing Bay (under construction) – The dredging project, located east of the airport, near the World's Fair Marina, will include restoration of wetlands along the shoreline to further improve the aesthetics of the bay.
- CTB Redevelopment Program (under construction) – Similar to this Proposed Action, two elements of the program will occur within the 150-foot tidal wetland adjacent area on the east side of LaGuardia Airport. Both the East Field Lighting Vault and the Taxi Hold Lot within Parking Lot #4 will be located landward of a confining feature that defines the limit of the adjacent area. Therefore, construction of those elements will not adversely affect the tidal wetland adjacent area.

These projects have been determined to not result in potential adverse impacts to wetlands and, in the case of the dredging of Flushing Bay, would actually restore wetlands. No significant individual or cumulative impacts to wetlands would occur.

5.14.2 Floodplains

Floodplains are defined in Executive Order 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 on any given year" as depicted on approved flood maps prepared by the Federal Emergency Management Agency (FEMA). The term commonly used for this low-lying area subject to a 1 percent chance of flooding is the "100-year floodplain."

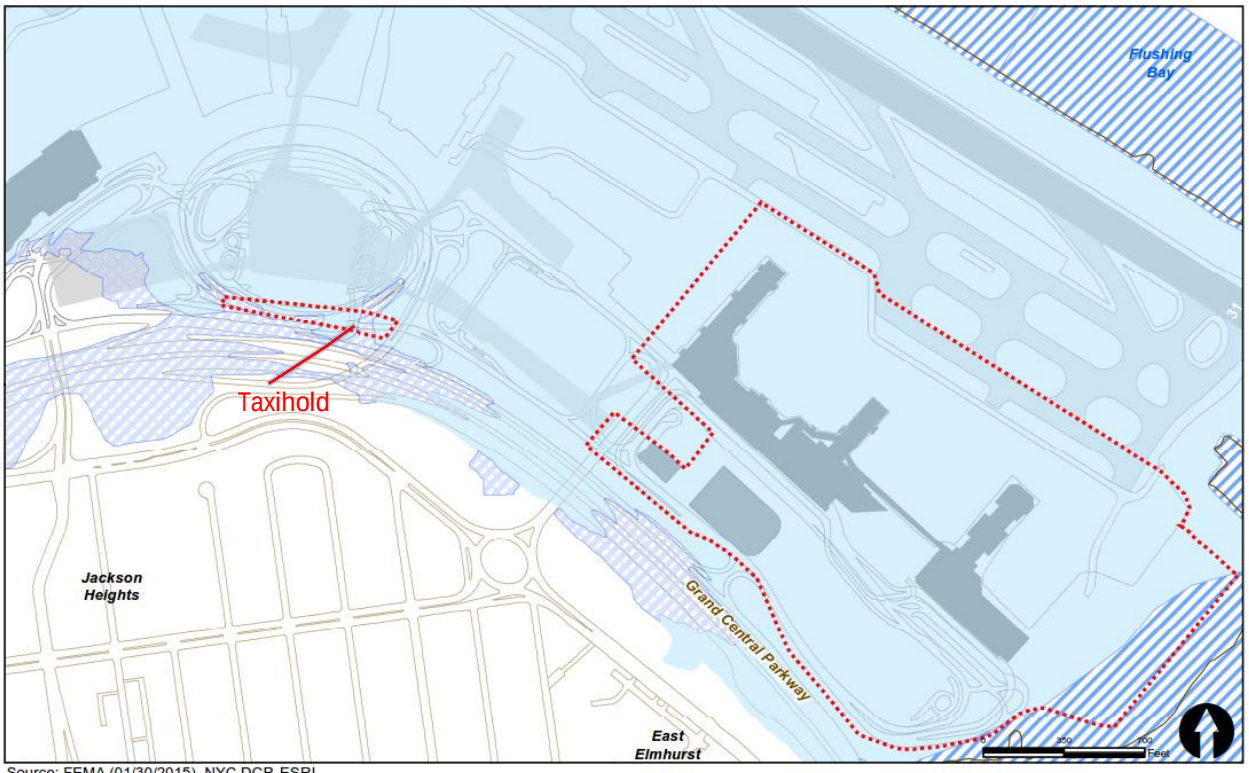
According to the most recent Preliminary Flood Insurance Rate Maps (FIRMs) for the area including LaGuardia Airport, 85 percent of the airport property, and almost 99 percent of the 80-acre project site, are located within the limits of the coastal floodplain (see Figure 5-14).[133] Within the project site, 7.8 acres (approximately 10 percent) is designated coastal flood zone with velocity hazard.

Preliminary FIRMs

After Superstorm Sandy (October 2012), the Federal Emergency Management Agency (FEMA) developed updated flood maps to quickly support reconstruction efforts and ensure current base elevations are used in decision-making. Communities are encouraged to use the Preliminary FIRMs (where released) as the most recent coastal flood hazard information and the best available data from FEMA.

[133] Preliminary FIRMs dated January 30, 2015.

Figure 5-14. Floodplain Impacts



Direct Impacts

This Proposed Action would result in construction activities within a FEMA-designated floodplain, with a portion of the project site along the shoreline within the coastal flood zone with velocity hazard.

Pursuant to Executive Order 11988, all federal agencies are required to avoid impacts on floodplains to the degree practicable and to minimize impacts that cannot be avoided. When it is not practicable to avoid developing within a floodplain, the U.S. DOT Order 5650.2, *Floodplain Management and Protection*, prescribes policies and procedures to implement Executive Order 11988.[134]

[134] E.O. 11988 was originally issued on May 24, 1977, and established a national policy requiring federal agencies to avoid, to the extent possible, the long- and short- term adverse impacts associated with the occupancy and modification of floodplains. On January 30, 2015, the President issued E.O. 13690 that amends E.O. 11988, and established the Federal Flood Risk Management Standard (FFRMS) and a process for public input prior to implementation of the FFRMS (E.O. 13690 at §1). However, in guidelines issued on October 8, 2015, federal agencies were directed not to apply the new requirements until after the agencies adopt new or revised regulations governing the proper implementation of E.O. 13690 and the FFRMS (E.O. 13690 at §3; *Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, October 8, 2015 ["Guidelines"]). The Guidelines state that agencies will continue to comply with the requirements of the 1977 version of E.O. 11988 until they update their regulations and procedures to incorporate the amendments from E.O. 13690. These regulations and procedures will describe an agency's schedule for applying any new requirements as well as how it will apply the new requirements (Id. at 5, 18). The new requirements of E.O. 11988 will not be applied retroactively (Id. at 18).

As discussed in *Section 3.3,* alternatives that would locate this Proposed Action outside the floodplain do not exist. This Proposed Action and the No Action Alternative are the only viable options, and both alternatives would affect the same area of the airport within the floodplain.

Direct impacts on the floodplain would be limited to the reconfiguration of existing facilities on built land. Under this Proposed Action, impervious cover within the 100-year floodplain would increase by no more than 1 acre. Regardless, the 100-year floodplain surrounding LaGuardia Airport is controlled by coastal storm surges and tidal flooding; therefore, this Proposed Action would have no effect on the FEMA-designated 100-year flood elevation.

The No Action Alternative will avoid undertaking major improvements within the floodplain and there will be no encroachment on the floodplain. There will be no adverse effects on the affected floodplain's natural and beneficial values. However, as discussed in *Section 3.2*, the Purpose and Need would not be met by the alternative.

Because it is not practical to locate this Proposed Action outside the floodplain, Delta and PANYNJ have identified and incorporated flood hazard mitigation strategies into the design of this Proposed Action. These strategies focus on the use of specific design criteria to minimize impacts on human safety and minimize future damages or costs to equipment, facilities, and structures to the degree practicable. Flood hazard mitigation will be a priority for this Proposed Action because of the geography of its location with elevations just above sea level.

Indirect Impacts

The design and construction of this Proposed Action in the floodplain would comply with all applicable federal guidelines as well as NYC Building Codes and American Society of Engineers (ASCE) 24-14 *Flood Resistant Design and Construction Standards*, and the PANYNJ *Design Guidelines – Climate Resilience* (January, 2015).[135,136] The Design Guidelines are an updated standard for construction at PANYNJ facilities and establish rigorous flood protection standards (i.e., building elevation levels). They adjust the building levels for the predicted Sea Level Rise ("Sea Level Rise Adjustment"), taking into account the life of the asset.

The Design Flood Elevation would be set to meet the ASCE 24-14 standards for a Class 3 building located in a coastal zone and the PANYNJ Guidelines that adjust the flood protection levels for anticipated sea level rise based on the design life. ASCE 24-14 adds a "freeboard" height to the base flood elevation (BFE).[137] For a Class 3 structure, the freeboard is +24 inches. Flood protection for sea level rise assumed for the proposed project is 28 inches. Therefore, in accordance with ASCE 24-14 standards and the PANYNJ Design Guidelines, the proposed construction within the floodplain would meet a Design Flood Elevation of BFE + 24" + 28" or BFE + 52".[138] In areas or facilities that cannot be raised above the flood protection

[135] *ASCE 24: Flood Resistant Design and Construction* is a referenced standard in the *International Building Code (IBC)*. Any building or structure that falls within the scope of the IBC that is proposed in a flood hazard area is to be designed in accordance with ASCE 24. Buildings designed according to ASCE 24 are better able to resist flood loads and flood damage.

[136] *http://www.panynj.gov/business-opportunities/pdf/disciplineguidelines/climate-resilience.pdf*

[137] Freeboarding is elevating a building's lowest floor above predicted flood elevations to compensate for unknown variables that could contribute to flood levels greater than predicted, such as high velocity wave action from coastal storm events.

[138] Within the project site, there are three different FEMA flood zones, with base flood elevations varying 14 – 15 feet.

elevation (such as where several fixed boarding fingers slope down to passenger boarding bridges), the structures would be designed in accordance with ASCE 24-14 for structures within the Coastal High Hazard Areas and Coastal A zones. ASCE 24 provides for "dry flood-proofing" critical areas (i.e., those for which a disruption of service would result in significant impacts to facility operations). A dry flood-proofed structure is made watertight below the level that needs flood protection to prevent floodwaters from entering.

Using the design criteria as described above, a comprehensive flood hazard mitigation plan with freeboard elevations and flood-proofing measures will be implemented to the degree practicable, with special emphasis on critical equipment associated with the terminal building, the heating, ventilation, and air conditioning (HVAC) equipment, the East Garage extension, and the electrical substation.[139] The same measures have already been applied to other projects at LaGuardia Airport, including the recently completed EES and East Garage, and the approved CTB Redevelopment Program under construction. The proposed Concourse G and its associated connector—located within the Coastal High Hazard Area—would be designed as a separate building with required separation (per NYC Building Codes 2014). Dry and wet floodproofing would be applied to the remaining portions of the terminal building located within the 100-year floodplain (per NYC Building Codes 2014, Appendix G).

When it is not practicable to avoid the floodplain, U.S. DOT Order 5650.2 establishes the criteria used to determine if a "significant encroachment" would occur. Based on U.S. DOT's policy, a significant encroachment on the floodplain would not occur for the following reasons:

- The probability of the loss of human life is low. There are no residences within the floodplain boundary; therefore, the human population would be limited to building occupancy consisting of passengers, visitors, and employees. As previously discussed, all new buildings and facilities would comply with NYC Building Code and life safety requirements, including general provisions for flood hazard design and construction. In addition, coastal storms are predictable, and PANYNJ has the authority to cease operations and to evacuate the airport in the event of a coastal storm; in which case, access to and egress from the airport is by roadways located outside the floodplain.
- This Proposed Action would be designed to avoid or minimize future extensive damage or costs, including damage that would interrupt airport service and cause a loss of a "vital transportation facility." As previously discussed, NYC Building Code and PANYNJ policy prioritize setting the floor elevations and critical equipment higher than the design flood elevation and to dry flood-proof critical areas if it is impracticable to meet the design criteria. The existing airfield and navigational aids would not be affected by this Proposed Action.
- There would be no notable adverse impacts on the floodplain's natural and beneficial values. Project-related impacts on the floodplain would be limited to the redevelopment of existing facilities on built

[139] Functional constraints of the existing landside and airside facilities limited the feasibility of constructing the new terminal at levels above the required elevation established by design criteria. Existing elevations of the runways and taxiways are established and code requirements prohibit sloping towards the terminal above a maximum grade. Similarly, the local roadways and Grand Central Parkway are at a fixed elevation and the proposed connecting roadways must meet design criteria for slopes, curves, and vertical clearance.

land. As discussed in other applicable sections of this Final EA, this Proposed Action would have no adverse impacts on biotic communities, coastal resources, water quality, or wetlands.

Buildings located in FEMA-designated floodplains must comply with the National Flood Insurance Program, the International Building Code, the ASCE national reference standards, and with the NYC Building Code. This Proposed Action will include a flood hazard mitigation plan developed in compliance with applicable federal, state, and local laws and regulations for the protection of floodplains and with the referenced standards for flood resistant design and construction. Compliance with these requirements provides adequate assurance that project-related impacts on the floodplain would be less than significant. No additional mitigation measures are proposed.

The No Action Alternative will avoid an encroachment on the floodplain. However, unlike this Proposed Action, which would provide new facilities based on mitigation measures for flood hazard design and construction, under the No Action Alternative, the existing facilities will not meet the same requirements and it may not be practicable to modify the structures to meet the same requirements. For example, without new construction, it will not be possible to raise the lowest floor elevation of the terminal building or practical to relocate critical functions to a higher level. This will result in a greater need for dry flood-proofing critical equipment to meet the design criteria.

Cumulative Impacts

A significant encroachment to floodplains would not occur as a result of this Proposed Action; therefore, it would not contribute to cumulative impacts on the resource. The following recent and ongoing development projects within the 100-year tidal floodplain are located near the airport:

- North Shore Marine Transfer Station (complete)
- East End Substation/East Garage (complete)
- Runway Safety Area Enhancements (substantially complete)
- Environmental Dredging of Flushing Bay (under construction)
- CTB Redevelopment Program (under construction)

These projects were also found to not result in a significant encroachment on the floodplain. There would be no notable adverse impacts on the floodplain's natural and beneficial values. In addition, the 100-year floodplain surrounding LaGuardia Airport is controlled by coastal storm surges and tidal flooding; therefore, the projects would have no effect on the FEMA-designated 100-year flood elevation and would not contribute to additional risk to surrounding communities.

5.14.3 Surface Waters

LaGuardia Airport is located along the waterfront adjacent to Flushing Bay, which generally includes sub-waters known as Rikers Island Channel and Bowery Bay. These water bodies are treated as a single combined resource because the exact boundaries of these waters relative to each other are ambiguous.

The Clean Water Act establishes regulations for discharging pollutants into waters of the United States (defined at 33 CFR 328.3(a)). If a proposed action or alternative(s) has the potential to discharge pollutants

into waters of the United States through a point source, a National Pollutant Discharge Elimination System permit will likely be required.

Under existing conditions, a drainage system captures and discharges stormwater runoff from LaGuardia Airport into Flushing Bay. A dike runs along Runway 13-31, separating the airport from the adjacent surface waters. The airport's drainage system consists of nine basin areas with an infrastructure network that collects and conveys stormwater away from paved and grassy areas by way of two 72-inch gravity flow trunk lines connected to a series of outfall structures. The water is discharged into Flushing Bay, pumped either over the dike or through gravity flow. In the event of an unanticipated spill or release, the pump stations can be shut off to prevent pumping contaminated runoff into Flushing Bay.

Stormwater runoff from the airport is discharged into Flushing Bay under an SPDES permit issued by NYSDEC (Permit #0008133). In accordance with the SPDES permit, the *LaGuardia Airport Best Management Practices Plan (Revision 10/11)* is in place to reduce or prevent pollution of surface water resources.

Direct Impacts

There are no surface water features within the project site. This Proposed Action would occur within the existing airport property and would not require any alteration of navigable waterways.

Under this Proposed Action, Delta would adopt BMPs to manage stormwater collected during construction of the project. There would be some potential for water quality degradation during construction when topsoil is exposed, thereby making it more susceptible to erosion, which can cause or contribute to increased sediment loading on downstream receiving waters. In addition, when stormwater flows over a construction site, it can pick up other pollutants such as debris, chemicals, concrete wash-out, etc., and transport them to nearby water bodies.

The Stormwater Pollution Prevention Plan (SWPPP) for the Proposed Action would address stormwater runoff during construction to reduce or prevent stormwater contamination during construction activities, which would be prepared in accordance with the airport's individual SPDES permit. A new NYSDEC Long Island Well Temporary Dewatering Permit would be obtained by Delta for this project in conjunction with an individual SPDES Permit for temporary construction dewatering. In addition, the SPDES Construction General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) requires the submission of a completed Notice of Intent (NOI) and SWPPP. Under the SPDES permit process, water quality BMPs would be recommended to deal with sedimentation and erosion control, containment of construction materials (hydraulic fluids, fuel, etc.), washing of construction vehicles, cleaning of concrete mixers, etc. Pumped groundwater would require treatment prior to discharge into the airport's stormwater disposal system. These BMPs would be incorporated into the project's construction documents and become an obligation of the contractor. Delta and PANYNJ would monitor compliance with these practices and ensure that the stormwater management systems are protected.

All contractors will be required to comply with applicable federal, state, and local laws and regulations, including FAA guidance contained in AC 150/5370-10F, *Standards for Specifying Construction of Airports*, including Item P-156 *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*; AC 150/5320-15A, *Management of Airport Industrial Waste*; and AC 150/5320-5C (including Change 1) *Subsurface*

Drainage Design. No construction activity would occur within any regulated wetland or surface water body; no Clean Water Act, Section 404 permit would be required.

This Proposed Action would not cause a significant adverse direct impact on surface water resources. Compliance with effluent limitations in the SPDES permit, erosion and sediment control measures in the SPDES permit, and the *LaGuardia Airport Best Management Practices Plan*, would provide adequate assurance that potential negative impacts on water quality would be less than significant.

Under the No Action Alternative, there will be no construction and no potential increase in stormwater runoff that could affect the quality or quantity surface water discharges to Flushing Bay.

Indirect Impacts

Under this Proposed Action, the use and characteristics of the airport and the project site would not change. LaGuardia Airport consists of 680 acres and impervious surfaces cover approximately 95 percent of the land. The project site is located within drainage Basin 2, which drains nearly half the airport property. Generally, stormwater collects in Basin 2, and Pump House 1 (Outfall 10), Pump House 2 (Outfall 11), and Pump House 4 (Outfall 13) pump the water over the dike into Flushing Bay. All the pump houses were upgraded with new emergency generators after Superstorm Sandy. Stormwater from this Proposed Action would continue to be collected and conveyed via the two 72-inch trunk lines that lead to Pump House 4 (Outfall 13). All approvals for stormwater discharge would come through New York State, as part of the airport's existing SPDES permit.

There would be no new discharge locations or additional pump stations, and no stormwater would be diverted to a different watershed or to a previously unaffected basin area. Pump House 4 was recently upgraded and has adequate capacity to accommodate the existing and future needs of the airport.[140]

This Proposed Action would reconfigure the area encompassing Terminals C and D and terminal roadways within the project site. Impervious cover within the limits of the project site would increase by no more than 1 acre, which is only 1.2 percent of the project site and less than 0.1 percent of the airport property. The resulting increase in stormwater runoff volume would be managed on-site through project-related improvements to the existing drainage system, including BMPs and control measures as needed to permit this Proposed Action to be implemented in compliance with SPDES requirements.

Under this Proposed Action, the airport's drainage system would be retained to the degree practicable. Existing storm drainage pipes would be removed only to accommodate construction of the terminal building or other permanent airside or landside facilities. New, relocated, or modified drainage structures would be designed to comply with NYSDEC regulatory requirements, with capacity to accommodate existing and proposed peak discharges. In general, the storm sewer system would continue to capture and discharge stormwater, with some additional measures to help improve quality of stormwater runoff.

During regular airport operations, stormwater runoff from airport pavement could collect a number of pollutants, including sediments, oils, greases, heavy metals, nutrients, and trash. On the airside,

[140] Pump House 4 Upgrades was a state-of-good repair project needed to improve service and reliability of the pump station, which in turn enhanced airport safety and efficiency by reducing the risk of flooding (FAA Categorical Exclusion dated June 7, 2012).

stormwater collected from the aircraft parking apron would be processed through subsurface oil/water separators before being discharged. These devices are designed to slow the rate of runoff and to ensure that pollutants are captured and collected during and after rainfall events. For winter operations, the storm drain system would be designed to collect spent aircraft deicing fluids, with care taken to capture any ethylene glycol before it dissolves in the aqueous runoff. On the landside, stormwater from the frontage roads would be transferred by leaders[141] directly to adjacent landscaped area, which would allow runoff to infiltrate into the soils.

This Proposed Action would not create or enhance surface water-based hazardous wildlife attractants. No surface waters are present within the interior of the airport or within the project limits. The airport has a wildlife hazard management plan in place that incorporates management techniques and wildlife hazard deterrents in accordance with FAA Advisory Circular 150/5200-33C: *Hazardous Wildlife Attractants On or Near Airports, as amended.*

Minor project-induced changes in the quantity and quality of storm runoff could occur, but the adverse effects would be mitigated through water quality BMPs and control measures. The overall indirect impact on stormwater runoff would be positive because of the installation of new water quality devices within the apron area.

Under the No Action Alternative, the area around Terminals C and D will not be reconfigured, and the drainage system will not be altered or improved. There will be no increase in impervious surface coverage and no improvements in the quality of stormwater runoff or discharges to Flushing Bay. PANYNJ will continue to implement the *LaGuardia Airport Best Management Practices Plan* in accordance with the existing SPDES permit.

Cumulative Impacts

LaGuardia Airport is surrounded on three sides by surface waters associated with Flushing Bay; however, no surface waters are present within the project site. For this reason, incremental effects would be limited to potential changes in the quantity and quality of storm runoff during and after construction, and the effects would be minor.

Past and ongoing projects undertaken by PANYNJ at LaGuardia Airport may have had temporary construction-period effects, but have not adversely affected water quality in the long term. No other past or ongoing construction projects in the cumulative impacts study area are known to have had an adverse impact on water resources associated with Flushing Bay. The following three ongoing actions could affect water quality during construction:

- Runway Safety Area Enhancements at LaGuardia Airport (substantially complete) – This project places additional piles in the water to support the deck extensions farther into Flushing Bay. (That element of the project was completed in 2015.) During construction there was likely a localized and temporary increase in suspended sediment levels during pile-driving.
- Environmental Dredging of Flushing Bay (under construction) – This NYCDCP project will temporarily increase suspended sediment levels during dredging operations, but is anticipated to have only

[141] A piping system that carries rain water to the stormwater system.

localized, temporary, and minor adverse effects on water quality. BMPs and restrictions required by the U.S. Army Corps of Engineer permits will maintain water quality. The dredging project will improve overall water quality within the area.

- Central Terminal Building Redevelopment Program (under construction) – This project is being constructed entirely within the upland area of LaGuardia Airport, with no in-water activities. Water quality could temporarily degrade during construction from stormwater runoff that captures exposed topsoil, debris, chemicals, etc. An SWPPP, in compliance with the airport's individual SPDES permit, as well as water quality BMPs, will reduce or prevent stormwater contamination during construction.

This Proposed Action does not involve in-water construction like the runway safety enhancements or Flushing Bay dredging projects; therefore, potential impacts on Flushing Bay would be limited to stormwater runoff from the construction site. Stormwater runoff during construction would be regulated by the NYSDEC under the SPDES program, which mandates implementation of a SWPPP to prevent storm water contamination during the construction period. The SWPPP would describe all the construction site operator's activities to prevent storm water contamination, control sedimentation and erosion, and comply with the SPDES permit. Compliance with the SPDES permit, including the SWPPP for construction, would ensure that this Proposed Action would avoid or minimize incremental increases in storm runoff pollution and that the limited discharges of sediment from the construction site would not cause or contribute to a significant adverse impact on the receiving waters associated with Flushing Bay.

5.14.4 Groundwater

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. An aquifer is the geologic layer that stores or transmits groundwater to wells, springs and other water sources.

The airport is located above a USEPA-designated sole source aquifer.[142] The upper glacial aquifer is the uppermost hydrogeological unit on Long Island and is found in nearly all of Kings and Queens Counties.[143] The local water table is within the upper glacial aquifer throughout most of Kings and Queens Counties and the average water-level measurement ranges from nine to 19 feet below sea level.[144] Per the Safe Drinking Water Act Section 1424(e), consultation with USEPA is required if a USEPA-designated sole source aquifer could be contaminated as part of a funding action by a federal agency. Although this Proposed Action would not use federal funds, Delta still consulted with USEPA. In a letter dated May 10, 2015, USEPA concurred that there would be no impact to the sole source acquifer as a result of the Proposed Action (see Appendix A).

Sole Source Aquifers

The Safe Water Drinking Act prohibits federal agencies from funding actions that would contaminate an U.S. Environmental Protection Agency -designated sole source aquifer or its recharge area.

[142] Part of the Brooklyn-Queens Aquifer System is part of the Long Island aquifer system underlying all of Nassau, Suffolk, Kings, and Queens Counties.

[143] For the purpose of this Final EA, the affected environment does not extend to the lower aquifer units (i.e., Jameco, Magothy, Lloyd Aquifers) because groundwater below the water table would not be affected by this Proposed Action.

[144] Water-Table Altitude in Kings and Queens Counties, New York in March 1997. Fact Sheet FS 134-97 prepared by USGS.

The aquifer is not currently used for drinking water and there are no water supply wells near the airport. Groundwater is not withdrawn or otherwise used for any airport purposes.

Direct Impacts

Excavation during construction of the terminal building and for the installation of utilities could contact groundwater because of the low depth to groundwater in the area. During construction, any excavated soil that exhibits signs of petroleum contamination (e.g., odor, staining, saturation) would not be reused and would be tested and then disposed of either as solid waste or petroleum-contaminated soil in accordance with NYSDEC requirements. In addition, high groundwater conditions would be factored into the project design. Dewatering for foundation excavation and during deep foundation construction would be performed in compliance with Long Island Well Temporary Dewatering Permit (ECL Article 15 Title 15). The well would be constructed in accordance with New York State Department of Health requirements.[145] Groundwater from the dewatering process would be tested for pollution concentration levels, treated if necessary, in accordance with an individual SPDES permit. Groundwater from the dewatering process would then be released into the airport's stormwater system operated by PANYNJ under SPDES Permit #NY0008133. If pollution concentrations exceed established threshold levels, the wastewater would either be treated on-site to meet water quality standards or collected and disposed of off-site by a licensed contractor in accordance with Delta or PANYNJ contract specifications and NYSDEC requirements, thereby removing petroleum hydrocarbons and other contaminants that would have otherwise continued to affect groundwater quality. Finally, in accordance with the SPDES permit, the *LaGuardia Airport Best Management Practices Plan (July 2009)* is in place to reduce or prevent pollution of groundwater resources.

Under this Proposed Action, impervious cover across the project site would increase by no more than 1 acre, which would negligibly increase stormwater runoff volume and reduce the area available for groundwater recharge. Drainage swales between the terminal roadways would allow for the brief and temporary collection and infiltration of stormwater resulting from storm events.

Except for temporary effects associated with deep foundation construction, aquifer layers beneath the water table would not be affected by this Proposed Action. Protective measures and best practices during construction would ensure that there would be no direct impacts to groundwater as a result of this Proposed Action.

Under the No Action Alternative, there will be no construction or potential to affect the Brooklyn-Queens sole source aquifer or any groundwater resources.

Indirect Impacts

Under both this Proposed Action and the No Action Alternative, the airport would continue to maintain and implement an SPCC Plan and other BMPs that would protect groundwater. This Proposed Action and the No Action Alternative would not induce development that would adversely affect the natural and beneficial groundwater values or groundwater quantities in the area. There would be no change in the use of the Brooklyn-Queens sole source aquifer or the addition of water supply wells as a result of either

[145] *https://www.health.ny.gov/regulations/nycrr/titleIO/part5/appendix5b.htm#b3*

alternative. This Proposed Action and No Action Alternative would not result in any indirect impacts to groundwater.

Cumulative Impacts

This Proposed Action would not cause or contribute to an impact to groundwater; therefore, there would be no significant cumulative impacts to groundwater.

5.14.5 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 preserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. NYSDEC administers the Act for the State of New York. According to the NYSDEC's listing of Wild, Scenic and Recreational Rivers, there are no designated wild or scenic rivers near LaGuardia Airport.[146]

Direct Impacts

Since there are no wild and scenic rivers near the project site, the construction of this Proposed Action would not cause visible, audible, or any other intrusion that would alter the outstanding features of a designated river. There would be no direct impacts to wild and scenic rivers as a result of this Proposed Action.

No direct impacts to wild and scenic rivers will occur as a result of the No Action Alternative.

Indirect Impacts

The operations of this Proposed Action would not intrude upon the outstanding features of a wild and scenic river or cause a designated river to experience changes in water quality or quantity. Therefore, no indirect impacts to wild and scenic rivers would occur as a result of this Proposed Action.

No indirect impacts to wild and scenic rivers will occur as a result of the No Action Alternative.

Cumulative Impacts

This Proposed Action would not cause or contribute to an impact on wild and scenic rivers; therefore, there would be no significant cumulative impacts on wild and scenic rivers.

[146] Available online at *http://www.dec.ny.gov/permits/32739.html*.

6 Mitigation

This chapter identifies the mitigation measures Delta and PANYNJ propose to reduce or minimize the operational and environmental impacts identified in this Final EA. The following sections describe each measure's benefits by noting how the measure will avoid or reduce the adverse environmental effects.

6.1 Air Pollution

To reduce the potential for adverse effects on air quality during construction, in accordance with PANYNJ's *Sustainable Infrastructure Guidelines,* the following best management practices, control measures, and emission reduction strategies will be required of all contractors:

- Use ultra-low sulfur diesel fuel in all diesel-powered construction equipment.
- Use diesel equipment retrofitted with emission control devices using Best Available Technology targeted primarily to reduce particulate matter and secondarily to reduce nitrogen oxides.
- Limit idling times on diesel engines to three minutes.
- Use electric power in lieu of diesel-powered generators when electric power is available at the site.

In addition, the following component projects/actions will be implemented to reduce emissions from aircraft auxiliary power units and ground support equipment:

- Install 400 Hz ground power and pre-conditioned air units at each gate position.
- Install charging stations to allow for the use of electric bag tractors, belt loaders and push-back tractors.

As discussed in *Section 5.1* and Appendix C, this Proposed Action is designed to reduce aircraft congestion and delay on the terminal apron, thereby reducing fuel consumption and, by extension, air pollution. In addition, the strategies listed above are included in the design of this Proposed Action in an effort to further reduce emissions to the degree practicable. As a result, this Proposed Action will result in no emissions increase or an increase that is clearly *de minimis.* No additional mitigation measures are proposed.

6.2 Hazardous Materials and Pollution Prevention

Where hazardous materials and waste cannot be avoided, Delta and PANYNJ will implement appropriate safety procedures and remediation strategies as needed to protect human health and the environment. As discussed in *Section 5.7, Hazardous Materials, Solid Waste, and Pollution Prevention*, these procedures will include removal protocols for the handling and storage of regulated hazardous substances including, but not necessarily limited to, the following:

- Contaminated soils and/or groundwater
- Asbestos containing materials
- Lead-containing paint
- Universal wastes such as light fixtures, PCB ballasts, thermostats, batteries, refrigerants, etc.

6.3 Archaeological Monitoring

As discussed in *Section 5.8, Historical, Architectural, Archaeological, and Cultural Resources* and Appendix D, this Proposed Action contains one area of potential archaeological sensitivity within the area of potential effect. The area—in the southeast corner of the project area near the entrance roads from Grand Central Parkway—could contain prehistoric and/or historic archaeological deposits beneath fill deposits of unknown depth (up to 8 feet deep). Since proposed utility installation in that area is anticipated up to 15 feet deep, archaeological monitoring of construction is recommended. Construction-phase monitoring of select earthwork and excavation near the sensitive area will take place in accordance with the monitoring protocol approved by the New York State Historic Preservation Office (SHPO) (see Appendix D). SHPO concurred with the final monitoring protocol in a letter dated May 15, 2017 (see Appendix A).

A monitoring program during construction (see Appendix D) ensures that there will be no unavoidable adverse effects to archaeological resources and that this Proposed Action is compliant with Section 106 of the National Historic Preservation Act of 1966.

6.4 Construction Noise

Though construction equipment noise levels are expected to be well below applicable significance thresholds, Delta and PANYNJ will require the contractor to prepare a Construction Noise Mitigation Plan, which will include various noise control measures that contractors will implement in order to reduce the noise impact on the surrounding neighborhoods. As discussed in *Section 5.11, Noise and Noise-Compatible Land Use*, and Appendix C, the highest noise levels will be associated with pile-driving activities; therefore, the following pile-driving noise attenuation 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.

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[147] 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 will be minimal nighttime or weekend construction of any kind. After construction, no additional noise mitigation measures are proposed.

6.5 Vehicular Traffic Levels of Service

As per *City Environmental Quality Review (CEQR) Technical Manual* criteria and New York City Department of Transportation (NYCDOT) guidelines, one temporary improvement to an intersection is needed to maintain or improve traffic levels of service during construction of this Proposed Action. As discussed in *Section 5.12, Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risk* and in Appendix E, this improvement will reallocate green-light time at one intersection during the weekend morning and afternoon peak periods. This reallocation is recommended as a temporary measure to reduce delays at the study intersections and to ensure the most efficient traffic signal operations during periods of construction activity. With this improvement in place, no significant construction traffic impacts, as defined by *CEQR Technical Manual* criteria, would occur. All transportation improvements on local roadways will be subject to review and approval by NYCDOT.

As mitigation for the previously approved Central Terminal Building (CTB) Redevelopment Program, PANYNJ implemented a traffic-monitoring program in coordination with NYCDOT throughout the duration of the construction period, which will continue after the construction of the new CTB, as needed. Since the commencement of CTB construction, the PANYNJ has established a Landside Transportation Management Command Center (LTMCC) to not only respond to traffic issues as they occur, but also proactively address traffic issues in advance of their occurring using such tools as airline generated flight data and volumes. Since its implementation, the staff at the LTMCC have developed a comprehensive understanding of passenger behavior and traffic flows across the airport, leading to the development of a playbook of mitigation measures and strategies that is constantly being revised to reflect the changing airport roadway environment. Examples of mitigation that has been implemented during the CTB construction include:

[147] Pre-augering is essentially pre-drilling the hole in advance of driving the piles; used to break up the soil.

- Implementation of the westbound service road entrance ramp onto the westbound Grand Central Parkway to be used on heavy volume days in order to reduce volume on the 94th Street intersection
- Prevention of recirculating traffic at 94th Street onto LaGuardia Road to reduce volume along LaGuardia Road on heavy volume days
- Establishment of PANYNJ Police posts throughout the airport to manage critical weaving sections and intersections as congestion arises
- Relocation of the taxi pick up to the west side of the CTB to eliminate vehicle volume from LaGuardia Road and the CTB frontage

As part of this Proposed Action, Delta will build on the steps already taken by PANYNJ to mitigate potential adverse traffic conditions. This Proposed Action will feature traffic monitoring and real-time mitigation as critical components to mitigate delay and prevent back-ups. Delta will be responsible for procuring and installing additional traffic monitoring cameras, establishing its own traffic monitoring facility to collaborate with that already established by PANYNJ, and develop flexible strategies to respond to the traffic dynamics of that hour. The monitoring program will determine the need for and timing of implementation of improvements for this Proposed Action. With these improvements and monitoring program in place, no significant traffic impacts would occur.

For operational traffic, after the construction of both the previously approved Central Terminal Building (CTB) and the East Terminal, three intersections will experience a traffic impact under *CEQR Manual* criteria. In coordination with NYCDOT, Delta and PANYNJ will implement the following mitigation measures to address the potential operational traffic impacts:

- Grand Central Parkway westbound off-ramp and 82nd Street/Ditmars Boulevard – Reconfigure the travel lanes in the westbound approach and adjust the signal timing plan.
- 19th Avenue and 45th Street – Install a permanent traffic signal, if warranted.
- 19th Avenue and Hazen Street – Adjust the signal timing plan for the intersection.

With the proposed mitigation in place, no significant operational traffic impacts would occur as a result of this Proposed Action.

6.6 Floodplain Development

Where development within the coastal floodplain cannot be avoided, this Proposed Action will comply with federal, state, and local laws and regulations for the protection of floodplains as well as the referenced standards for flood-resistant design and construction to the degree practicable. As discussed in *Section 5.14.2, Floodplains*, this Proposed Action includes a flood hazard mitigation plan developed in accordance with the American Society of Civil Engineers' 24-14 standard, the New York City Building Code, and PANYNJ's *Design Guidelines – Climate Resilience*. Proposed construction within the floodplain will meet a Design Flood Elevation of BFE + 52". In areas or facilities that cannot be raised above the flood protection elevation, American Society of Civil Engineers' 24-14 standard will provide for "dry flood-proofing" critical areas. Adherence to these requirements will ensure that project-related development

impacts on the coastal floodplain will be less than significant. No additional mitigation measures are proposed.

6.7 Water Quality

Construction activities will comply with applicable New York State Department of Environmental Conservation (NYSDEC) water quality standards and permit requirements including preparing a Stormwater Pollution Prevention Plan and filing a Notice of Intent. In accordance with the airport's State Pollutant Discharge Elimination System permit, Delta will implement appropriate measures to minimize erosion and sedimentation during construction as described in the LaGuardia Airport Best Management Practices Plan. These measures include, but are not necessarily limited to, the following:

- Prepare spill prevention and erosion control plans.
- Stabilize construction entrances.
- Install slope drains.
- Install inlet filters at all drainage inlet structures.
- Use perimeter erosion and sedimentation controls consisting of staked hay bales, filter fence, and silt fence.
- Use water or suppressing agents to control dust.
- Sweep clean paved construction roads at the end of each day.

After construction, all the improvements and changes needed for airport operations to comply with applicable NYSDEC water quality standards and permit requirements are included in the design of this Proposed Action. As discussed in *Section 5.14.3, Surface Waters*, the overall impact on storm runoff will be a positive one because of the installation of the following manufactured treatment devices:

- Subsurface oil/water separators will be installed to slow the rate of runoff from the aircraft parking apron and to ensure that pollutants are captured and collected during and after rainfall events. The oil layer will be drawn off and disposed of safely.
- An aircraft deicing fluid containment system will be installed as part of the apron storm drainage to allow spent aircraft deicing fluid to be isolated, pumped out, and properly disposed or recycled, preventing the discharge of contaminants to surrounding waters. Care will be taken to capture any ethylene glycol before it dissolves in the aqueous runoff.

This Proposed Action includes adequate measures to reduce the quantity and to improve the quality of storm runoff during and after construction. With these provisions in place, no additional mitigation measures will be needed to reduce the impacts of this Proposed Action below applicable significance thresholds.

7 Public Involvement

In accordance with the National Environmental Policy Act and the Council on Environmental Quality regulations, Delta Air Lines (Delta) and the Port Authority of New York and New Jersey (PANYNJ) have and will continue to involve the public in the decision-making process for this Proposed Action. Both Delta and PANYNJ are committed to ensuring that stakeholders are informed about this Proposed Action and its benefits and potential impacts. The Draft Environmental Assessment's (EA) public review and comment period served the public involvement requirements of the special purpose law triggered by this Proposed Action: Executive Order 11988, *Floodplain Management,* and its amendment, Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*.

On July 27, 2015, New York State Governor Andrew M. Cuomo announced his goal to transform LaGuardia Airport through a series of separate projects, including the Central Terminal Building (CTB) Redevelopment Program. Since that time, the various components of his Airport Advisory Panel's recommendations have received considerable media and public attention. In addition, PANYNJ has initiated formal Airport Noise Compatibility Planning for LaGuardia Airport through a Part 150 study. The study includes regular Airport Community Roundtables with Federal Aviation Administration (FAA) and community representatives.

Representatives from Delta have worked closely with PANYNJ and LaGuardia Gateway Partners (LGP) on the development of the reconfiguration plan for the area, including Terminals C and D, in order to minimize impacts to airport passengers and the neighborhoods surrounding the airport.

7.1 Agency Consultation

As part of the NEPA process for this Proposed Action, PANYNJ and Delta consulted with many federal, state, and local agencies. Delta presented the progress to-date on the project and discussed the agencies' concerns. Those agencies included the following:

- Federal Aviation Administration
- National Marine Fisheries Service
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- State Historic Preservation Office
- New York State Department of Transportation, Region 11
- New York State Department of State
- New York State Department of Conservation
- New York City Department of Transportation, Division of Traffic Planning
- New York City Department of City Planning

- New York City Landmarks Preservation Commission

7.2 Public Comment

The Draft EA was made available for public comment for 42 days from April 3 to May 15, 2017. An announcement was printed in the following newspapers:

- *Daily News* (Queens edition)
- *Newsday*
- *Queens Chronicle*
- *Queens Gazette*
- *Queens Times Ledger*
- *Queens Ledger*
- *El Especialito*
- *The National Herald*
- *Sing Tao Daily*
- *Queens Courier*
- *Queens Tribune*

The document was made available at the following locations:

- PANYNJ's Administration Building: LaGuardia Airport, Hangar 7, 2nd Floor (Marine Air Terminal area), Flushing, NY 11371
- PANYNJ's office in Manhattan: 4 World Trade Center, 150 Greenwich Street, 18th Floor, NY, NY 10007
- Two branches of the Queens Borough Public Library:
  - 35-51 81st Street, Jackson Heights, NY 11372
  - 41-17 Main Street, Flushing, NY 11355

In addition, the Draft EA was posted on the PANYNJ website at *www.panynj.gov/about/studies-reports.html*.

The Draft EA's public review and comment period served as the public involvement requirements of the special purpose law triggered by this Proposed Action – Executive Order 11988, *Floodplain Management*, and its amendment, Executive Order 13690.

All comments received during the public comment period have been compiled and appropriate responses prepared (see Appendix G). All comments have been addressed in this Final EA.

7.3 Public Information Session and Hearing

A Public Information Session and Public Hearing was held at the Sheraton LaGuardia East Hotel on May 3, 2017. Email invitations were sent to over 500 individuals and organizations, and notices were placed in 11 local newspapers. A total of 20 people were in attendance, between the two sessions. At the Public

Information Session (3:00 p.m. – 6:00 p.m.), Delta and PANYNJ staff were available to answer questions regarding this Proposed Action and the Draft EA. At the Public Hearing (from 7:00 p.m. – 9:00 p.m.), individuals were given the opportunity to publicly comment on the Draft EA and comments were recorded by a stenographer. The Hearing Officer described the regulatory background and hearing guidelines. Delta gave a brief presentation on the East Side Reconfiguration Project and Draft EA findings. Only two individuals (representing the Aviation Development Council and New York City Building and Construction Trades Council) gave testimony at the hearing. The presentation materials and hearing transcript can be found in Appendix G.

8 List of Preparers

Port Authority of New York and New Jersey

- Patty Clark – Senior Advisor for Aviation Policy
- Steven Demetropoulos – Traffic Engineer, Engineering/Architecture Design Division
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