U. S. Department
of Transportation

**Federal Aviation
Administration**

New York Airports District Office
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December 31, 2013

Mr. Ed Knoesel
Port Authority of New York and New Jersey
225 Park Avenue South, 9th Floor
New York, New York 10003

Re: LaGuardia Airport (LGA)
Runway Safety Area Enhancements Environmental Assessment
Environmental Determination

Dear Mr. Knoesel:

The Federal Aviation Administration (FAA) has recently approved the Environmental Assessment (EA) and made a Finding of No Significant Impact/Record of Decision (FONSI/ROD) for the Runway Safety Area Enhancements Project at LaGuardia Airport. A copy of the signed FONSI/ROD and the EA signature page are enclosed.

This Federal environmental approval is a determination by the Approving Official that the requirements imposed by applicable environmental statutes and regulations have been satisfied by a FONSI/ROD.

In compliance with Council on Environmental Quality (CEQ) regulations 1501.4(e)(1) and 1506.6, we require that your office make the final EA with Signature Page and FONSI/ROD available to the affected public, and announce such availability through appropriate media in the area. The announcement shall indicate the availability of the document for examination and note the appropriate location of general public access where the document may be found (i.e., your office, local libraries, public buildings, etc.). We request that a copy of such announcement be sent to the NYADO when it is issued. Given your desire to implement this project in the very near future, this announcement should happen as soon as possible.

Finally, your attention is directed to the mitigating measures that were made a condition of approval of the FONSI/ROD. Please be reminded that these measures must be taken by the airport sponsor in order to meet the terms of the FONSI/ROD.

The process of making these environmental determinations is that of a partnership between yourself, as airport sponsor, and the other contributing parties, both public and private. We thank you for your effort and cooperation.

Please contact our office if you have any questions.

Sincerely,

Steven M. Urlass, Manager
New York Airports District Office

Enclosures (2)

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 Runway Safety Area Enhancements Project at LaGuardia Airport (LGA). This FONSI/ROD is based on the Final Environmental Assessment (EA) for *LaGuardia Airport Runway Safety Area Enhancements* prepared by the Port Authority of New York and New Jersey, dated December 2013.

Project Description
The proposed project involves enhancing the Runway 4 and 31 End Runway Safety Areas (RSAs) by installing Engineered Material Arresting Systems (EMAS) on new sections of steel pile supported concrete deck extensions, 500 feet wide by approximately 180 feet long, to increase safety for aircraft and passengers in emergency situations. Each deck extension would be supported by 30-inch diameter steel pipe piles spaced on a grid of 30x35 feet. There would be 120 piles supporting each deck. The project also includes the construction of a new section of the Restricted Vehicle Service Road (RVSR) and the establishment of two construction staging areas to support the RSA and RVSR project elements. One construction staging area would be located in underutilized portions of Employee Parking Lot 10E and would be temporary for the duration of this project. The second staging area would include the permanent development of a Contractor Laydown and Mobilization Area on Ingraham's Mountain, within the Airport's leasehold, that would be used for future construction projects as well.

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

a. Unconditional Approval of a revised ALP for the Runway 4 and 31 End RSAs, the new section of RVSR, and the establishment of the Contractor Laydown and Mobilization Area pursuant to 49 U.S.C. §40103(b) and §47107(a)(16); and determine and approve the effects of this project upon the safe and efficient utilization of navigable airspace pursuant to 14 CFR 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 project 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 Port Authority of New York and New Jersey, 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 project is to increase safety for aircraft and passengers by enhancing the RSAs at the Runway 4 and 31 Ends. Congress enacted legislation in 2005 that statutorily requires airports certificated for commercial service to improve their Runway Safety Areas to comply with FAA design standards as required by 14 C.F.R. Part 139 no later than 2015 (Pub. L. 109-115, Div. A, Title I (2005), 119 Stat. 2401, *codified at* 49 U.S.C. § 44706). Additional purposes of the proposed project are: to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA by creating a new section of the RVSR south of the Runway 22 End; and to facilitate and support the implementation of the specific components comprising this project and potential future projects by establishing construction staging areas for contractor mobilization and construction equipment staging.

Alternatives

In addition to the proposed alternative for each component of the project, several alternatives, including no action were analyzed in detail. For the RSAs component of the project the Final EA considered shortening the runways, shifting the runways, shifting runway thresholds, and providing full dimension RSAs. Analyses were conducted at the screening level to evaluate runway utility, runway capacity, project feasibility and cost. Based on these analyses, the alternatives were further refined to arrive at the proposed project. These analyses are described in detail in the Final EA that is incorporated, herein.

Alternatives were also considered for the Restricted Vehicle Service Road, including the preferred proposed alternative, the no action, and a depressed roadway. Because a depressed roadway would involve complex construction and maintenance, it was eliminated from further consideration.

Construction staging area alternatives were also considered. In addition to the proposed project component and the no action, an alternative involving the use of employee parking lot 10E for all construction staging was investigated, which included the relocation of employee parking to Ingraham's Mountain. This alternative was not carried forward for further consideration due to cost and environmental considerations. The alternative identified as the preferred component of this project was determined to minimize transportation impacts on the surrounding community and indirect impacts to local park resources to the greatest extent possible, and to cost significantly less than other alternatives.

Discussion
The attached final EA addresses the effects of the proposed project on the human and natural environment, and is made part of this Finding. The following impact analysis provides highlights of the more thorough analysis presented in the final EA.

Noise
The Proposed Action would include the construction of RSA upgrades including deck extensions at the Runway 4 and 31 Ends; however, these deck extensions would not alter the aircraft operational areas along the runways or taxiways, change departure thresholds, or result in changes to approach/departure tracks.

Construction of the deck extensions would require runway closures to accommodate construction activities. The Port Authority currently closes Runways on a regular basis on weekends for various reasons, at which time the Airport operates on a one-runway configuration and the Port Authority has standard operational procedures to address these closures due to repairs, upgrades, or other activities. The construction of the deck extensions for the RSAs would be included along with other repairs or upgrades in the current ongoing schedule of weekend closures.

Noise exposure from aircraft operating at LGA would change temporarily due to part of the construction activities associated with the Proposed Action. Over the estimated three-year construction period, 18 months of weekend runway closures as part of the Port Authority's ongoing maintenance and construction schedule would occur. (Figure 3-14). Only one runway would be closed at any one time during a given weekend. Since the individual runway closures will change throughout the construction schedule (to be determined each weekend by operational and weather considerations) and the total amount of time that each runway individually will be closed throughout the construction period is similar, runway utilization would not change on an annual average day basis and there would be no corresponding change to the annual average noise experienced on a given day. Additionally, no change in aircraft fleet mix or flight paths is anticipated from the proposed project. Therefore, no noise modeling of DNL conditions during construction would be required per Appendix A, Section 14 of FAA Order 1050.1E, Environmental Impacts: Policies and Procedures; FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions; or Chapter 17 of the Desk Reference for Airports Actions.

Since there are no changes in existing air traffic ground tracks or flight profiles; no increases in numbers of daily operations; no changes in fleet mix; or no changes in operation times associated with the Proposed Action, no changes in aircraft operational noise are expected and no permanent noise impacts to the surrounding noise sensitive sites would result from the RSA Enhancements.

The project will also result in noise impacts from construction related activities, in particular, pile driving activities. Adverse impacts will be minimized through the use of a variety of measures, such as limiting construction days/hours, using sound-reducing blocks, and using acoustical shroud of sound absorbing material, among others. These impacts will be controlled and limited by compliance with the mitigation measures set forth in the FEA's Chapter 6, entitled, "Mitigation" and in this FONSI/ROD (see Conditions/Mitigation Measures, item 7 below). Based on the above, the proposed project will not result in adverse noise impacts.

Surface Waters, Wetlands, and Aquatic Resources

Implementation of the proposed project will result in changes in the aquatic habitat within the footprints of the deck extensions. The proposed project would not affect any jurisdictional vegetated wetlands or intertidal wetlands. However, the deck extensions would place pilings within subtidal marine waters. The two pile-supported deck extensions would result in a minor loss (0.03 acres) of habitat for marine benthic organisms and would shade approximately 4.65 acres of marine intertidal waters potentially affecting the quality of this habitat for some fish species. The unavoidable impacts to aquatic life would affect local populations of fish and invertebrates but would not substantially change the distribution, abundance or reproductive capacity of these populations as a whole.

Indirect effects may also occur to surrounding aquatic habitats from changes in tidal currents and sedimentation. Hydrodynamic modeling of the changes in current regimes, including the deck extensions, show that the new in-water structures would have a minimal effect on current tidal patterns and would not induce scour or sedimentation. Although, the area occupied by the piles would not displace a volume of water sufficient to result in flooding in adjacent land areas, the deck extensions will be designed to ensure that neither flooding, nor erosion is exacerbated.

Conceptual mitigation measures to compensate for the loss of aquatic resources have been identified, but will need to be refined during final design and project permitting. The final EA has demonstrated that impacts to the aquatic environment can be mitigated within the local watershed.

Threatened or Endangered Species

The National Marine Fisheries Service (NMFS) stated in its letter dated February 25, 2013 that the potential exists for Endangered Species Act (ESA) listed sea turtles; in particular the threatened Northwest Atlantic Ocean Distinct Population Segment of loggerhead (*Caretta caretta*) and the endangered Kemp's ridley (*Lepidochelys kempi*), to occur in Flushing Bay. There is also the potential for the endangered Atlantic Sturgeon (*Acipenser oxyrinchus*) to occur in the vicinity of the project in Flushing Bay. Due to the potential for ESA listed species of sea turtles and sturgeon to occur in the waters surrounding LGA, the NMFS determined that any proposed in-water work has the potential to affect these species. Accordingly, pursuant to the ESA, FAA entered into informal Section 7 consultation concerning these species. In a letter dated March 28, 2013, from FAA to NMFS, FAA stated that the proposed project could impact habitat potentially used by Atlantic Sturgeon or sea turtles but would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitat. After continued coordination and the inclusion of measures to mitigate the potential injury-causing hydroacoustic effects of pile-diving activities on the ESA listed species, the NMFS, in a letter dated August 15, 2013, stated that any effects to ESA listed species of sea turtles and Atlantic sturgeon will be insignificant or discountable. In this letter, NMFS also concurred with FAA's determination that the proposed project is not likely to adversely affect any ESA listed species. Accordingly, no further consultation pursuant to Section 7 of the ESA is required.

Coastal Zone Management

LGA is located within the designated New York State Department of State (NYSDOS) Coastal Zone Management Area (CZMA). Accordingly, any work undertaken within the CZMA is

subject to consistency with the programs of the New York State Coastal Zone Management Program.

A coastal zone consistency determination was prepared and submitted by the airport sponsor to the NYSDOS and to the New York City Department of Planning (NYCDCP) on November 1, 2013 to determine whether the proposed projects are consistent with the approved coastal zone management plan. In its December 17, 2013 letter to the airport sponsor, the NYSDOS, on behalf of itself and the NYCDCP and in accordance with State regulations, concurred with the coastal zone consistency determination. Therefore, it can be concluded that there would be no significant adverse impacts to the CZMA as result of the proposed actions.

Traffic

Construction-period traffic would not adversely affect local streets. Construction vehicles would largely operate on the airport and during time periods that do not overlap with normal peak traffic hours. A new construction vehicle entrance to LGA would be created at 19th Avenue and 81st Street to allow construction vehicles to move between the Ingrahm's Mountain Construction Staging Area and the on-Airport construction areas, thus potentially reducing construction traffic on local streets. On-going coordination with the NYCDOT will continue prior to the access point design being finalized. All necessary permits and approvals will be secured prior to construction. These impacts will be controlled and limited by compliance with the mitigation measures set forth in the FEA's Chapter 6, entitled, "Mitigation" and in this FONSI/ROD (see Conditions/Mitigation Measures, item 2 below).

Four traffic movements within the study area operate at unacceptable levels of service under the No Action Alternative. These movements are: 1) Northbound Hazen Street at the Intersection with 19th Avenue; 2) The Right Turn at the Grand Central Parkway Westbound Off-ramp for Ditmars Boulevard and 82nd Street; 3) The Right Turn for 23rd Avenue Westbound at the Intersection with 82nd Street; and 4) Westbound Grand Central Parkway Service Road North at the Intersection with Astoria Boulevard North. All of these levels of service remain the same under the Proposed Action with no further deterioration in service or volume to capacity ratios. One intersection, the southbound 45th Street approach at 19th Avenue, would experience a slight deterioration in level of service during the construction period from an acceptable level of service C to an acceptable level of service D; however, this is below the standards of significant impact as described in the Methodology Section (Section 5.14.7.1) of the EA.

Construction Impacts

Construction of the proposed projects 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, fish, 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 FEA's Chapter 6, entitled, "Mitigation" and in this FONSI/ROD, 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)

Summary of All Impact Categories

The Final EA addresses all environmental impact categories, as required by FAA Orders 1050.1E, 5050.4B, and the Desk Reference for Airports Actions. Impact categories such as Section DOT 4(f) resources; noise; land use compatibility; socioeconomic impacts and environmental justice; air quality; historical, architectural, archaeological, and cultural resources; wetlands; water quality; coastal zones; floodplains; coastal barriers; wild and scenic rivers; fish, wildlife and plants; prime and unique farmland; energy supply and natural resources; light emissions; solid waste impacts; construction impacts; hazardous materials; and cumulative impacts were considered 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. These findings are further elaborated below.

Coordination with the General Public

A Notice of Public Availability of the draft EA was made in the following publications: *Newark Star Ledger; Bergen Record; Daily News (Queens edition); Queens Courier; Queens Chronicle; Queens Gazette; Queens Tribune; Queens Times Ledger; Queens Ledger; El Especialito; The National Herald;* and *Sing Tao Daily*. The document was also made available to the public via the internet at *http://www.panynj.gov/about/pdf/environmental-assessment-rsae-laguardia.pdf*. The review and comment period was from August 22, 2013 to September 23, 2013.

Comments were received from various interested parties and primarily focused on mitigation measures and alternatives as they relate to aircraft noise and construction impacts. These comments have been adequately addressed in the final EA and did not result in significant changes to the proposed project.

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 projects, including a construction stormwater SPEDS permit when applicable.

3. The Proposed Action shall comply with 40 CFR Part 230 Section 404(b)(1) Guidelines and, the Proposed Action will also require an Individual Section 10/Section 404 permit from the U.S. Army Corps of Engineers.

4. The Proposed Action will require a Protection of Waters Permit and Section 401 Water Quality Certification from the NYSDEC.

5. Impacts to aquatic resources shall be mitigated through restoration of degraded intertidal or subtidal areas in accordance with permit requirements. A range of potential aquatic resource mitigation sites have been identified in the final EA.

6. Installation of each of the 30-inch diameter steel piles shall be installed using a two-step process. First, the pile will be placed into position and via its own weight, allowed to

settle through the first 50 to 65 feet of silt sediment. Once the pile has settled, it will be driven to capacity with an impact hammer. During the first five minutes of pile driving, the impact hammer will be operated at 40% or less of its total energy (i.e., 'soft start'). To assist in underwater noise attenuation during pile installation, a micarta cushion block will be placed atop all steel pipes to be driven.

7. Contract specification documents prepared by the Port Authority shall require that the contractor chosen for construction will prepare a noise mitigation plan that would include noise mitigation strategies, methods, and procedures to ensure construction-related noise would not exceed unreasonable noise levels, in order to protect neighboring communities.

Consistent with applicable orders, policies and guidance, including 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 Port Authority 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 Orders or Guidance.

Federal Agency Findings

In accordance with all applicable laws, the FAA makes the following findings for the proposed project based on all appropriate information and analyses contained in the FEA and other portions of the Administrative Record for the FEA:

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 extensive coordination efforts with public agencies as indicated in Appendix A of the FEA.

B. **The interest of the communities in or near where the Proposed Project 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 Project will be located were given fair consideration as demonstrated by the FEA, including Appendix A and J, comments and responses to comments.

C. **The FAA is satisfied that consistent with 49 U.S.C. §47107(a)(10), the airport sponsor has, and will continue to take all necessary actions, including the adoption of zoning laws, to ensure the land uses in the airport vicinity are compatible with airport operations.** During the preparation of this FEA, there has been extensive coordination with agencies that have indicated an interest in the Proposed Project. Additionally, since regionally-defined thresholds are more sensitive to specific local conditions and they provide a better metric for identifying minority and low-income populations, the thresholds established by the New York Metropolitan Transportation Council (NYMTC), the designated Metropolitan Planning Organization (MPO) for the

New York metropolitan region of New York, were used where applicable in the analyses in this FEA.

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

E. **The Proposed Action does not include a direct or constructive use of any resources protected under 49 U.S.C. §303(c) (Section 4(f) of the DOT Act), or any resources subject to the requirements of Section 106 of the National Historic Preservation Act.** The FAA ensured that all appropriate analyses were performed and required coordination was conducted with regulatory agencies having an interest in or jurisdiction over all resources. Coordination with the New York State Office of Parks, Recreation, and Historic Preservation (NYSHPO) resulted in the NYSHPO's concurrence that the proposed work would have No Adverse Effect upon historic resources (letter dated June 27, 2013, Appendix A). This concurrence is based on satisfactory demonstration that all historic properties near the Proposed Project and associated construction, as well as the construction staging areas are located more than ninety (90) feet away from such properties.

F. **The project will conform to the State Implementation Plan (SIP) in accordance with Section 176 of the Clean Air Act (CAA) Amendments (42 U.S.C. §7506(c)).** LGA is located in the New Jersey-New York-Connecticut Intrastate Air Quality Control Region (AQCR). Presently, this region does not meet the federal standards (i.e. is in non-attainment) for the 8-hour concentration of ozone and the 24-hour and annual arithmetic mean concentrations of $PM_{2.5}$. Aircraft operations and/or motor vehicle traffic volumes are not expected to change as a result of the Proposed Action and therefore, in accordance with FAA Order 5050.4B, an operational emissions inventory was not prepared and is not required under FAA guidelines for preparing NEPA documents. The project-related construction activities would not substantially alter the aircraft operational areas along the runways nor result in changes to the number of aircraft operations, aircraft fleet mix, aircraft taxi/delay periods or the movement of motor vehicles. The Proposed Project's total construction emissions are below the *de minimis* thresholds based on specific emissions calculations and therefore, would conform to the SIP. According to FAA guidance, agency consultation is therefore not necessary, no mitigation is necessary, and further analysis is not required to comply with the CAA or NEPA. In summary, although the Proposed Project 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 5.14.1 of the FEA. As

such, the Proposed Action conforms to the New York State Implementation Plan and complies with the Clean Air Act Section 176(c)(1) and 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.
- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

G. **There are no disproportionately high and adverse environmental effects resulting from the Proposed Action on minority and/or low-income populations. (Executive Order 12989).** Environmental Justice concerns were addressed in sections 4.2.9.2, 5.10, and 5.14.6.2 of the FEA. In accordance with FAA guidance provided in FAA Order 5050.4B and FAA Order 1050.1E, and the "Environmental Desk Reference for Airport Actions", implementation of a contractor noise mitigation plan will ensure that the minority population within the East Elmhurst neighborhood will not bear a disproportionate burden of the effects of the Proposed Action. Therefore, there would be no minority or low-income group that would be disproportionately high and adversely affected by the impacts occurring as a result of the Proposed Action.

H. **The FAA finds that Executive Order 11988, which 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, has been followed and as required, complied with appropriately.** The FAA is satisfied that the Proposed Action would not be a significant encroachment on Floodplains and that implementation of the Proposed Action would comply with all the requirements of EO 11988. Specifically, the Proposed Action would not cause an increased risk to human life; although, the runways would still flood during a 100-year flooding event, the Proposed action does not represent a change from existing conditions, nor will it cause an increase in service disruption; and the natural flooding cycle would be the same with the Proposed Action as with existing conditions or under the No-Action alternative. The FEA contains analyses that address whether the Proposed Action would be a "significant floodplain encroachment", as defined in FAA Order 1050.1E and EO 11988.

I. **The Proposed Action does not result in any harm to Federal or state threatened and endangered species or their habitat. (Section 7(c) of the Endangered Species Act of 1974, U.S.C. § 1531, as amended).** Based on extensive consultation with responsible state and federal agencies, the impacts associated with the deck extensions, the RVSR and the construction staging areas on threatened and endangered species, including minor effects on the population dynamics, sustainability, reproduction and natural mortality rates of the protected species would be negligible. Specifically, through written coordination and consultation with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program, the FAA is satisfied that the proposed project will not result in any adverse impacts or effects to aquatic habitat or protected species.

J. **The FAA finds that the Proposed Project conforms to the Avoidance, Minimization, and/or Compensation of Harm to Wetlands in Accordance with Executive Order 11990 and the Clean Water Act.** There is no practicable alternative to development of the Proposed Project and while LGA is surrounded by surface waters that are regulated under Section 401 and 404 of the Clean Water Act (CWA), and Sections 9 and 10 of the Rivers and Harbors Act (RHA), and Article 15 of the New York State Environmental Conservation Law (NYSECL), the Proposed Action would not impact vegetated wetlands or adjacent areas protected by EO 11990. Additionally, the Proposed Action would comply with 40 CFR Part 230 Section 404(b)(1) Guidelines, and all required regulatory permits would be prerequisites to Proposed Project implementation.

Decision and Order

The FAA recognizes its responsibilities under the National Environmental Policy Act of 1969 (NEPA) and its implementing Council on Environmental Quality (CEQ) regulations, and its own directives. Recognizing these responsibilities, I have carefully considered the FAA's goals and objectives in relation to the various aeronautical aspects of the *LaGuardia Airport Runway Safety Area Enhancements* as discussed in the Final Environmental Assessment (FEA), 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 project, alternative means of achieving them, 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 FEA provides a fair and full discussion of the impacts of the Proposed Project. 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 FEA. The FAA believes that with respect to the Proposed Project, 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 airport Sponsor to proceed with development and possibly receive funds for eligible items. Not approving these actions would prevent the Sponsor from proceeding with the airport development.

After careful and thorough consideration of the facts contained herein and subsequent to my review of the FEA 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 the 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 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 PFCs 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 Port Authority of New York and New Jersey 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 the LGA ALP pursuant to 49 U.S.C. §40103(b) and §47107(a)(16), and determination of effects of each of the components comprising the proposed project as described above, in the FEA, and all associated materials upon the safe and efficient utilization of navigable airspace pursuant to 14 CFR Parts 77 and 157 and 49 U.S.C. §44718;

2. Determination under 49 U.S.C. §40101(d)(1) and 47105(b)(3) as to whether 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 Port Authority of New York and New Jersey, the City of New York and appropriate FAA program offices, as required, for 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: for Carmine Gallo 31 Dec 2013
Date

Carmine Gallo
Regional Administrator
Federal Aviation Administration
Eastern Region

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.

LaGuardia Airport Runway Safety Area Enhancements

Final
Environmental Assessment

Prepared for U.S. Department of Transportation
Federal Aviation Administration
Garden City, NY

Sponsored by **THE PORT AUTHORITY** OF NY & NJ

Prepared by VHB *Engineering, Surveying and Landscape Architecture, P.C.*

DECEMBER 2013

This Environmental Assessment (EA) becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

12/30/13

Responsible FAA Official Date

LaGuardia Airport Runway Safety Area Enhancements

Final
Environmental Assessment

Prepared for U.S. Department of Transportation
Federal Aviation Administration
Garden City, NY

Sponsored by **THE PORT AUTHORITY** OF NY & NJ

Prepared by VHB *Engineering, Surveying and Landscape Architecture, P.C.*

DECEMBER 2013

This Environmental Assessment (EA) becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

12/30/13

Responsible FAA Official Date

Printed on Recycled Paper

December 30, 2013

Mr. Edward Knoesel
Manager, Environmental and Noise Programs
Aviation Department
The Port Authority of NY and NJ
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New York, NY 10003

Mr. Andrew Brooks
Environmental Program Manager
Federal Aviation Administration
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1 Aviation Plaza
Jamaica, NY 11434

Re: LGA RSA Final Environmental Assessment

Dear Mr. ~~Brooks~~ Andrew,

Enclosed please find a Final Environmental Assessment (EA) for the LaGuardia Airport Runway Safety Area Enhancements project. This Final EA was prepared in accordance with Federal Aviation Administration policies and procedures for implementing the National Environmental Policy Act. All comments received on the Draft EA have been considered and responded to in this Final EA.

Thank you for the guidance and cooperation you and others at FAA have provided during the NEPA process for this important project.

Sincerely,

Edward C. Knoesel
Manager, Environmental and Noise Programs
Aviation Department

cc: Marie Jenet, FAA
Carol Lurie, VHB
Guy Zummo, PANYNJ

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Executive Summary

Introduction

In accordance with Federal Aviation Administration (FAA) policies and procedures for implementing the National Environmental Policy Act (NEPA), this Environmental Assessment (EA) analyzes the potential effects associated with the proposed Runway Safety Area Enhancements at LaGuardia Airport (LGA) in the Borough of Queens, New York. The project is sponsored by the Port Authority of New York and New Jersey (Port Authority). This Executive Summary describes the key findings of this EA, which is organized as follows:

- **Chapter 1, *Introduction,*** provides an overview and background of the project.
- **Chapter 2, *Purpose and Need,*** describes the purpose for the project and why it is needed.
- **Chapter 3, *Alternatives*,** presents the different alternatives that were considered and screened to determine the specifics of the project or the "Proposed Action."
- **Chapter 4, *Affected Environment,*** describes the existing environmental conditions of the project site and its immediate surroundings.
- **Chapter 5, *Environmental Consequences,*** presents the environmental impacts of the Proposed Action compared to the impacts associated with the "No-Action Alternative" - the future environmental conditions absent of the Proposed Action.
- **Chapter 6, *Mitigation,*** describes the mitigation commitments the Port Authority has proposed to minimize the potential environmental impacts presented in Chapter 5.
- **Chapter 7, *List of Preparers*,** and **Chapter 8, *References*,** lists the firms that prepared this EA and references cited in the EA.

Purpose and Need

The purpose of the project, presented in **Chapter 2,** is to enhance safety for aircraft and their passengers by improving the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 in accordance with the requirements of a Congressional mandate,[1] and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for runway incursions and to provide a safe on-Airport route for fuel trucks and other vehicles.

Project Description

The Port Authority identified two project elements that are designed to meet the project's Purpose and Need:

- Enhancing Runways 4 and 31 End RSAs
- Constructing a new section of the RVSR at the Runway 22 End

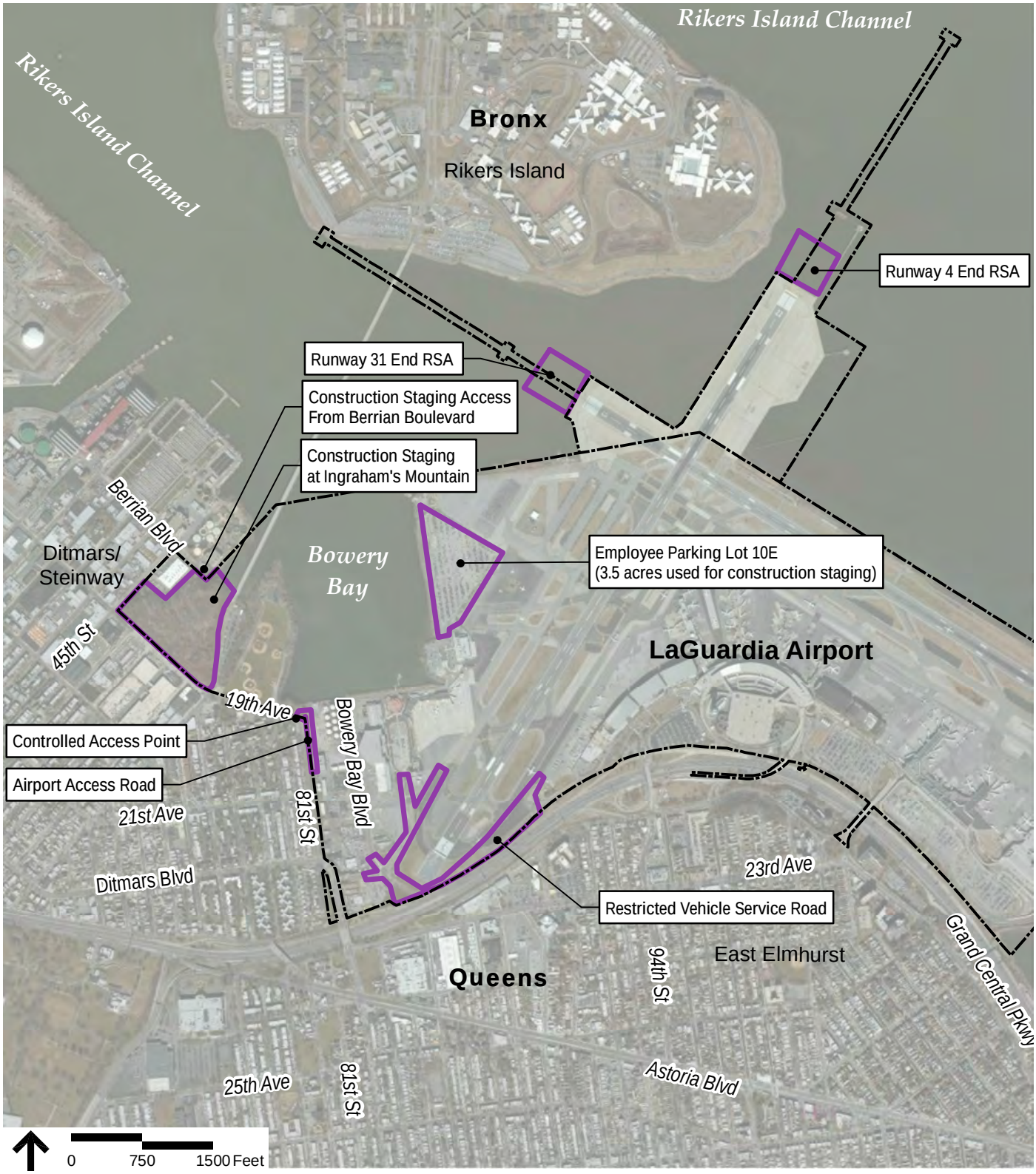
In addition, the Port Authority would develop construction staging areas to support the development of the RSA and RVSR project elements.

Through an alternatives screening process, described in **Chapter 3,** ***Alternatives***, the Port Authority ultimately identified one alternative (Proposed Action) that meets the project's Purpose and Need and is reasonable. The elements of this Proposed Action are described below and shown in Figure ES-1.

RSA Enhancements

The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS)[2] beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. As part of the Proposed Action, this would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards.[3] RSA deck extensions and EMAS construction would

1 Public Law 109-115, November 30, 2005 – Congressional mandate that owners or operators of commercial service airports with scheduled airline service be brought into conformance with FAA standards for Runway Safety Areas (United States Department of Transportation. Federal Aviation Administration. September 28, 2012. Advisory Circular (AC) 150/5300-13A, Airport Design.) no later than December 31, 2015.
2 EMAS is a bed of customized cellular cement material, designed to crush under the weight of an aircraft to aid in slowing down aircraft.
3 FAA Advisory Circular (AC) 150/5300-13A, *Airport Design* (September 28, 2012)



Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

East Elmhurst Neighborhood

Queens Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure ES-1

Proposed Action

\\nynydata\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Project Area-letter.mxd

last approximately 18 months, beginning in the second quarter of calendar year 2014, and ending in the fourth quarter of calendar year 2015.

Restricted Vehicle Service Road

The Proposed Action also includes constructing a new section of the RVSR south of the Runway 22 End to avoid repeated exits and entries of service vehicles, and reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to the aircraft service facilities on the west side of the Airport without having to leave the secured area. In order to accommodate the new RVSR, Runway Drive (an on-Airport public roadway) would be reconfigured. RVSR construction would begin in the third quarter of calendar year 2014 and end in the fourth quarter of calendar year 2016.

Construction Staging Area(s)

In order to implement any RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging, as there is insufficient existing area on-Airport that is unallocated and could be used. To accommodate the construction of the RSA Enhancements and RVSR, a portion of existing Employee Parking Lot 10E, near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be converted to a construction staging area to support the RSA construction project. This portion of Employee Parking Lot 10E would revert to an employee parking lot after use as a construction staging area.

Additional construction staging would be created in an area within the Airport's leasehold known as Ingraham's Mountain, a man-made topographic feature created from excavated material from construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA), and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area (Contractor Laydown and Mobilization Area) would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard (Figure ES-1). The Ingraham's Mountain Construction Staging Area would be available for use as a construction staging area for future projects.

Affected Environment

The Proposed Action would occur in several distinct areas: at the ends of the existing Runways 4 and 31 in Bowery Bay and Flushing Bay; along Runway Drive south of the Runway 22 End; at Employee Parking Lot 10E; and at Ingraham's Mountain. These areas comprise the Project Area (Figure 1-3).

Generally, LGA is a highly developed airport urban industrial complex that is built-out to the limits of the property boundary. The Airport is located in an area that does not meet established air quality standards. There are no important or unique plant or animal communities within the Project Area, however, the National Marine Fisheries Service has determined that Atlantic sturgeon, a federally-endangered fish, could occur in Bowery Bay or Flushing Bay in the vicinity of LGA. The Airport is located within a tidal floodplain and within a coastal zone management area. The environmental setting is further described in ***Chapter 4, Affected Environment***.

Environmental Consequences

Potential impacts on the environment that are likely to occur as a result of the Proposed Action and No-Action Alternatives are presented in **Chapter 5, *Environmental Consequences***. For each resource present at or adjacent to the Airport, the analysis in Chapter 5 evaluates the potential permanent impacts (either direct or indirect), temporary construction-period impacts, and cumulative impacts of the Proposed Action. Certain environmental resources (farmland soils, wild and scenic rivers, Section 4(f) resources) are not present within the Project Area and are not considered in the EA. There are also no known historical or archaeological resources within the Project Area, and no adjacent historic resources outside of this area would be affected by construction (Appendix A, *Agency Coordination*).

The Proposed Action would not change airport operations and would not result in additional traffic (following the construction period). The Proposed Action would, therefore, have no permanent impacts on air quality, land use, noise, traffic, socioeconomic resources or environmental justice populations. Permanent impacts to natural and human resources would be minor, as described below.

- **Coastal Zone Management (CZM)** – The entire airport is located within a designated CZM area, but the Proposed Action would be consistent with approved CZM policies, specifically the New York City New Waterfront Revitalization Program (WRP). The Port Authority completed a Federal Consistency Assessment Form and submitted it to the New York State Department of State (NYSDOS) for its concurrence (Appendix A, *Agency Coordination*). In addition, the Port Authority completed a New York City WRP Consistency Assessment Form and submitted it to the New York City Department of City Planning (NYCDCP) for its concurrence (Appendix A, *Agency*

Coordination). On December 17, 2013 the NYSDOS, after consulting and coordinating with the NYCDCP, concurred on behalf of both agencies in accordance with State regulations that the FAA's potential future funding approval and approval of the ALP modifications meets the Department's general consistency concurrence criteria.

- **Fish, Wildlife and Plants –** The Proposed Action would result in the loss of approximately 9 acres of upland successional woodland vegetation at the Ingraham's Mountain Construction Staging Area, on existing airport property, but would not impact notable or sensitive plant communities, wildlife habitats, or wildlife species. No state-listed threatened or endangered species would be affected. The two pile-supported deck extensions would result in a minor loss (0.03 acres) of habitat for marine benthic organisms and would shade approximately 4.65 acres of marine intertidal waters, potentially affecting the quality of this habitat for some fish species. No federally-listed threatened or endangered species would be permanently affected.

- **Floodplains –** The Proposed Action would require construction within the base tidal floodplain of the Upper East River, but is not expected to impact floodplain resources. The project design includes features to avoid or minimize the potential risk of flood damage.

- **Surface Waters and Wetlands –** The Proposed Action would not affect any jurisdictional vegetated wetlands or intertidal wetlands. The deck extensions would place pilings within subtidal marine waters (navigable waters of the United States). The deck extensions would have a negligible effect on current velocities within the Rikers Island Channel and adjacent waterways.

- **Visual and Scenic Resources –** The Proposed Action would result in minor, barely perceptible changes to the views of the Airport from the College Point area and from Rikers Island, but these view changes would not be adverse. No changes in airfield lighting would be required other than to relocate the lights at the edges of the decks.

- **Water Quality –** The Proposed Action would not have any permanent impact on water quality. There would be no new pollutant sources and the Proposed Action would not change runoff characteristics or surface water quality.

Construction Impacts. The Proposed Action would take approximately 18 months to construct the two RSA deck extensions (including creating the Ingraham's Mountain Construction Staging Area), and approximately 30 months to complete the new section of RVSR. The majority of the work would be performed in 2014 and 2015. During construction, there would be temporary air, noise, traffic and water quality impacts. Proposed mitigation measures to minimize these temporary impacts are documented in Chapter 6, *Mitigation*.

- **Air Quality –** An air emissions analysis was performed on construction activities and the results indicate that the Proposed Action would generate a temporary emissions increase that is clearly *de minimis*.
- **Noise –** Construction-related noise is unavoidable. Adverse impacts can be minimized, using a variety of measures, and the effects would diminish as the project nears completion.
- **Fish, Wildlife and Plants –** The proposed pile-driving could result in temporary underwater sound levels that could result in injury to Atlantic sturgeon. Although it is unlikely that Atlantic sturgeon would occur in the Project Area, the proposed construction and design techniques includes measures to avoid and minimize for any short-term adverse effects to fish (see Chapter 6, *Mitigation*).
- **Traffic –** Construction-period traffic would not adversely affect local streets. Construction vehicles would largely operate on the Airport, and during time periods that do not overlap with normal peak traffic hours. A new construction vehicle entrance to LGA would be created at 19th Avenue to reduce construction traffic on local streets. This entrance would be temporarily used during the construction of the Runway Safety Area Enhancements project.[4]
- **Water Quality –** Project-related impacts on surface water quality could occur during construction, and can be adequately controlled with best management practices.

Cumulative Impacts. The Proposed Action is not expected to cause or contribute to a significant adverse effect on the environment when considered with other past, present or reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

Mitigation

Means and measures to minimize environmental harm are discussed in **Chapter 6, *Mitigation*.** Mitigation is proposed for permanent impacts to aquatic resources and for temporary construction impacts. Impacts to aquatic resources would be mitigated through restoration of degraded intertidal or subtidal areas, in accordance with the requirements of the Department of the Army, Section 10/404 and New York State Department of Environmental Conservation permits. As documented in

4 Future potential impacts associated with the use of Ingraham's Mountain Construction Staging Area and the new airport access at 19th Avenue and 81st Street by other construction projects would be evaluated in environmental documentation for those future projects. The only planned project that would use the Ingraham's Mountain Construction Staging Area is the Central Terminal Building Redevelopment Project, which the FAA and other permitting agencies have not yet approved for construction.

Chapter 5, the Port Authority has identified a range of potential aquatic resource mitigation sites. Other than mitigation required to address environmental permit requirements and temporary construction impacts, no specific mitigation measures or other environmental commitments are proposed, or have been recommended. Best management practices have been incorporated into the project design and are part of the Proposed Action. Nevertheless, the Port Authority is committed to implementing the Proposed Action in accordance with all environmental laws, regulations, policies, and permit requirements applicable to the project and in accordance with the *LaGuardia Airport Best Management Practices Plan*[5] and the Port Authority's *Sustainable Design Guidelines*.[6]

Agency Coordination

Correspondence with the federal, state and local agencies and persons consulted during the EA process are included in **Appendix A, *Agency Coordination*.** The agencies contacted include:

- Federal Agencies
  - Federal Aviation Administration
  - U.S. Army Corps of Engineers
  - U.S. Environmental Protection Agency
  - U.S. Fish and Wildlife Service
  - National Oceanic and Atmospheric Administration, National Marine Fisheries Service
- State Agencies
  - New York State Office of Parks, Recreation, and Historic Preservation
  - New York State Department of Environmental Conservation
  - New York State Department of State
  - New York State Office of General Services
- City Agencies
  - New York City Department of City Planning

Copies of the Draft EA were made available for review and comment to any agency or person who requested a copy.

5 Port Authority of New York and New Jersey. 2009. *LaGuardia Airport Best Management Practices Plan, July 2009.*
6 Port Authority of New York and New Jersey. *Sustainable Infrastructure Guidelines*. Last updated March 23, 2011.

Public Involvement

Throughout the preparation of the Draft EA, Port Authority staff met with local and state elected officials to brief them on the project. A list of contacted parties is included in **Appendix F, *Public Coordination.*** An announcement was printed in the *Newark Star Ledger, Bergen Record, Daily News (Queens edition), Queens Courier, Queens Chronicle, Queens Gazette, Queens Tribune, Queens Times Ledger, Queens Ledger, El Especialito, The National Herald,* and the *Sing Tao Daily* newspapers that the Draft EA was available for public review and comment for 30 days, ending on September 23, 2013. Copies of these newspaper advertisements are included in Appendix F, *Public Coordination.* The document was available at the Port Authority's Administration Building at LGA (Hangar 7, 3rd Floor) and at Port Authority's office in Manhattan (225 Park Avenue South, New York, NY 10003). In addition, the Draft EA was posted on the Port Authority's website. A public hearing or meeting was not held.

Responses to comments received on the Draft EA are included in **Appendix J, *Comments on the Draft EA and Responses to Comments.*** Sixteen comment letters were received from members of the public, local and federal officials. The preponderance of the comments concerned the alternatives analysis and the effect each alternative could have on the aircraft noise experienced by the local community.

The Final EA is available on the Port Authority website (http://www.panynj.gov/about/pdf/environmental-assessment-rsae-laguardia.pdf) and an announcement of the availability of the Final EA was printed in the 12 local and city-wide newspapers listed above. Copies of the Final EA will be available at Port Authority's Administration Building at LGA (Hangar 7, 3rd Floor) open between 9:00am and 4:00pm and at Port Authority's office in Manhattan (225 Park Avenue South, New York, NY 10003), open between 9:00am and 5:00pm.

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1 Introduction

This Environmental Assessment (EA) analyzes the potential effects associated with the proposed Runway Safety Area Enhancements at LaGuardia Airport (LGA). The project is sponsored by the Port Authority of New York and New Jersey (Port Authority).

This EA was developed in accordance with Federal Aviation Administration (FAA) Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions*; FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*; and uses FAA's *Environmental Desk Reference for Airport Actions* for guidance. Compliance with these orders and guidance ensures that the project would meet the procedural and substantive environmental requirements set forth by the Council on Environmental Quality (CEQ) in its regulations implementing the National Environmental Policy Act of 1969 (NEPA), as amended (40 CFR 1500-1508). Approval of the Airport Layout Plan (ALP), and funding of enhanced Runway Safety Areas (RSAs) at Runway Ends 4 and 31 and construction of a new section of the Restricted Vehicle Service Road (RVSR) are federal actions that are the subject of this EA.

1.1 Background

LGA is one of five airports operated by the Port Authority and serves the metropolitan New York City area (Figure 1-1). The Airport is located in the Borough of Queens, New York City, New York, approximately 8 miles east from midtown Manhattan. LGA has been operated by the Port Authority on land that the Port Authority has leased from the City of New York since June 1, 1947. The Port Authority's lease with the City of New York ensures its continued operation of LGA and John F. Kennedy International Airport through 2050.

The Airport's facilities are shown in Figure 1-2. There are two runways, Runways 4-22 and 13-31, each 7,000 feet long. A complex taxiway system connects the runways to the passenger terminal areas. Four main terminals provide up to 71 contact gates: the Marine Air Terminal (Terminal A),

Sources: ESRI StreetMap

Legend

- Borough/County
- Highway
- State Boundary
- Park or Recreational Area
- Port Authority of NY and NJ Airports

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 1-1
Project Location

\\NYNYDATA\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Project Location_update.mxd

Sources: ESRI StreetMap

Legend

- LaGuardia Airport
- Highway
- Local Roadway
- Airport Facilities
- Park or Recreational Area

College Point Neighborhood

Queens Borough

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Runway Safety Area Enhancements
Final Environmental Assessment

Figure 1-2

Project Vicinity

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the Central Terminal Building (CTB) (Terminal B), and Terminals C and D. More than 6,300 parking spaces are available to the public, including a 2,700-space, five-level parking garage (P2) located next to the CTB. The other terminals are served by ground-level surface parking lots (P3 through P6). Approximately 1,200 parking spaces are available to airport employees in Employee Parking Lot 10E located west of Runway 4-22.

The FAA requires commercial service airports, which are regulated under 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, to provide a safety area at runway ends and on the sides of a runway to reduce the risk of injury to persons and damage to aircraft in the event of an excursion[1] from the runway in an emergency situation (see Chapter 2, *Purpose and Need*, and Figure 2-1 for additional detail). In the case of LGA's runways, a full dimension RSA length would be 1,000 feet beyond the end of each runway. The existing RSAs at the departure ends of Runways 4 and 31 are built on decks over the water and shorter than this standard, with pavement extending only 100 feet in length beyond the runway on each end (Figure 2-2). The existing decks end immediately after the pavement and do not provide the 1,000 feet required by FAA design criteria for a full dimension RSA. In November 2005, Congress passed a law that required all commercial airports to improve their RSAs to FAA design standards by the end of 2015. The Runway 4 and 31 RSAs are required to be brought into compliance with FAA standards.

A RVSR on the airfield perimeter provides airfield access to airport service vehicles (aircraft fueling trucks and operations ground services equipment). Under existing conditions, airport service vehicles travel between the east and west ends of the Airport either by crossing Runway 4-22 or by exiting and re-entering the Airport operations area at one of the two Guard Posts (GP1 and GP3) and using Runway Drive and Marine Terminal Road (Figure 2-3). Requiring airport service vehicles to exit a secured area onto public roads increases travel time and delays for these personnel. Runway crossings by service vehicles are not recommended as standard practice due to the increased risk of incursions[2] between vehicles and aircraft, increased workload of airport traffic control personnel, and delays to service vehicles. In addition to enhancing the RSAs for Runways 4 and 31, the safety enhancements project also includes constructing a new section of the RVSR to address these concerns.

1 An excursion from the runway can occur when an arriving aircraft fails to stop before the end of the runway or an aborted takeoff (overrun), touches down before the start of the paved runway surface (undershoot), or veers off to one side of a runway.
2 According to the FAA, a runway incursion is defined as an incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft.

1.2 Project Description

The Proposed Action would include enhancing the Runway 4 and 31 End RSAs, constructing a new section of the RVSR south of the Runway 22 End, and creating a construction staging area(s). Figure 1-3 shows the project elements associated with the Proposed Action.

1.2.1 Runway Safety Area Enhancements

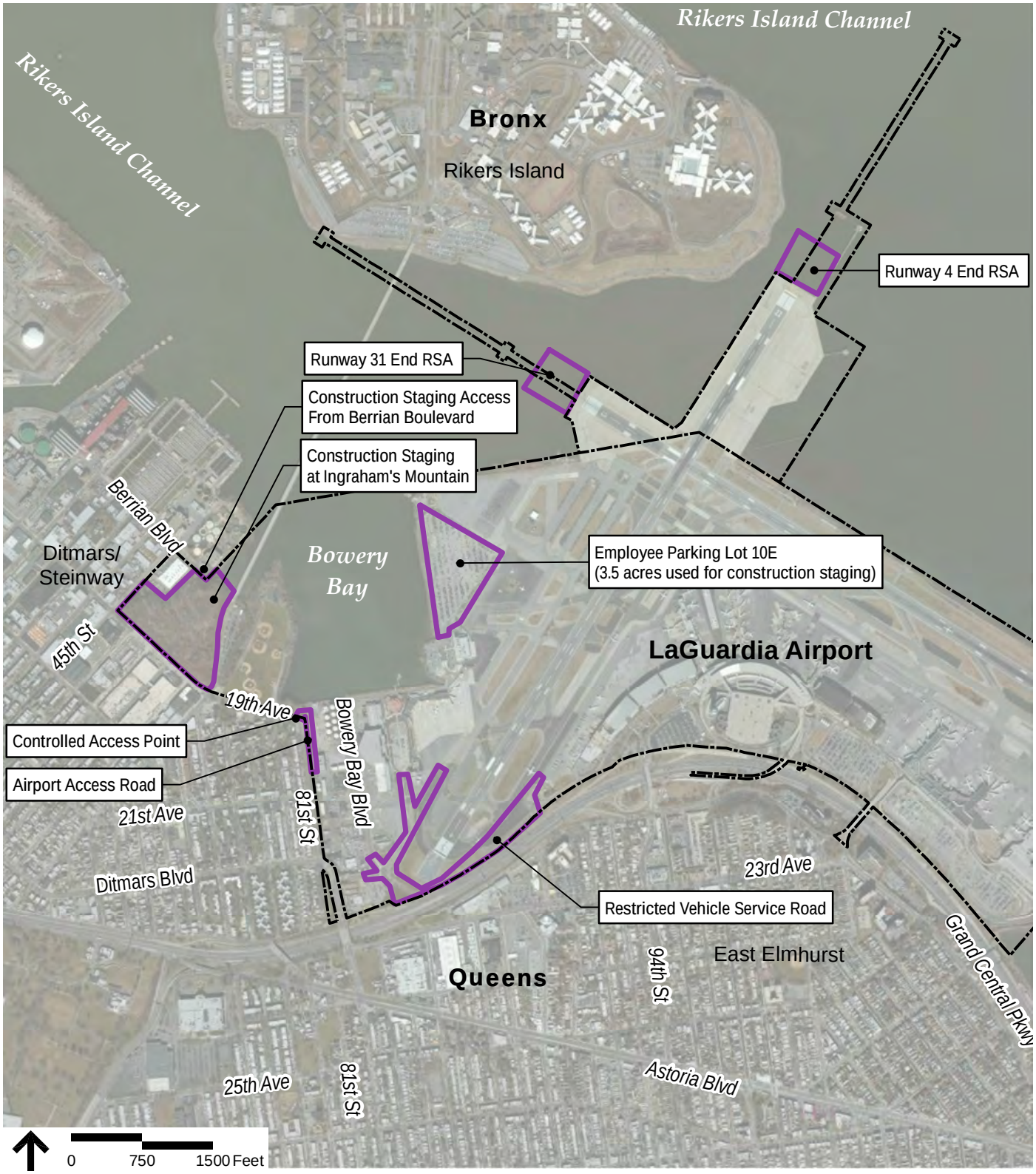
The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS) beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. This element of the Proposed Action would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards. RSA deck extensions and EMAS construction would last approximately 18 months, beginning in the second quarter of calendar year 2014, and ending in the fourth quarter of calendar year 2015.

1.2.2 Restricted Vehicle Service Road

The Proposed Action also includes constructing a new section of the Airport's existing RVSR; the new section is proposed south of the Runway 22 End to avoid repeated exits and entries of service vehicles, and reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to the aircraft service facilities on the west side of the Airport without having to leave the secured area. In order to accommodate the new RVSR, Runway Drive, an on-Airport public roadway, would be reconfigured. RVSR construction would last approximately 30 months, beginning in the third quarter of 2014 and ending in the fourth quarter of 2016 (calendar year).

1.2.3 Construction Staging Area(s)

In order to implement any RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging. To accommodate the construction of the RSA Enhancements and RVSR, a portion of existing Employee Parking Lot 10E, near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily converted to a construction staging area to support the RSA construction project as there is insufficient existing area on-Airport that is unallocated and could be used. This portion of Employee Parking Lot 10E would revert to an employee parking lot after use as a construction staging area.



Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

East Elmhurst Neighborhood

Queens Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 1-3

Project Area

\\nynydata\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Project Area-letter.mxd

An additional contractor laydown and mobilization area would be created within the Airport's leasehold at an area known as Ingraham's Mountain, a man-made topographic feature created from excavated material from construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA), and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard (Figure 1-3). The Ingraham's Mountain Contractor Laydown and Mobilization Area (Construction Staging Area) would be available for use as a construction staging area by future projects.

1.3 Federal Actions

The FAA actions that are the subject of this EA are:

- Approval of revisions to the ALP for constructing the following project elements:
  - Enhancing the RSAs of Runway 4 and 31 Ends,
  - Constructing a new section of the RVSR at the Runway 22 End, and
  - Constructing a Contractor Laydown and Mobilization Area at Ingraham's Mountain.
- Approval for the Port Authority to receive federal funding for eligible airport development, assuming the requirements of this project are met.

Subject to completion of the environmental review, issuance of required permits, ALP and funding approvals, construction is expected to begin in early 2014 and be completed in late 2016. Federal Agency acceptance of this EA and subsequent issuance of a decision document are not considered to be a commitment of funding under either the Airport Improvement Program (AIP) or the Passenger Facility Charge (PFC) Program. Approval of AIP funding would be considered following submittal of an application for federal funding and is subject to applicable eligibility criteria as established by FAA Order 5100.38C, *Airport Improvement Program Handbook*, and is subject to availability. Approval of PFC funding would be considered following submittal of an application to use PFC funds for the project and would be subject to eligibility criteria as established by FAA Orders 5100.38C and 5500.1, *Passenger Facility Charge*.

1.4 Applicable Environmental Permits/ Approvals/ Coordination

The following environmental permits, approvals or coordination efforts may be required prior to constructing the Proposed Action:

Federal

- Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, administered by the United States Army Corps of Engineers.
- All Homeland Security/ U.S. Coast Guard regulations regarding work in the exclusion zone would be adhered to and Port Authority will initiate contact with the U.S. Coast Guard prior to project construction.

New York State

- The Airport property is owned by the City of New York and leased to the Port Authority through 2050. The boundaries of the Airport property and Port Authority's leasehold extend into the water to the bulkhead line. The deck extensions would be built beyond the bulkhead line, on land under water that is owned by the State of New York. The Port Authority would acquire from New York State the property interests needed to construct the deck extensions. Once construction is completed, the Port Authority would convey the acquired property interests to New York City, and those interests would be incorporated into the Demised Premises of the Airport pursuant to Section 19.1 of the lease between the City and the Port Authority.[3] In a letter to New York State's Office of General Services dated July 19, 2013 (Appendix A, *Agency Coordination*), the Port Authority requested the underwater land rights to build the portions of the extensions that exceed the limits of the existing easements.
- Modification of New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) Permit for Stormwater Discharges for LGA (Permit Number NY-0008133 DEC Number 2-6301-00106/00023).
- Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent submitted to NYSDEC for informational purposes in accordance with provisions of SPDES Permit NY-0008133 NYSDEC Tidal Protection of Waters Permit and Section 401 Water Quality Certification.
- New York State Department of State (NYSDOS) Coastal Zone Management (CZM) Plan consistency review and concurrence. The application for CZM Plan consistency review and concurrence was initiated November 1, 2013. This application to the NYSDOS is included in Appendix A, *Agency Coordination*. On December 17, 2013 the NYSDOS, after consulting and coordinating with the New York City Department of City Planning (NYCDCP), concurred on behalf of both agencies in accordance

3 This approach was discussed among the Port Authority, the New York City Department of City Planning and the New York City Law Department in May 2012, and is memorialized in an October 23, 2012 letter from the Port Authority to the New York City Department of City Planning and the New York City Law Department (Appendix A).

with State regulations that the FAA's potential future funding approval and approval of the ALP modifications meets the Department's general consistency concurrence criteria.

City of New York

- New York City Waterfront Revitalization Program CZM review and concurrence. The application for Waterfront Revitalization Plan and CZM review and concurrence was initiated with the NYCDCP November 1, 2013. This application to the NYCDCP is included in Appendix A, *Agency Coordination*. NYSDOS issued the December 17, 2013 General Concurrence finding on behalf of the NYCDCP after consulting and coordinating with the NYCDCP (Appendix A, *Agency Coordination*).
- New York City land use approvals are not required for construction of the enhanced RSAs and, accordingly, the Uniform Land Use Review Procedure (ULURP) is not applicable at this time.
- The Port Authority (Traffic Engineering) would coordinate with New York City Department of Transportation regarding construction of the new access point at 19th Avenue and 81st Street. Prior to construction, all necessary permits and approvals would be secured. This coordination would take place once the access point design is finalized. All necessary permits and approvals would be secured prior to construction.

1.5 Public Involvement

Throughout the preparation of the Draft EA, Port Authority staff met with local and state elected officials to brief them on the project. A list of contacted parties is included in Appendix F, *Public Coordination*. An announcement was printed in the *Newark Star Ledger, Bergen Record, Daily News (Queens edition), Queens Courier, Queens Chronicle, Queens Gazette, Queens Tribune, Queens Times Ledger, Queens Ledger, El Especialito, The National Herald,* and the *Sing Tao Daily* newspapers that the Draft EA was available for public review and comment for 30 days, ending September 23, 2013. Copies of these newspaper advertisements are included in Appendix F, *Public Coordination.* The document was available at the Port Authority's Administration Building at LGA (Hangar 7, 3rd Floor) and at Port Authority's office in Manhattan (225 Park Avenue South, New York, NY 10003). In addition, the Draft EA was posted on the Port Authority's website. A public hearing or meeting was not held.

Responses to comments received on the Draft EA are included in Appendix J, *Comments on the Draft EA and Responses to Comments.* Sixteen comment letters were received from members of the public, local and federal officials. The preponderance of the comments concerned the alternatives analysis and the effect each alternative could have on the aircraft noise experienced by the local community.

The Final EA is available on the Port Authority website (http://www.panynj.gov/about/pdf/environmental-assessment-rsae-laguardia.pdf) and an announcement of the availability of the Final EA was printed in the 12 local and city-wide newspapers listed above. Copies of the Final EA are available at Port Authority's Administration Building at LGA (Hangar 7, 3rd Floor) open between 9:00am and 4:00pm and at Port Authority's office in Manhattan (225 Park Avenue South, New York, NY 10003), open between 9:00am and 5:00pm.

1.6 Report Content and Organization

This EA includes:

- **Chapter 2, *Purpose and Need***
  This chapter presents the Purpose and Need statement for the proposed enhancements to the Runways 4 and 31 RSAs and for a new section of RVSR at LGA.

- **Chapter 3, *Alternatives Analysis***
  This chapter presents the screening process used for determining the Proposed Action, and describes in detail the elements of the No-Action Alternative and Proposed Action. The No-Action Alternative provides a baseline scenario against which the impacts of the Proposed Action are compared.[4]

- **Chapter 4, *Affected Environment***
  This chapter describes the Baseline Condition – the existing condition of the environment in which the Proposed Action would occur. The Baseline Condition was documented for each environmental resource category, as specified in FAA Order 1050.1E, Change 1, to provide a context for understanding the potentially impacted resources within the Project Area. The baseline condition is based on data from 2012 and has been updated with more current information, where available.

- **Chapter 5, *Environmental Consequences***
  This chapter describes the environmental consequences of the Proposed Action for each applicable environmental resource category, as specified in FAA Order 1050.1E, Change 1. The environmental effects (beneficial or adverse) are identified by comparing the Proposed Action to the No-Action Alternative in the same analysis year. This analysis includes consideration of permanent, temporary, indirect, and cumulative impacts of the alternatives evaluated.

4 According to *FAA Order 1050.1E*, Change 1, *Environmental Impacts: Policies and Procedures*, NEPA requires a comparison of the future No-Action and future Build Alternatives to determine those impacts that would be attributed to the Proposed Action.

- **Chapter 6, *Mitigation***
  This chapter presents the measures proposed to avoid, reduce, and/or mitigate the potential impacts of the Proposed Action as identified in Chapter 5. The mitigation measures are presented to mitigate significant impacts, to minimize impacts that are not significant, and to comply with regulatory requirements as defined by FAA Order 1050.1E, Change 1.

- **Chapter 7, *List of Preparers***
  The EA was prepared by the Port Authority. Technical analyses and documents were prepared by a team of technical consultants. The entities involved with preparing the technical analyses and documents, including the personnel and their individual areas of responsibility and years of experience are provided in this chapter.

- **Chapter 8, *References***
  This chapter contains citations for the primary references used in each chapter of this EA. Hyperlinks to all citations available online are provided in Chapter 8, References.

- **Appendices**
  The following appendices are included to provide supplemental information on specific aspects of the Draft EA:

  - Appendix A – Agency Coordination
  - Appendix B – Air Quality
  - Appendix C – Shading Analysis
  - Appendix D – Surface Transportation
  - Appendix E – Noise
  - Appendix F – Public Coordination
  - Appendix G – Hydrodynamic Modeling Report
  - Appendix H – Port Authority of New York and New Jersey Board of Commissioners Program Authorization, April 24, 2013
  - Appendix I – Acronyms & Glossary of Terms
  - Appendix J – Comments on the Draft EA and Responses to Comments

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2 Purpose and Need

2.1 Purpose

The purpose of the project is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 per Congressional mandate, and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LaGuardia Airport (LGA).

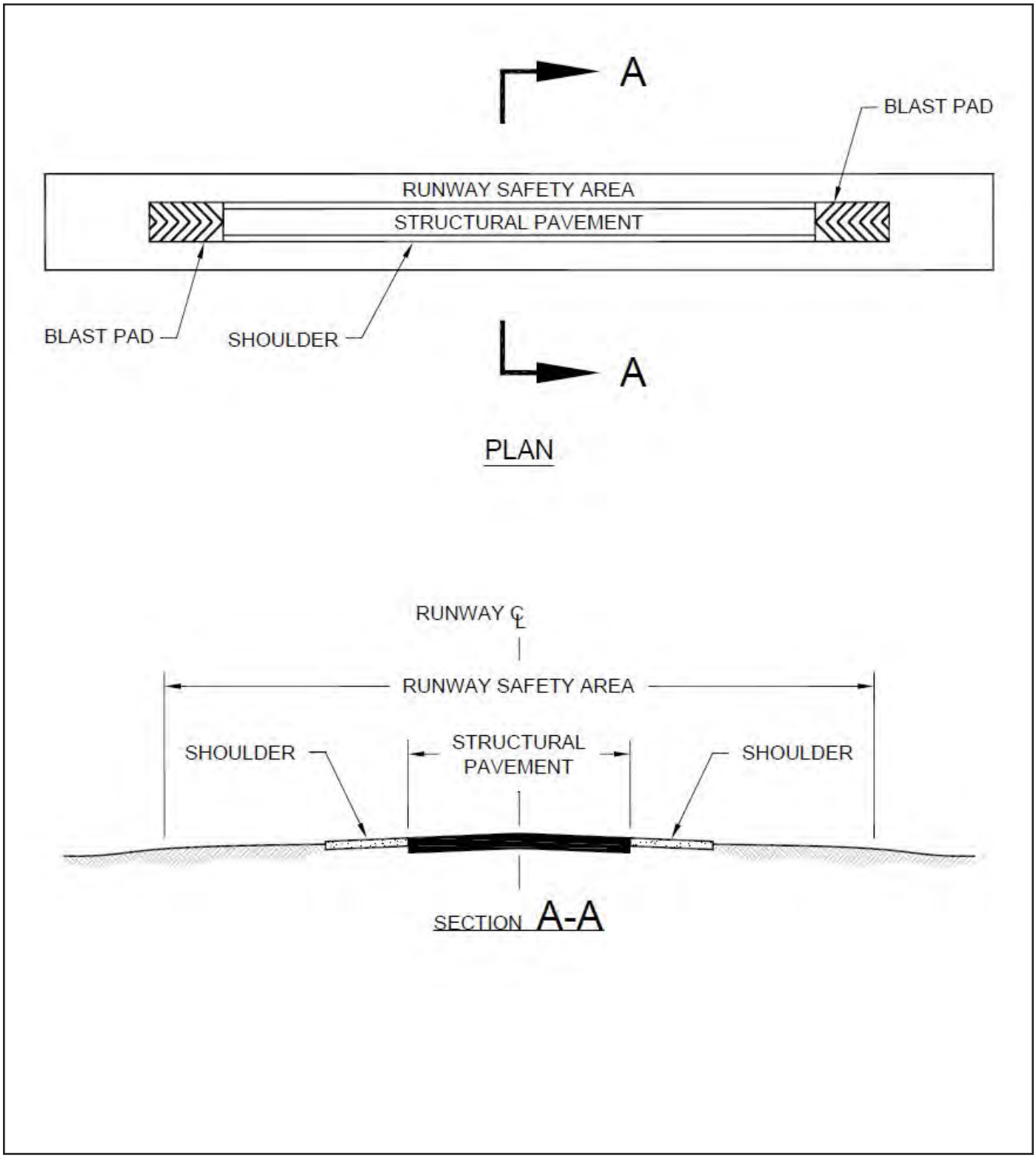
2.2 Runway Safety Areas

The Federal Aviation Administration (FAA) requires commercial service airports to provide a safety area at each runway end and on the sides of each runway to reduce the risk of injury to persons and damage to aircraft in the event of an excursion from the runway in an emergency situation. An excursion from the runway can include when an arriving aircraft fails to stop before the end of the runway or an aborted takeoff (overrun), when an aircraft arriving on a runway touches down before the start of the paved runway surface (undershoot), or a veer-off to one side of a runway. The FAA requires that commercial service airports, which are regulated under Title 14 of the Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, improve their RSAs to FAA design standards where possible. In November 2005, Congress mandated that all commercial airports provide RSAs that comply with FAA standards by the end of 2015.[1] Figure 2-1 shows a plan and profile view of an RSA at a typical runway.

RSAs are safety improvements and do not extend the length of runways or have any effect on normal runway operations, runway capacity, or the types of aircraft that can use the runways. FAA standards,

1 Public Law 109-115, November 30, 2005 – Congressional mandate that owners or operators of commercial service airports with scheduled airline service be brought into conformance with FAA standards for Runway Safety Areas (RSAs) no later than December 31, 2015.

\\NYNYDATA\projects\28878.00 LaGuardia RSA EA\graphics\FIGURES\Figure 2-1.indd



Source: Federal Aviation Administration. September 2012. Advisory Circular (AC) 150/5300-13A, Airport Design.

Figure 2-1
Plan and Profile Views of a Typical Runway Safety Area

defined in Advisory Circular (AC) 150/5300-13A, *Airport Design*, September 28, 2012,[2] detail RSA design requirements:

- Cleared and graded with no potentially hazardous ruts, humps, depressions, or other surface variations;
- Drained by grading or storm sewers to prevent water accumulation;
- Capable under dry conditions of supporting snow removal equipment, aircraft rescue fire fighting equipment, and the occasional passage of aircraft without causing significant damage to the aircraft; and,
- Free of objects, except for objects that need to be located in the RSA because of their function.

RSAs provide important protection to aircraft, as they prevent damage to aircraft in the majority of airfield incidents. Research into aircraft overruns and undershoots[3] demonstrates that the majority of accidents and incidents occur as a result of landing overruns when aircraft land and continue down the runway unable to stop before the runway end. Landing undershoots (an aircraft lands short of the runway) and takeoff overruns (an aircraft does not get airborne on takeoff and continues off the end of the runway) are less common causes of runway excursions.

The AC contains a coding system, referred to as the Runway Design Code, which standardizes design requirements for runways and taxiways. Runways, taxiways, and associated safety areas are designed to accommodate the design aircraft, which is the most demanding aircraft (the aircraft with the highest landing speed and widest wingspan) expected to use an airport on a regular basis,[4] now or in the future. Generally, runway standards are related to aircraft approach speed, aircraft wingspan, and designated or planned approach visibility minimums.

At LGA, the design aircraft is the Boeing 767-400, which requires a standard (full dimension) RSA of 1,000 feet beyond the departure end, 600 feet prior to the landing threshold, and 500 feet wide (250 feet on either side of the runway centerline) for each runway.[5]

2 United States Department of Transportation. Federal Aviation Administration. September 28, 2012. Advisory Circular (AC) 150/5300-13A, *Airport Design*.
3 Transportation Research Board (TRB) Airport Cooperative Research Program (ACRP). 2008. *Report 3: Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas*, Washington DC.
4 Regular use is defined as at least 500 itinerant operations annually according to FAA Advisory Circular 150/5325-4B, *Runway Length Requirements for Airport Design*, July 1, 2005.
5 According to Appendix 1 of FAA Advisory Circular 150/5300-13A, *Airport Design*, the RDC for the Boeing 767-400 includes an Aircraft Approach Category (AAC) coding of D and an Airplane Design Group (ADG) coding of IV, resulting in the full dimension RSA requirements. These are fully defined in Table A7-9 of the Advisory Circular.

The FAA recognizes that not all airports have the space or property to provide full length RSAs. This is often the case with older airports in densely developed urban settings or where an airport may be physically constrained by geographical features. Therefore, the FAA has determined that the length beyond the runway end required by a full dimension RSA (1,000 feet for each of the LGA runways) may be reduced by using an Engineered Materials Arresting System (EMAS). EMAS is composed of a bed of customized cellular cement material, designed to crush under the weight of an aircraft and provide deceleration. EMAS is an alternative that could be considered to mitigate overruns at airports such as LGA, where a full dimension RSA is not practicable due to natural obstacles, local development, and/or environmental or other constraints. Currently, EMAS beds are installed on the Runway 13 and 22 Ends at LGA, which satisfy FAA's RSA requirements.

To-date, there have been four incidents at the Port Authority of New York and New Jersey (Port Authority) airports where EMAS technology has worked successfully to keep aircraft overrunning the runway from crashing, thus preventing injury to passengers and damage to the aircraft:

- May 1999: A Saab 340 commuter aircraft overran a runway at John F. Kennedy International Airport (JFK).

- May 2003: An MD-11 cargo aircraft overran a runway at JFK.

- January 2005: A Boeing 747 aircraft overran a runway at JFK.

- October 2010: A G-4 Gulfstream aircraft overran a runway at Teterboro Airport.

Source: ESCO-Zodiac

2.3 Runway Safety Area Enhancements

The existing RSAs at the Runway 4 End (Runway 4 departures and Runway 22 arrivals) and Runway 31 End (Runway 31 departures and Runway 13 arrivals) are shown in Figure 2-2 and their dimensions are listed in Table 2-1. Within the limited lengths of RSAs provided at the end of each runway, the width of the existing decks is 500 feet (250 feet on each side of the runway centerline), meeting the width requirement for RSAs.

Table 2-1 Existing RSAs and FAA Requirements for Full Dimension RSAs

		Existing RSA		FAA Requirements for Full Dimension RSA	
Runway End		Width (feet)	Length (feet)	Width (feet)	Length (feet)
Runway 4 End	Departures	500	0	500	1,000
	Arrivals	500	100	500	600
Runway 31 End	Departures	500	0	500	1,000
	Arrivals	500	100	500	600

Source: FAA requirements for full dimension RSA – FAA Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012.
Note: A stopway of 100 feet is provided at the Runway 4 and Runway 31 departure ends. When a stopway is provided, the RSA length begins at the stopway end for departures. The RSA length begins at the runway threshold for arrivals (with or without a stopway).

The FAA defines various RSA dimensions as:

- **Full Dimension RSA –** an RSA constructed to full dimensional standards identified in the AC. At LGA, the full dimension RSA would measure 1,000 feet in length beyond the departure end of the runway (beginning at the end of the stopway at each runway, which extends 100 feet past the runway threshold) and 500 feet in width centered on the runway centerline.
- **Standard EMAS/Standard RSA -** provides a level of safety that is equivalent to an RSA that is built to the full dimensional standards identified previously. A standard EMAS installation would stop the design aircraft exiting the runway at 70 knots within an area that also provides the required protection for undershoots in the opposite direction. At LGA, a standard EMAS would be approximately 455 feet in length to stop the EMAS-design aircraft (Boeing 757-200)[6] moving at

6 According to FAA Order 5200.9, Par. 9, "the design aircraft for EMAS is not related to the Airport Reference Code aircraft defined by AC 150/5300-13, and it might not be the same as the design aircraft for runway length." EMAS performance is dependent not only on aircraft weight, but landing gear configuration and tire pressure. Therefore, the Boeing 757-200 is the EMAS design aircraft, while the Boeing 767-400 is the design aircraft that determines dimensional standards for runways, taxiways, taxi lanes, and aprons at LGA.

Source: ArcGIS Bing Aerial Service

Legend

Runway End Safety Areas

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 2-2

Ends of Runways 4 and 31
Existing Runway Safety Areas

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70 knots.[7] The total length from the runway threshold to the end of the EMAS would be 600 feet to provide adequate length for undershoot protection for aircraft approaches in the opposite direction. An RSA using a standard EMAS installation is known as a Standard RSA.

- **Non-Standard RSA –** an RSA with dimensions less than the full dimension RSA and no EMAS, or an RSA with EMAS providing less stopping capability than standard EMAS.
- **Non-Standard EMAS –** A non-standard EMAS installation would stop the design aircraft exiting the runway at 40 knots (not at 70 knots, such as the standard EMAS). At LGA, a non-standard EMAS would be approximately 214 feet in length to stop aircraft traveling at 40 knots but would not provide adequate undershoot protection for aircraft approaches in the opposite direction. According to FAA's financial feasibility guidance, an EMAS that cannot provide a minimum performance of stopping the EMAS design aircraft traveling at 40 knots is not considered a cost-effective safety enhancement.[8]

Currently, the existing decks of both runway ends are not long enough to provide adequate space for a full dimension RSA, a standard EMAS installation (standard RSA), or a non-standard EMAS. If the runway thresholds are kept in place, then the existing decks would need to be extended to provide adequate space for RSAs.

2.4 Restricted Vehicle Service Road

Currently, airport service vehicles (aircraft fueling trucks and operations ground services equipment) travel between the east and west ends of the Airport either by crossing Runway 4-22 or by exiting Airport property and re-entering the secured AOA at one of the two Guard Posts (GP1 and GP3) and using Runway Drive and Marine Terminal Road (Figure 2-3). Requiring airport service vehicles to exit a secured area on to public roads increases travel time delays for these vehicles.

Runway crossings by service vehicles are not recommended as standard practice due to the increased risk of runway incursions,[9] increased workload of air traffic control (ATC) personnel, and delays to service vehicles. Vehicles should use service roads or public roads instead of crossing movement

7 According to FAA Advisory Circular 150/5220-22B, Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns, the EMAS design (or critical) aircraft is defined as that aircraft using the associated runway that imposes the greatest demand upon the EMAS and is dependent not only on aircraft weight, but landing gear configuration and tire pressure.
8 FAA's Order 5200.9. Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems, Paragraph 7.a.
9 According to the FAA, a runway incursion is defined as an incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Existing Vehicle Service Routes.mxd

Source: ArcGIS Bing Aerial Service

Legend

- Existing Service Vehicle Route on Public Roads
- Existing Restricted Vehicle Service Roads
- Guard Post

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 2-3

Existing Service Vehicle Route

areas[10] whenever possible.[11] FAA recommends avoiding airfield layouts that require aircraft and vehicles to cross runways, noting that every crossing represents a potential runway incursion. Vehicle crossings can be eliminated by constructing perimeter service roads.

To avoid the security concerns and time delays associated with repeated exits and entries of service vehicles, and to reduce the risk of runway incursions and ATC workload, LGA needs a RVSR that stays on Airport property in secured areas (i.e., airside) in the vicinity of the Runway 22 End. Constructing a new section of the RVSR south of the Runway 22 End would allow fuel trucks to deliver jet fuel to ramps located at the eastern Terminals B, C, and D without exiting a secured area onto Runway Drive. A new section of the RVSR would also allow ground service equipment to have access from the Airport's eastern terminals to the aircraft service facilities on the west side of the Airport without having to leave the same secured area.

2.5 Construction Staging Area(s)

In order to implement any RSA Enhancements and the RVSR at LGA, an area must be provided for contractor mobilization and construction equipment staging. A minimum of 10 acres with access to the Airport roadway system are needed for the RSA and RVSR construction staging.

10 Federal Aviation Regulations part 139.5 states, "Movement area means the runways, taxiways, and other areas of an airport that are used for taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas. At LGA, which has an ATC facility, specific approval for entry onto the movement area must be obtained from ATC personnel."

11 United States Department of Transportation. Federal Aviation Administration. June 21, 2002. Advisory Circular (AC) 150/5210-20, *Ground Vehicle Operations on Airports*.

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3 Alternatives

3.1 Introduction

This chapter describes the development, selection, and screening of a range of alternatives being considered as part of the LaGuardia Airport (LGA) Runway Safety Area Enhancements project in accordance with Federal Aviation Administration (FAA) Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1E, Change 1). The Council on Environmental Quality (CEQ) regulations that implement the *National Environmental Policy Act (NEPA)* (40 CFR Parts 1500-1508) state that the alternatives section should:

- Develop and describe the range of alternatives capable of achieving the Purpose and Need (1505.1(e)), including alternatives not within the lead agency's jurisdiction, as well as a No-Action Alternative (1502.14(d)); and
- Rigorously explore and objectively evaluate these alternatives, and provide reasons why certain alternatives were eliminated from further study.

The goal of the alternatives screening process in this Environmental Assessment (EA) is to identify a Proposed Action that meets the stated Purpose and Need and is reasonable. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.[1]

The Port Authority of New York and New Jersey (Port Authority) identified two project elements that are designed to meet the project's Purpose and Need, as defined in Chapter 2, *Purpose and Need*:

- Enhancing Runways 4 and 31 End Runway Safety Areas (RSAs)
- Constructing a new section of the Restricted Vehicle Service Road (RVSR) at the Runway 22 End

1 Executive Office of the President, Council on Environmental Quality. *Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, published in the Federal Register and appears at 46 Fed. Reg. 18026 (1981).

In addition, the Port Authority would develop construction staging areas to support the development of the RSA and RVSR project elements.

The alternatives screening process, described below, considered a full range of alternatives. The range of alternatives considered for providing RSA Enhancements is consistent with FAA Order 5200.8, *Runway Safety Area Program,* Appendix 2.

Through the implementation of this screening process, the Port Authority ultimately identified one alternative (Proposed Action) that meets the project's Purpose and Need and is reasonable. The Port Authority also identified the No-Action Alternative (as required to be included in the alternatives evaluation per FAA Order 1050.1E, Change 1, Section 405.d as well as CEQ regulations found at 40 CFR Part 1502.14(d)) and compared it to the Proposed Action. Both alternatives are described in detail in Section 3.4, *Proposed Action,* and Section 3.5, *No-Action Alternative,* respectively.

3.2 Alternatives Screening Process

The following describes the alternatives screening processes applied to the alternatives for the RSA Enhancements, the RVSR construction, and the construction staging area(s). Separate screening processes were used for these design elements and the connected action.

3.2.1 RSA Enhancements

The Runway Safety Area Enhancements consist of two components: RSA Enhancements to the ends of Runway 4 and to Runway 31. As previously described, FAA's standard full dimensions for RSAs vary depending on the type of design aircraft[2] and instrument approach capabilities. When the standard dimensions for an RSA are not practicable due to an airport's constraints, Engineered Material Arresting System (EMAS) can be considered to mitigate aircraft overruns.[3] As described in Chapter 2, *Purpose and Need,* EMAS consists of crushable concrete placed at the end of a runway to stop an aircraft that overruns the runway. The tires of the aircraft sink into the lightweight concrete and the aircraft slows as it rolls through the material.

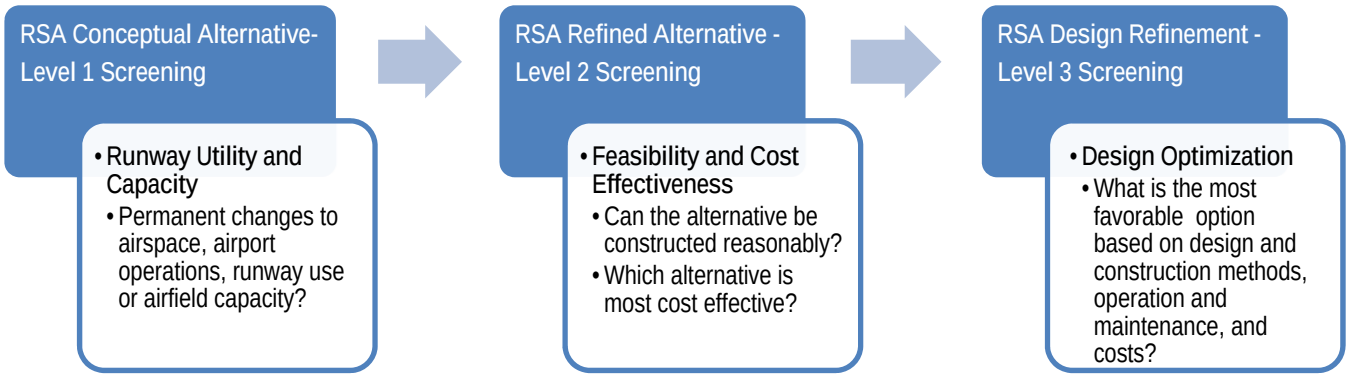
The alternatives screening process for the Runways 4 and 31 End RSAs consists of three levels (see Figure 3-1 below). In general, the RSA Enhancements screening process began with conceptual

2 According to FAA's Advisory Circular (AC) 150/5300-13A, *Airport Design* (September 28, 2012), the design aircraft determines the application of airport design standards for specific runways, taxiways, taxi lanes, or aprons. This aircraft can be a specific aircraft model or a composite of several aircraft using, expected, or intended to use the airport or part of the airport. The design aircraft for determination of the full dimension RSA is the Boeing 767-400.

3 Federal Aviation Administration. September 28, 2012. Advisory Circular (AC) 150/5300-13A, *Airport Design*, Paragraph 307.a.

alternatives that were further refined throughout each level in the screening. Screening Level 1 considered runway utility and capacity; Screening Level 2 considered feasibility and cost effectiveness; and Screening Level 3 considered optimal design of the RSA Enhancements. Each of the RSA alternatives considered in Level 1 would meet the Purpose and Need for this component by enhancing the RSAs at the Runway 4 and 31 Ends, by the end of 2015 per Congress' mandate.

Figure 3-1 Three-Level Screening Process for the Runways 4 and 31 End RSA Enhancement Alternatives



The following describes the screening criteria that were developed for each of the three levels in the RSA Enhancements alternatives screening process, and explains the rationale for selecting each of the alternatives screening criteria.

- RSA Conceptual Alternative Level 1 Screening Criteria: Runway Utility and Capacity
  The first level of alternatives screening focused on providing the required safety enhancements while also preserving operational efficiency and capacity at the Airport through avoiding permanent, adverse impacts to aircraft operations, airport capacity, and changes to surrounding airspace. This screening criterion was selected because LGA is a critical component of the metropolitan New York-New Jersey region aviation system and also of the national aviation system. In 2012, LGA was the 17th busiest airport in the nation in terms of aircraft operations (arrivals and departures), and 20th most active in terms of total passengers.[4] According to FAA statistics, LGA is the third most delayed airport in the nation. Due to the nature of airline activity

4 Airports Council International – North America. *Airport Traffic Reports*. Accessed June 21, 2013. http://www.aci-na.org/content/airport-traffic-reports

at LGA, delays tend to propagate throughout the entire National Airspace System (NAS). As a result, any project undertaken at LGA that increases delay could adversely affect the entire NAS.

Thus, the RSA Conceptual Alternative Level 1 screening eliminated the conceptual alternatives that would result in permanent adverse changes to:

- Airspace,
- Airport operations,
- Runway use, and/or
- Airfield capacity.

RSA conceptual alternatives that would avoid permanent changes to the items listed above were carried forward from Level 1, refined, and screened as part of Level 2.

- RSA Refined Alternative Level 2 Screening: Feasibility and Cost-Effectiveness
  Conceptual alternatives from Level 1 that would not adversely affect the operation of the Airport were further refined as part of the Level 2 screening to determine which alternative could be most feasible and cost-effective, given LGA's location and limited land area. LGA is a space-constrained airport surrounded by water, a densely populated urban setting, and surface transportation infrastructure. Due to these factors, its congested airspace environment, and adjacent or nearby building obstructions, it would not be feasible to consider alternatives that would substantially change the locations of the runways.

  The cost effectiveness of each alternative was determined by considering the maximum feasible RSA improvement costs (defined in FAA Order 5200.9) and the Port Authority's ability to fund the local share of construction costs.

  The RSA Refined Alternative Level 2 screening determined whether or not the refined alternatives:

  - Could be feasibly constructed.
  - Would be cost-effective.

  Of those alternatives considered in Level 2, one alternative (referred to as the RSA Refined Alternative) best met the Level 2 screening criteria, and was therefore advanced to the Level 3 screening.

- RSA Design Refinement Level 3 Screening: Design Optimization
  After identifying the most feasible and cost-effective refined alternative from Level 2, the Level 3 screening process evaluated specific design measures for that alternative to determine the most practicable design and construction methods with consideration given to operation, maintenance and costs.

  The RSA Design Refinement Level 3 screening evaluated the most favorable options based on:
  - Design and construction methods,
  - Operation and maintenance considerations, and
  - Costs.

  Several design and construction refinements were considered as part of the Level 3 process, and the one alternative that was most favorable based on these criteria was advanced as the Proposed Action.

3.2.2 Restricted Vehicle Service Road

Constructing a new RVSR section is required to provide restricted vehicular access on the airside from the west side to the east side of LGA south of Runway 4-22 in order to reduce the risk associated with potential vehicle and aircraft collisions, as well as other safety risks previously described. The alternatives analysis for the RVSR alternatives followed a one-step screening process that focused on estimated construction costs and operational and maintenance considerations. The range of RVSR alternatives that were analyzed were operationally feasible and constructible, and therefore did not need to be screened using those criteria.

The RVSR alternative that best met these screening criteria was included in the Proposed Action.

3.2.3 Construction Staging Area(s) (Contractor Mobilization and Laydown Areas)

To support any potential RSA construction (including deck extensions to support EMAS) and RVSR construction, staging area(s) would need to be created. A construction staging area would provide space to store equipment and materials used in the RSA and RVSR construction and for contractor mobilization. The total area needed for the RSA and RVSR construction staging would be a minimum of 10 acres with access to the Airport roadway system. Other criteria for evaluation for the construction staging areas included the cost of construction and minimization of potential disruptions to local traffic on public roads and recreational facilities.

3.3 Alternatives Analysis

This section presents the alternatives analysis screening results for the RSA Enhancements, RVSR construction, and associated construction staging area(s).

3.3.1 Runway 4 and 31 End RSA Enhancements

The alternatives analysis for the Runways 4 and 31 End RSAs is described in the following section. The screening for the Runways 4 and 31 End RSA alternatives was conducted as described in Section 3.2, *Alternatives Screening Process*. To better understand the runway facilities and how each runway end at LGA is used, a summary of runway characteristics is provided in Table 3-1.

Table 3-1 LGA Runway Characteristics

Runway	Length (feet)	Runway Departure End	Instrumentation and Lighting (on opposite approach end)	Runway Utilization[1]	
				Percent of Total Arrivals	Percent of Total Departures
4-22	7,003	22 End	PAPI; MALSR; ILS-CAT I	18%	1%
		4 End	PAPI; ALSF; ILS-CAT II	50%	28%
13-31	7,001	31 End	PAPI; MALSR; ILS-CAT I	2%	24%
		13 End	PAPI; LOC	30%	47%

Source: Port Authority of New York-New Jersey, 2013.
1 Based on the arrival and departure runway utilizations, it was estimated that approximately 10 million passengers use Runway 4 (departures from Runway 4 or arrivals to Runway 22) annually, and another 3.3 million use Runway 31 (departures from Runway 31 or arrivals to Runway 13) annually.
Notes: Runway End information in **bold** refers to the RSAs subject to the proposed enhancements.
PAPI = Precision Approach Path Indicator.
MALSR = Medium intensity approach lighting system with runway alignment indicator lights.
ALSF = High intensity approach lighting system with centerline sequenced flashers.
ILS-CAT I = Category I Instrument Landing System;
ILS-CAT II = Category II Instrument Landing System (lower visibility minimums than Category I standards).
LOC = Localizer.
Runway utilization derived from 2012 (January through November) data.

The instrumentation and lighting characteristics denote the approach capabilities that are provided for arriving aircraft. Of these, an Instrument Landing System Category II (ILS-CAT II) provides the greatest precision of any of the approaches to LGA because it increases the Airport's ability to accommodate aircraft landing during adverse weather conditions. The ILS-CAT II was installed by the Port Authority on the Runway 4 End (for arrivals to Runway 22) in 2012. The approach lighting features support the instrumentation provided on each runway end.

3.3.1.1 Conceptual Alternative Level 1 Screening

Five conceptual alternatives were developed and screened as part of the Level 1 Screening:

- RSA Conceptual Alternative A: Shorten the Runways

- RSA Conceptual Alternative B: Displace Runway Thresholds
- RSA Conceptual Alternative C: Shift the Runways
- RSA Conceptual Alternative D: Provide Full Dimension RSAs on Concrete Decks at Runway 4 and 31 Ends
- RSA Conceptual Alternative E: Provide EMAS on Concrete Decks at Runway 4 and 31 Ends

These Conceptual Alternatives are shown in Figures 3-2 and 3-3. Any alternatives in the Conceptual Alternative Level 1 screening process that would result in extending the existing concrete decks were assumed to use the same construction materials and technology.

Screening criteria used in Level 1 focus on the effects of each alternative on airport operations and capacity. Any adverse changes to LGA's airspace, airport operations, runway use, and airfield capacity would not be acceptable because the negative ramifications would affect the air transportation system across the region and nation.

RSA Conceptual Alternative A – Shorten the Runways

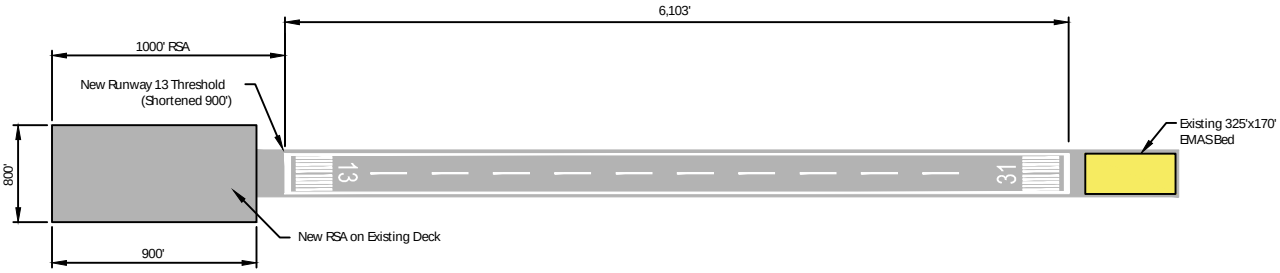
Shortening the runways from the current lengths of approximately 7,000 feet could provide space for different RSA dimensions. For example, full-dimension RSAs could be provided if each runway was shortened by approximately 900 feet to provide for a 1,000-foot long RSA. A non-standard RSA could be provided if each runway end was shortened by approximately 500 feet (to provide for a 600-foot long RSA). Non-standard EMAS could be provided on the existing concrete decks if the existing runway ends were shortened by approximately 182 feet.

Results of Level 1 Screening: RSA Conceptual Alternative A, a scenario that would shorten the runways by any length, would adversely affect the airfield capacity because the usable length of each runway would be reduced from 7,001 feet to between approximately 6,100 feet, 6,501 feet, or 6,820 feet, for a full-dimension RSA, a non-standard RSA or a non-standard EMAS, respectively. This action would reduce the ability of larger aircraft to use the Airport. Air travel would be adversely affected because airlines would either have to cancel flights with larger aircraft that require greater runway lengths to operate, reduce the aircraft weight by reducing the number of passengers that can be accommodated on the flights, or switch to smaller aircraft resulting in fewer seats available to the traveling public. Additional aircraft operations by airlines to account for any reductions in seat capacity (number of seats on each flight) due to shortened runways is not possible at LGA because of

Alternative A: Shorten the Runways

Runway 31 End

Runway 13 End

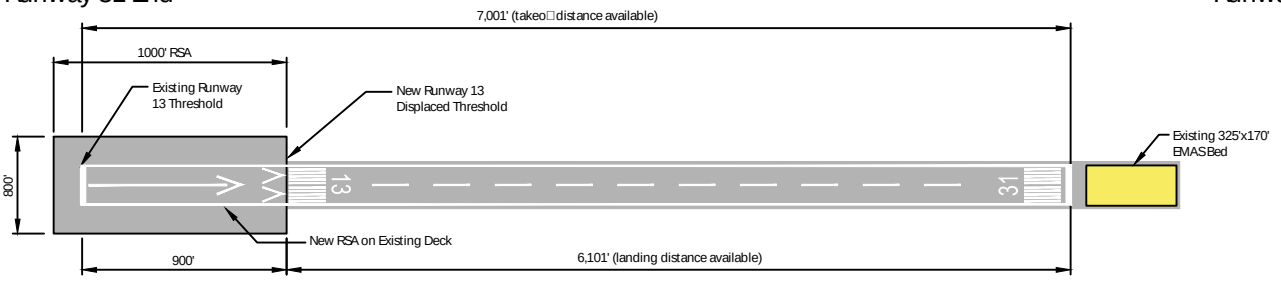


NOTE: This image shows the maximum runway shortening needed to accommodate a full dimension RSA on the Runway 31 End. Conceptual Alternative A also considers runway shortenings of approximately 500 feet and 200 feet to accommodate a non-standard RSA and non-standard EMAS, respectively, on the Runway 31 End.

Alternative B: Displace Runway Thresholds

Runway 31 End

Runway 13 End

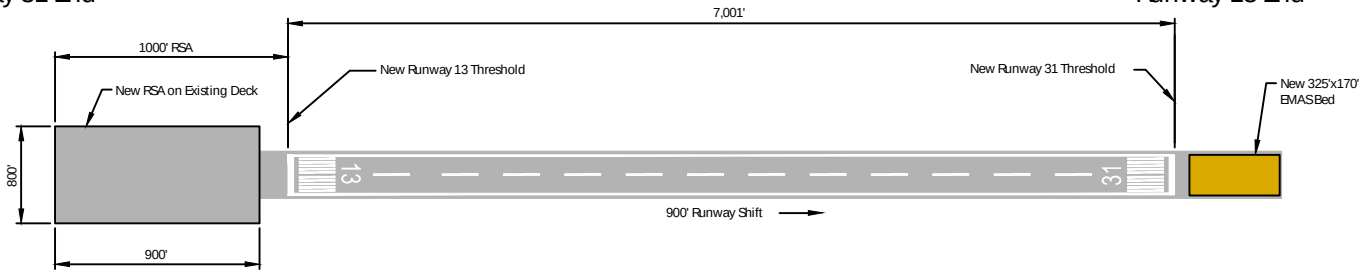


NOTE: This image shows the maximum runway threshold displacement needed to accommodate a full dimension RSA on the Runway 31 End. Conceptual Alternative B also considers a runway threshold displacement of approximately 500 feet to accommodate a non-standard RSA on the Runway 31 End.

Alternative C: Shift the Runways

Runway 31 End

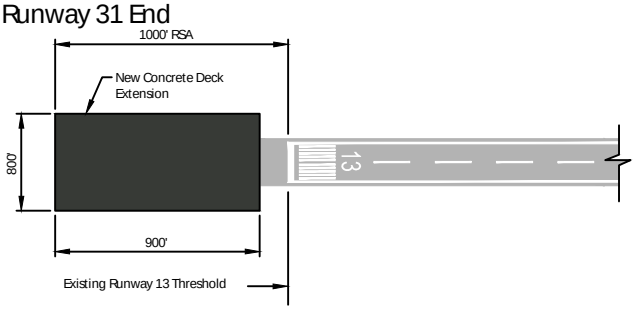
Runway 13 End



NOTE: This image shows the maximum runway shift needed to accommodate a full dimension RSA on the Runway 31 End. Conceptual Alternative B also considers a runway shift of approximately 172 feet to accommodate a non-standard EMAS on the Runway 31 End.

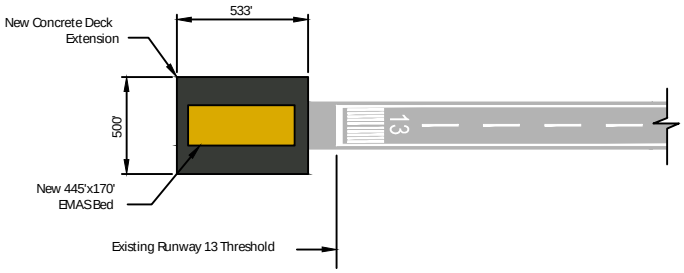
Alternative D: Provide Full Dimension RSA on Concrete Decks

Runway 31 End



Alternative E: Provide EMAS on Concrete Decks

Runway 31 End



Source: Jacobs Engineering Inc.

Not to Scale

Legend

- Existing Features
- Proposed Concrete Deck Extension
- Existing EMAS Bed
- Proposed EMAS Bed

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Figure 3-2

RSA Conceptual Alternatives A-E
(Runway 31 End)

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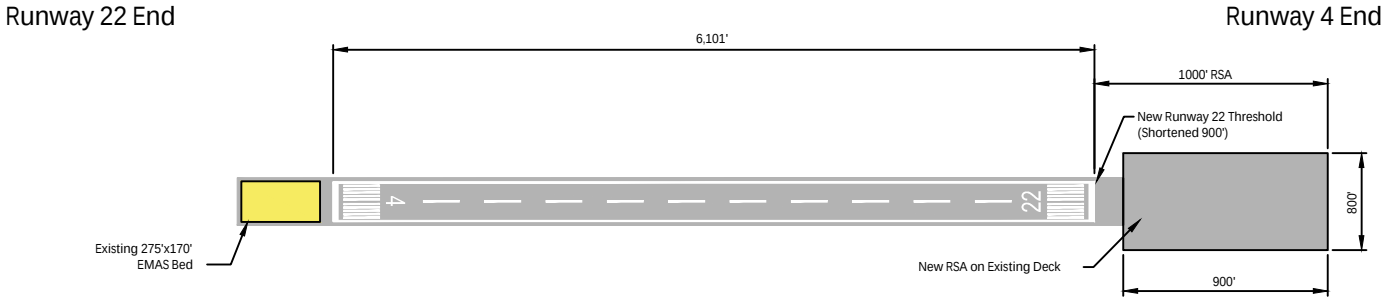
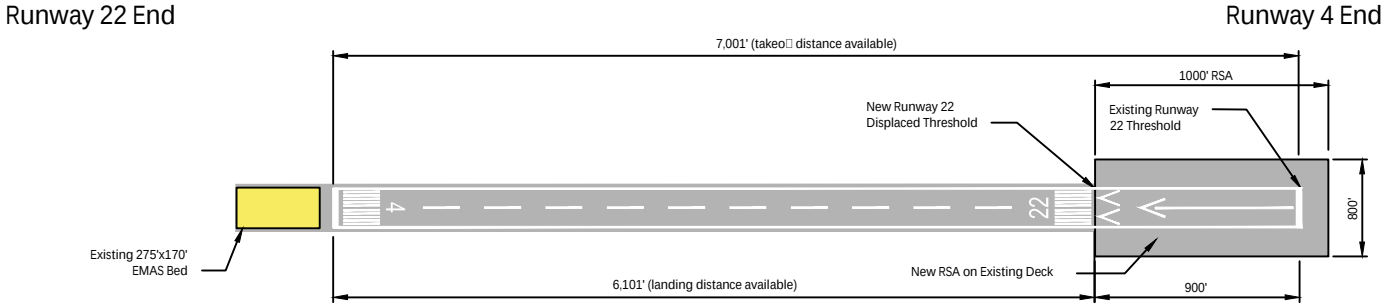
Alternative A: Shorten the Runways



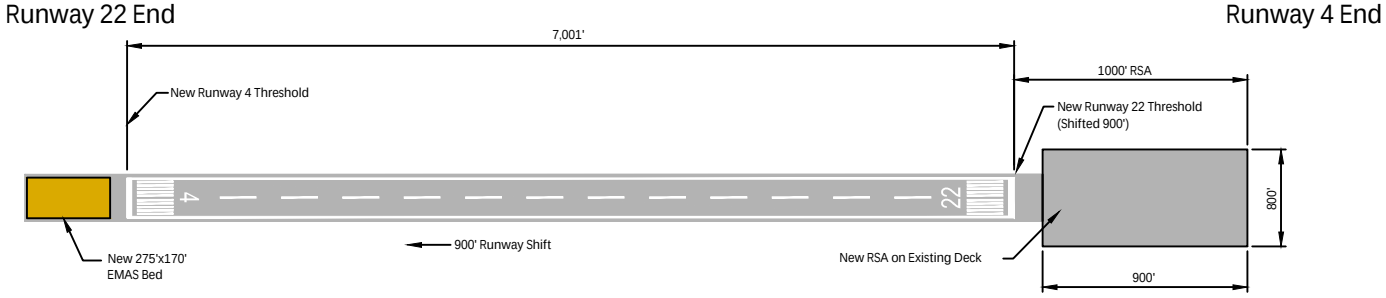
NOTE: This image shows the maximum runway shortening needed to accommodate a full dimension RSA on the Runway 4 End. Conceptual Alternative A also considers runway shortenings of approximately 500 feet and 200 feet to accommodate a non-standard RSA and non-standard EMAS, respectively, on the Runway 4 End.

Alternative B: Displace Runway Thresholds



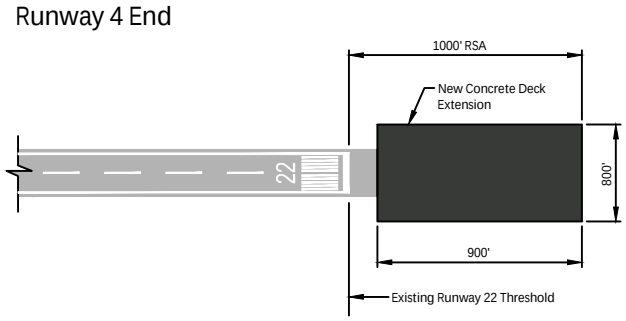
NOTE: This image shows the maximum runway threshold displacement needed to accommodate a full dimension RSA on the Runway 4 End. Conceptual Alternative B also considers a runway threshold displacement of approximately 500 feet to accommodate a non-standard RSA on the Runway 4 End.

Alternative C: Shift the Runways

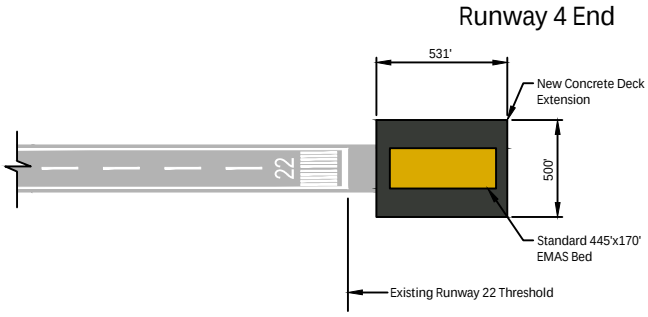


NOTE: This image shows the maximum runway shift needed to accommodate a full dimension RSA on the Runway 4 End. Conceptual Alternative B also considers a runway shift of approximately 172 feet to accommodate a non-standard EMAS on the Runway 4 End.

Alternative D: Provide Full Dimension RSA on Concrete Decks



Alternative E: Provide EMAS on Concrete Decks



Source: Jacobs Engineering Inc.

Not to Scale

Legend

- Existing Features
- Proposed Concrete Deck Extension
- Existing EMAS Bed
- Proposed EMAS Bed

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Figure 3-3

RSA Conceptual Alternatives A-E (Runway 4 End)

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current slot restrictions.[5] Annual revenue losses to airlines and the Port Authority would total between approximately $10.5 and $38.5 million.[6]

Shortening the runways would require relocating runway arrival thresholds. Relocating these thresholds would result in loss of Runway 22 ILS-CAT II capability because the Airport Traffic Control Tower (ATCT) would become an obstacle in the missed approach protected surface.[7] In addition, the approach to Runway 13 would be adversely affected by increased glideslope angles (the angle at which aircraft would approach the runway) or increasing the threshold crossing height (effectively shortening the landing distance available to aircraft). These changes would reduce the aircraft arrival capacity of the Airport and result in increased delays. For these reasons, Conceptual Alternative A would not meet the Level 1 screening criteria and was not considered further in the screening process.

RSA Conceptual Alternative B – Displace Runway Thresholds

A full-dimension RSA could also be provided by displacing the runway threshold ends. A displaced threshold moves the arrival and/or departure starting point beyond the physical beginning of the runway. A displaced threshold would essentially shift the Runways 4 and 31 departure and arrival locations along the existing runway centerlines to provide adequate space for RSAs, thus reducing useable runway length. Only new runway markings would be required with no runway extensions.

Results of Level 1 Screening: RSA Conceptual Alternative B would reduce each runway's available departure and arrival lengths in certain directions and reduce the capacity and utility of the existing runways. This action would reduce the ability of larger aircraft to use the Airport. Air travel would be adversely affected because airlines would either have to cancel flights with larger aircraft, reduce the aircraft weight by reducing the number of passengers that can be accommodated on the flights, or switch to smaller aircraft resulting in fewer seats available to the traveling public. The introduction of displaced thresholds would result in an estimated annual loss in airline and Port Authority revenue of approximately $38.5 million.[8]

As with RSA Conceptual Alternative A, arrival thresholds would be relocated and result in the loss of ILS capability on Runway 22 and adverse effects to the Runway 13 approach. These issues would

5 Federal Register /Vol. 77,No. 100 /Wednesday, May 23, 2012 /Notices;14 C.F.R. Part 93,SFAR Subpart K; *Slot restrictions are imposed by FAA at LGA to manage congestion and delay by limiting the number of scheduled arrivals and departures by airlines.*

6 Landrum & Brown. 2013. *Runway Length Justification Study: Operational and Economic Impacts of Shortening Runway at LaGuardia Airport*. Estimated potential high and low revenue losses correspond to shortening the runway for a full-dimension RSA and a non-standard EMAS.

7 A missed approach is a procedure followed by a pilot when an instrument approach cannot be completed to a full-stop landing. A protected missed approach imaginary surface (free of obstacles) is required as part of any precision instrument approach procedure to a runway.

8 Landrum & Brown. 2013. *Runway Length Justification Study: Operational and Economic Impacts of Shortening Runway at LaGuardia Airport*.

reduce the aircraft arrival capacity of the Airport and result in increased delays. For these reasons, Conceptual Alternative B would not meet the Level 1 screening criteria and was not considered further in the screening process.

RSA Conceptual Alternative C – Shift the Runways

Both runways could be physically shifted in the opposite direction of the Runways 4 and 31 Ends to provide full dimension RSAs and maintain the existing usable runway length. For example, the southwest Runway 4-22 End could be shifted by 900 feet, and the southeast Runway 13-31 End could be shifted by 900 feet to provide the area to install full-dimension RSAs on the Runway 4 and 31 Ends.[9] The usable runway lengths would remain the same and the areas previously used as part of the runways would be used for the RSAs. This alternative would require relocating or tunneling the Grand Central Parkway (including an exit from the highway), local roads (including Runway Drive and 23rd Avenue), and would impact industrial land uses to accommodate the southwest Runway 4-22 End relocation.

Alternately, each runway could be shifted between 171 and 173 feet away from the water to provide space for a non-standard EMAS. This would not result in extensive impacts to area surface transportation infrastructure or impacts to industrial land uses, but would have similar effects to Runways 22 and 13 approach capabilities as described for RSA Conceptual Alternatives A and B.

Results of Level 1 Screening. Shifting Runway 4-22 by 900 feet to the southwest for a full dimension RSA would result in substantial community impacts such as road relocations and property acquisitions. As with RSA Conceptual Alternatives A and B, arrival thresholds would be relocated and result in the loss of ILS capability on Runway 22 and adverse effects to the Runway 13 approach. These issues would reduce the aircraft arrival capacity of the Airport and result in increased delays. Although shifting the runways a much shorter distance to provide non-standard EMAS (compared to the full dimension RSA) would avoid substantial community impacts associated road relocations and property acquisitions, arrival thresholds would be relocated and result in the loss of ILS capability on Runway 22 and adverse effects to the Runway 13 approach. These issues would reduce the aircraft arrival capacity of the Airport and result in increased delays. For these reasons, Conceptual Alternative C would not meet the Level 1 screening criteria and was not considered further in the screening process.

9 A shift of 900 feet on both runways, in addition to the 100 feet currently provided at the Runway 4 and 31 ends would provide a total RSA length of 1,000 feet.

RSA Conceptual Alternative D – Provide Full Dimension RSAs on Concrete Decks at Runway 4 and 31 Ends

Conceptual Alternative D would extend the existing concrete decks at the Runways 4 and 31 Ends approximately 900 feet over the water to provide full dimension RSAs. The deck extensions would provide a full-dimension RSA length of 1,000 feet for both runway ends while keeping the existing approach thresholds.

Results of Level 1 Screening. No arrival thresholds would be relocated with this alternative, therefore, no permanent changes to the airspace of the Airport would occur and no permanent changes to airport operations are associated with this alternative. Conceptual Alternative D would meet the Level 1 screening criteria and proceeds to the Refined Alternative Level 2 screening.

RSA Conceptual Alternative E – Provide EMAS on Concrete Decks at Runway 4 and 31 Ends

The FAA allows for the use of EMAS to provide an equivalent level of safety as full-dimension RSAs. Conceptual Alternative E would consist of EMAS beds installation on the Runways 4 and 31 Ends on extensions of the existing concrete decks to arrest an aircraft that could overshoot one of the runways, without changing any of the runway end thresholds. This would require extending the existing decks over water by a particular length in order to accommodate the properly-sized EMAS bed, while keeping the existing approach thresholds.[10]

Results of Level 1 Screening. No runway thresholds would be relocated with this Alternative, therefore, no permanent changes to the airspace of the Airport would occur and there would be no permanent changes to airport operations. Conceptual Alternative E would meet the Level 1 screening criteria and proceed to the Refined Alternative Level 2 screening.

Level 1 Screening Conclusion

Of the five conceptual alternatives considered, two met the Level 1 screening criteria and were advanced for consideration under the RSA Refined Alternative Level 2 Screening. Conceptual Alternatives D and E were advanced because they satisfied all the criteria of Level 1. In particular, these alternatives would not result in reduced useable runway lengths, nor would they modify runway thresholds that would result in a reduction of the Airport's aircraft arrival capacity.

10 Federal Aviation Administration. 2012. *Runway Safety Area Compliance Initiatives, Future Plans for LaGuardia Airport*. Letter to Port Authority. May 29, 2012 (Appendix A, *Agency Coordination*).

3.3.1.2 RSA Refined Alternative Level 2 Screening

Conceptual Alternatives D and E from the Level 1 screening were refined to develop four Level 2 alternatives. These alternatives were refined to identify the most feasible and cost effective alternative to implement, and to advance that alternative to Level 3 screening:

- RSA Refined Alternative 1: Provide full-dimension RSAs on concrete decks at the Runway 4 and 31 Ends;
- RSA Refined Alternative 2: Provide RSAs with standard EMAS (70-Knot arrestment) on concrete decks at the Runway 4 and 31 Ends;
- RSA Refined Alternative 3: Provide RSAs with non-standard EMAS (40-Knot arrestment) on concrete decks at the Runway 4 and 31 Ends; and
- RSA Refined Alternative 4: Provide RSAs with non-standard EMAS (< 30-Knot arrestment) on existing decks at the Runway 4 and 31 Ends.

Definitions of a full-dimension RSA, standard EMAS, and non-standard EMAS are provided in Section 2.3, *Runway Safety Area Enhancements,* of this EA.

The RSA Refined Alternative Level 2 screening considered the feasibility of each alternative given the Airport's constraints and, for those alternatives that would include an EMAS bed, evaluated the level of aircraft arrestment (a controlled stopping of an aircraft by external means). The Level 2 screening also considered the life-cycle costs to determine which refined alternative would be most cost-effective. Table 3-2 lists the estimated capital construction costs (cost of constructing the alternative) and life-cycle costs for each of the Refined Level 2 Alternatives. Life-cycle cost estimates include the initial capital construction costs, on-going operational (major labor components such as inspections of the built structures), and capital maintenance costs during the expected lifespan of the alternative.

RSA Refined Alternative 1 – Provide Full Dimension RSAs on Concrete Decks

Refined Alternative 1 would involve extending the decks at the Runways 4 and 31 Ends approximately 900 feet over the water (Figure 3-4). The existing EMAS beds at the Runways 13 and 22 Ends would remain. The width of each deck extension would be the same as the existing deck width. The aircraft departure and arrival thresholds would not change. The deck extensions would require the demolition of the piers that extend beyond the end of the decks of each runway end. These piers support the approach lighting system including the power and communication lines for the runway, and provide the means to service and maintain the navigational aids (NAVAIDS) for both runways. The demolition of these piers requires complex staging to maintain the NAVAIDS in-service during construction as well as maintaining access to the NAVAIDS for maintenance and service, and

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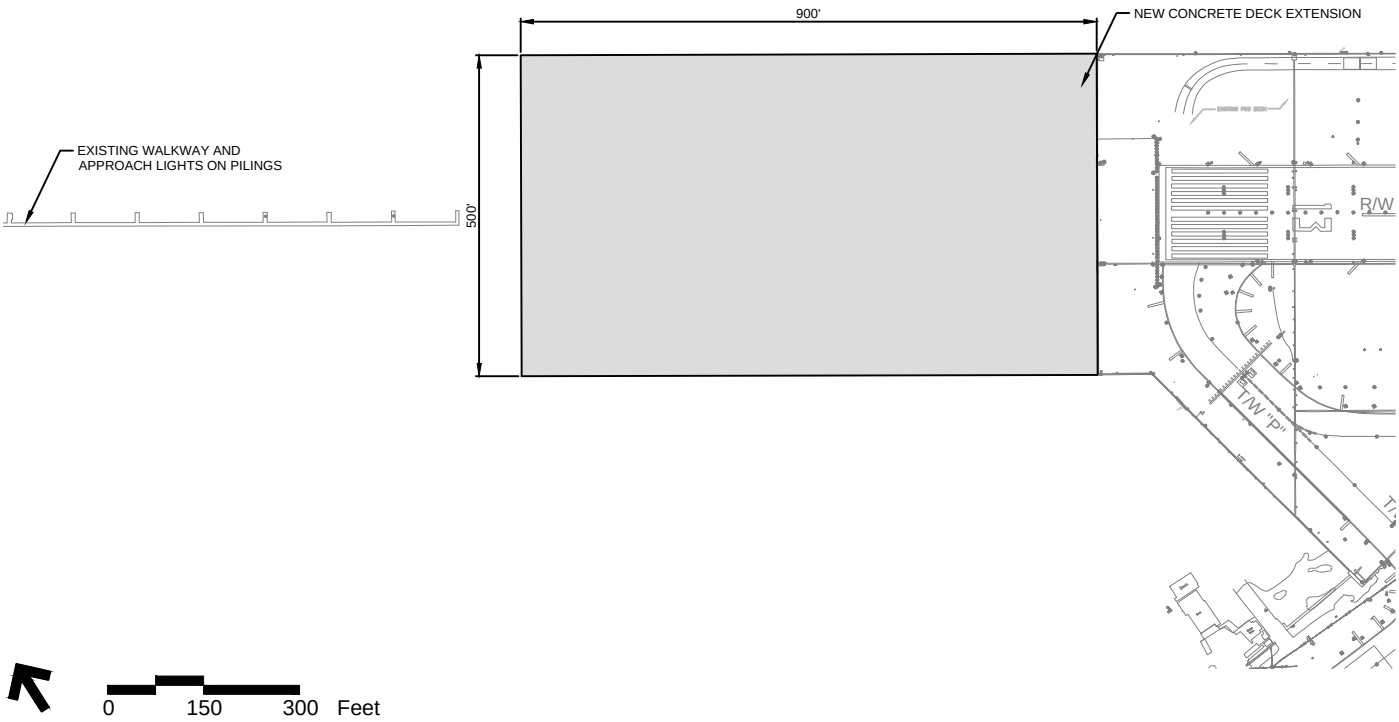
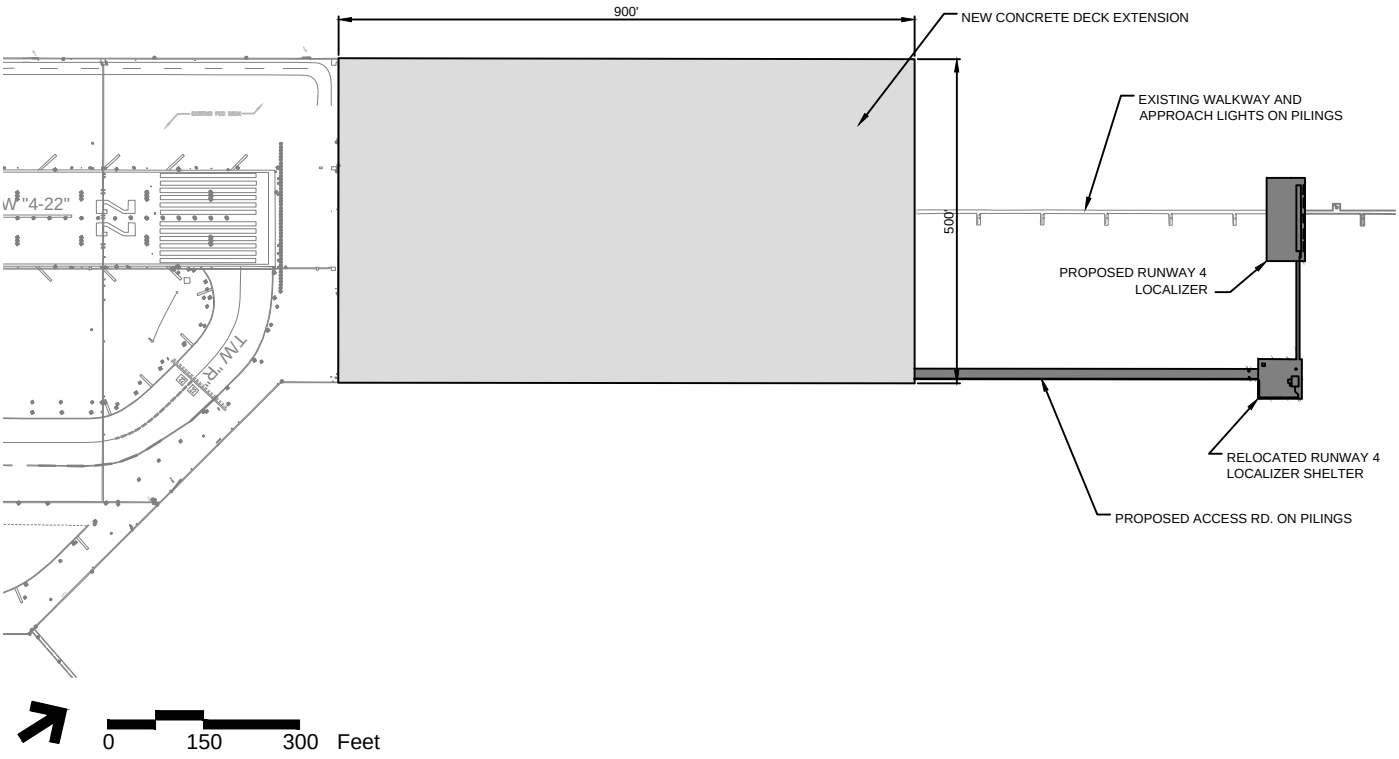
Runway 31 End



Runway 4 End



Source: Jacobs Engineering Inc.

Legend

- Existing Features
- Proposed Concrete Deck Extension

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Figure 3-4

Refined Alternative 1:
Full-Dimension RSA

increases the likelihood of shutting down the Runway 4 End ILS-CAT II approach and the Runway 22 End ILS-Cat I approach during construction. Essentially, the new NAVAIDs and associated support systems would need to be constructed while keeping the existing system active, thereby extending the construction duration and cost of the work.

Feasibility. Constructing Refined Alternative 1 would be extensive due to the size of each deck extension (10.3 acres per deck), and requires demolishing existing piers in order to implement a complex NAVAID replacement plan. Refined Alternative 1 has the largest footprint and longest construction duration (38 months) of the alternatives evaluated in the Level 2 screening process.

Cost. The cost of Refined Alternative 1 was estimated to be $553.1 million for capital construction in 2013 dollars. The life-cycle costs of Refined Alternative 1 were estimated to be $557.8 million, similar to its construction costs because there would be no EMAS to maintain.

RSA Refined Alternative 2 – Provide RSAs with Standard EMAS (70-Knot Arrestment) on Concrete Deck Extensions

Refined Alternative 2 is similar to Refined Alternative 1 in that it would require extending the existing concrete decks on Runways 4 and 31 Ends. However, the length and width of the extensions would be less than those in Refined Alternative 1 (Figure 3-5). The length of each EMAS bed would be approximately 445 feet versus the 1,000 feet required for a full-dimension RSA. Based on computer simulations, this EMAS bed length would stop the EMAS design aircraft (Boeing 757-200)[11] moving at 70 knots. The FAA, therefore, considers an EMAS bed of these dimensions as a standard RSA. Additional deck length would be required to provide 600 feet of undershoot protection for aircraft arriving on Runways 13 and 22.

These two factors, plus the width required for a RVSR around the end of the EMAS bed, results in an approximately 533 feet deck extension for Runway 4. The width of each deck extension matches the existing deck width of 500 feet. The existing EMAS beds at the Runways 13 and 22 Ends would remain.

This alternative would not require as much demolition of the existing approach light pier due to the reduced deck length. The existing elevated approach lights that would be impacted would be replaced with elevated approach lights on frangible mountings. The only electrical modifications

11 According to FAA Order 5200.9, Par. 9, "the design aircraft for EMAS is not related to the Airport Reference Code aircraft defined by AC 150/5300-13, and it might not be the same as the design aircraft for runway length." EMAS performance is dependent not only on aircraft weight, but landing gear configuration and tire pressure. Therefore, the Boeing 757-200 is the EMAS design aircraft, while the Boeing 767-400 is the design aircraft that determines dimensional standards for runways, taxiways, taxi lanes, and aprons at LGA.

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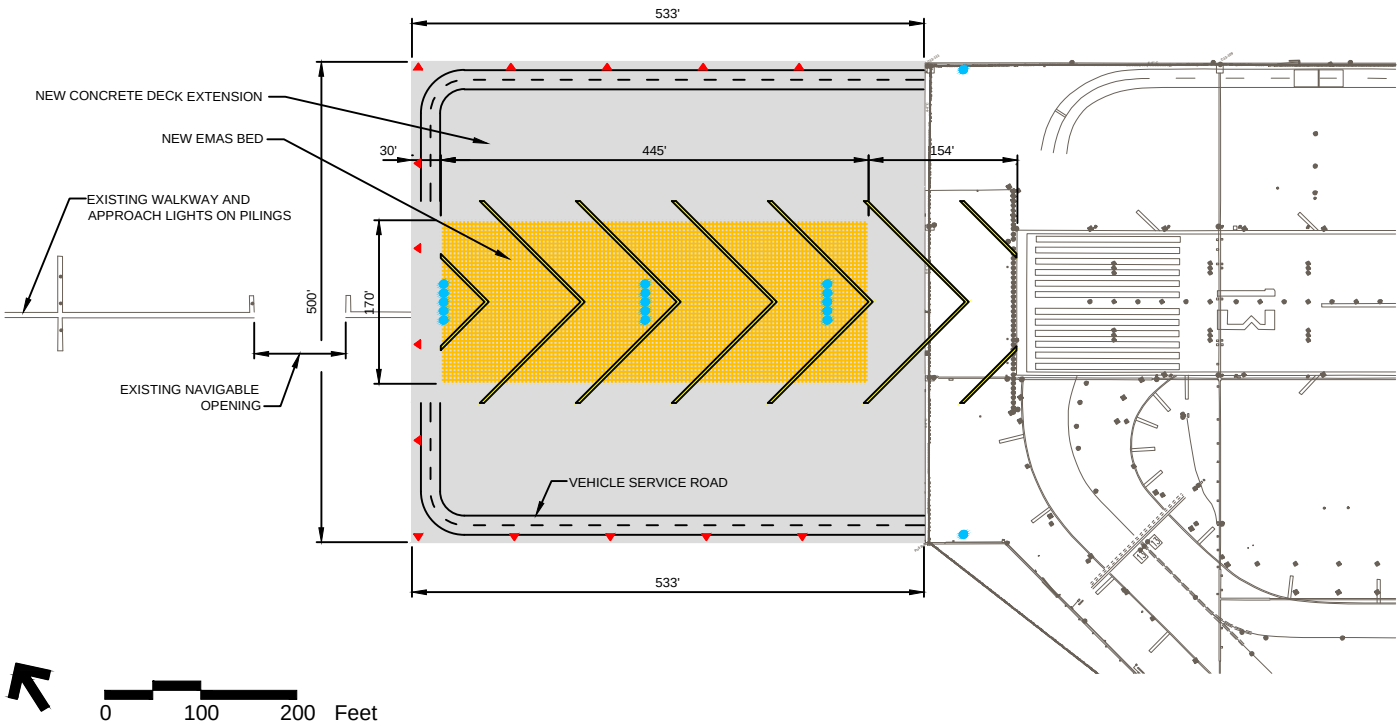
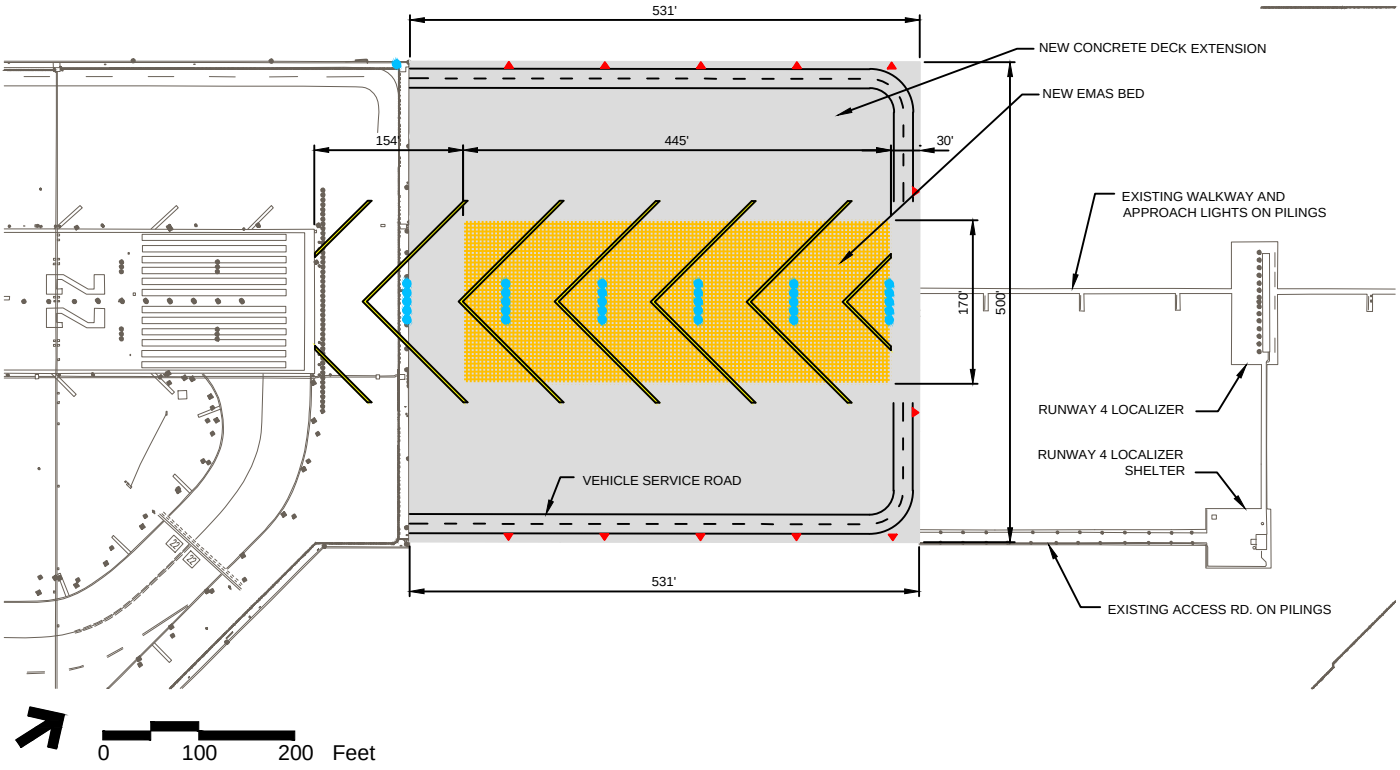
Runway 31 End



Runway 4 End



Source: Jacobs Engineering Inc.

Legend

- Existing Features
- Proposed EMAS Bed
- Proposed Concrete Deck Extension
- Proposed Runway/Vehicle Service Road Striping
- Proposed Obstruction Lights
- Proposed Elevated Approach Lights

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Figure 3-5

RSA Alternative 2:
Standard EMAS (70 Knot Arrestment)

would be the addition of new obstruction lights around the limit of the deck extensions. Therefore, no upgrades to the existing airfield electrical vault would be required with this alternative. Modifications of NAVAIDS would also be required, but to a lesser extent due to the smaller deck required for this alternative.

Feasibility. The feasibility of Refined Alternative 2 would be similar to that of Refined Alternative 1. The most substantial differences are the size of the construction footprint and the construction duration (20 months). The construction footprint (6.1 acres per deck) would be less than that of Refined Alternative 1 and require less demolition of the existing approach light piers. Impacts to NAVAIDS would also be less severe than Refined Alternative 1. The Runway 4 localizer would be out of commission for a portion of the construction duration. It is also possible that the localizer could be made operational at the end of each work shift after deck construction is complete by installing the EMAS blocks in such a way that they are symmetrical about the runway centerline at the end of each work shift. Temporary loss of the localizer would not affect the Airport's operational capacity.

Cost. The cost of Refined Alternative 2 was estimated to be $235.4 million for capital construction in 2013 dollars. The life-cycle costs of Refined Alternative 2 were estimated to be $338.6 million.

RSA Refined Alternative 3 – Provide RSAs with non-standard EMAS (40-Knot Arrestment) on Concrete Deck Extensions

Similar to Refined Alternative 2, Refined Alternative 3 would also provide an EMAS bed on a deck extension at each runway end (Figure 3-6). However, the EMAS beds associated with this alternative would be installed partially on existing deck and would require approximately 182 feet of newly constructed deck. These EMAS beds would be shorter (215 feet) and capable of stopping the design aircraft moving at 40 knots. FAA considers this a non-standard EMAS that would provide the minimum allowable aircraft arrestment speed; this type of EMAS is used when there is insufficient RSA available for a standard EMAS (70-knot arrestment speed; see Refined Alternative 2).[12] The deck extensions would include adequate space for a vehicle service road around the end of each EMAS bed.

With a total length of less than 600 feet beyond each runway end threshold, Alternative 3 would not fully meet FAA criteria for undershoot protection for aircraft approaches to Runway 4 and 31 Ends.[13]

12 United States Department of Transportation, Federal Aviation Administration. Advisory Circular (AC) 150/5220-22B, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, Section 9.g.

13 FAA's Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, Section 7.b states that "While relative benefits have not been quantified, protection against overruns appears to be more valuable than protection against short landings. Short landings are less common and usually occur close to the runway threshold."

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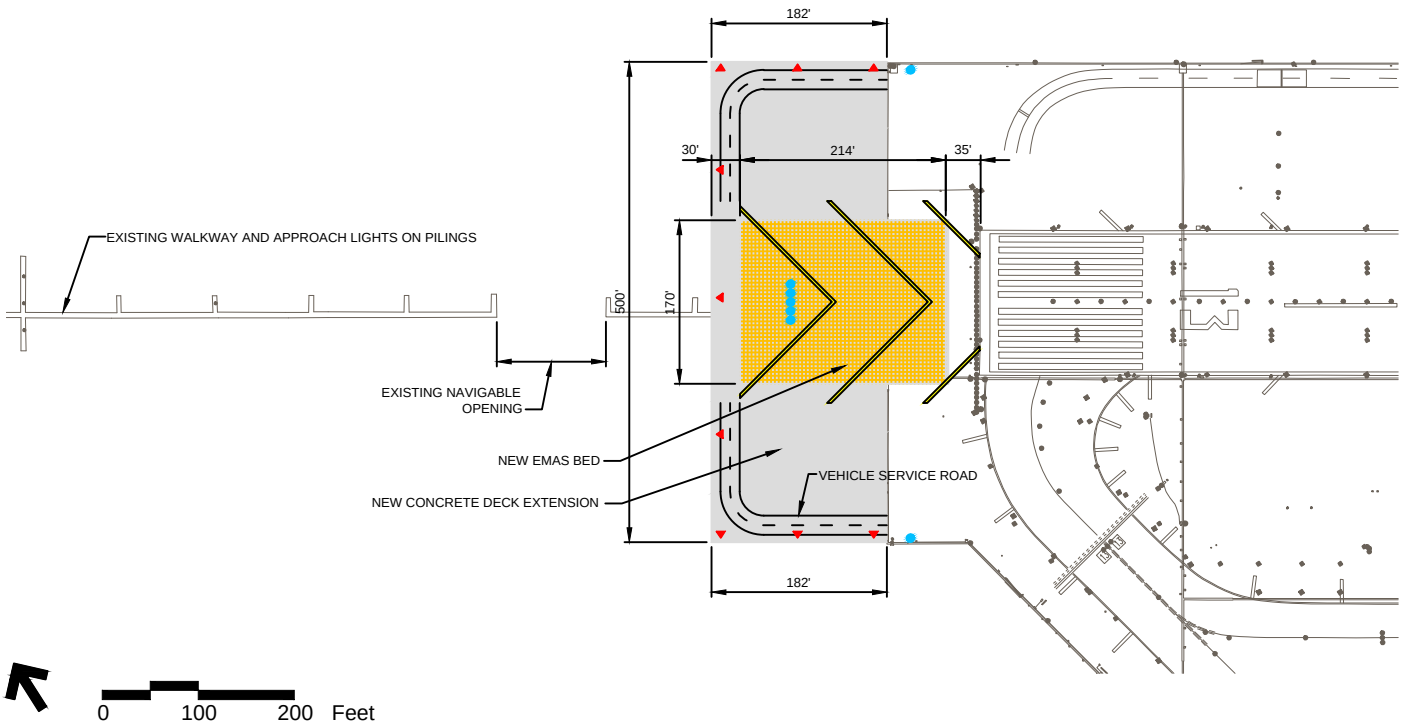
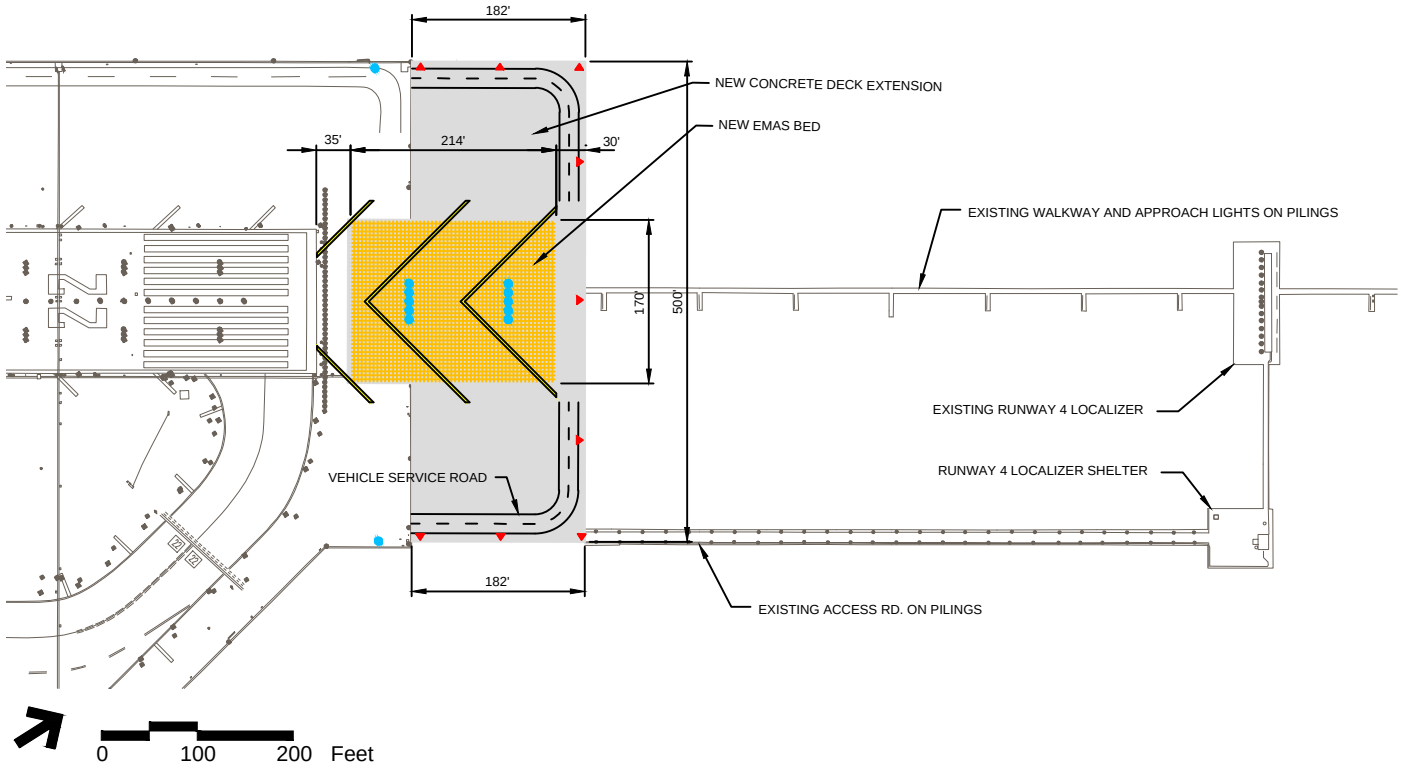
Runway 31 End



Runway 4 End



Source: Jacobs Engineering Inc.

Legend

- Existing Features
- Proposed EMAS Bed
- Proposed Concrete Deck Extension
- Proposed Runway/Vehicle Service Road Striping
- Proposed Obstruction Lights
- Proposed Elevated Approach Lights

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Figure 3-6

RSA Alternative 3:
Non-Standard EMAS
(40 Knot Arrestment)
(Proposed Action)

The deck extension width would match the existing deck width of 500 feet at each runway end. The existing EMAS beds at the Runways 13 and 22 Ends would remain.

Less demolition of the existing approach light piers would be required for Refined Alternative 3 than for Refined Alternatives 1 and 2. Existing approach lights that would be impacted by the deck extensions would be replaced with elevated approach lights on frangible mountings. Additional lighting requirements would consist of obstruction lights around the perimeter of the new deck extensions, but would not require any upgrades to the existing airfield electrical vault. The obstruction lights would not require additional work in the water. Modifications of NAVAIDS would also be required, but to a lesser extent than for Refined Alternatives 1 and 2, due to the smaller deck required for this alternative.

Feasibility. Refined Alternative 3 would consist of a smaller construction footprint (2.1 acres per deck) and duration (14 months) as compared to Refined Alternatives 1 and 2. The deck extension length on both runway ends would be approximately 182 feet and the width would remain the same at 500 feet. The reduced deck length would require less demolition of the existing approach light pier.

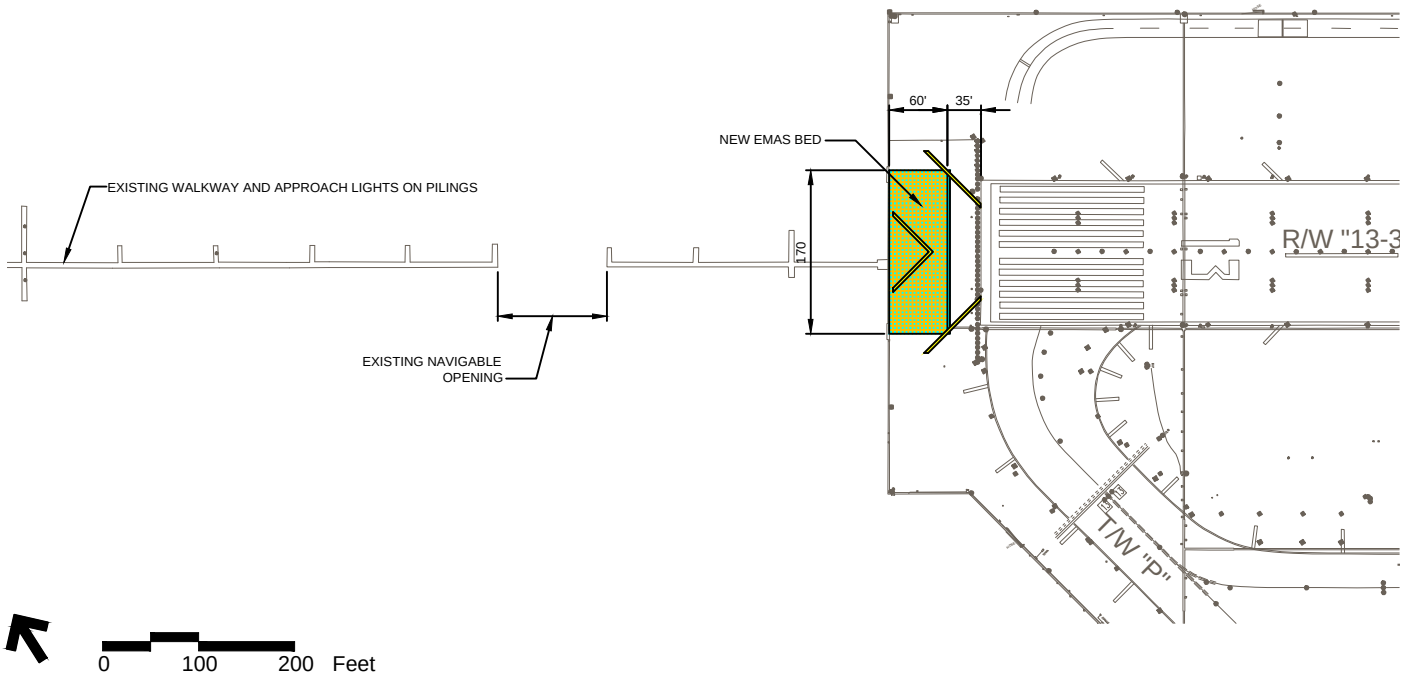
NAVAIDS would also be impacted with Refined Alternative 3. Temporary approach lights would be used to keep the approach light systems operational during demolition of the existing approach light piers and the deck extension construction. The Runway 4 localizer would be out of commission for a portion of the construction duration. It is possible that the localizer could be made operational at the end of each work shift after deck construction is complete by installing the EMAS blocks in such a way that they are symmetrical about the runway centerline at the end of each work shift. Temporary loss of the localizer would not affect the Airport's operational capacity.

Cost. The cost of Refined Alternative 3 was estimated to be $97.0 million for capital construction in 2013 dollars. The life-cycle costs of Refined Alternative 3 were estimated to be $148.7 million.

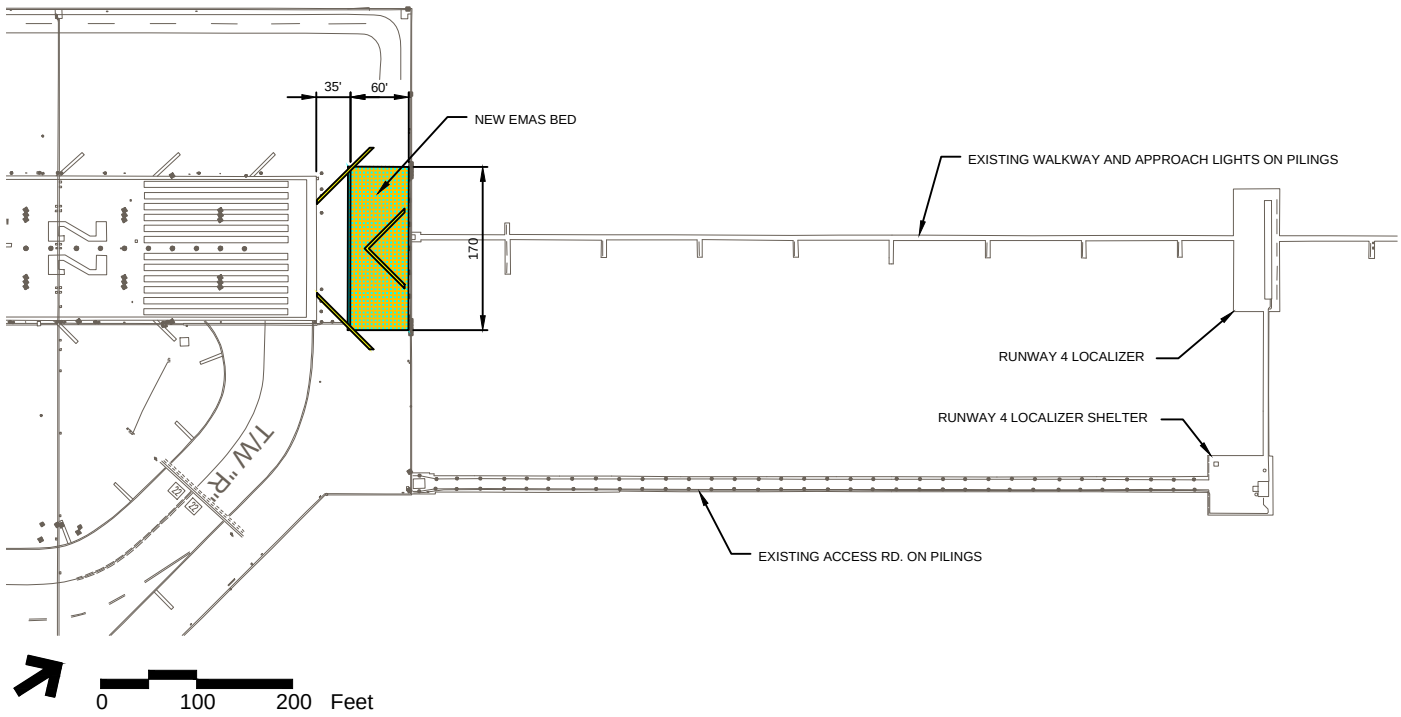
RSA Refined Alternative 4 – Provide RSAs with non-standard EMAS (< 30 Knots) on Existing Decks

This alternative would provide an EMAS bed on each runway end without deck extensions. However, the length of each bed would be determined solely by the amount of existing deck space available past each runway threshold rather than by the arrestment speeds that could be provided (Figure 3-7). The existing deck space would also have to accommodate a vehicle service road.

Runway 31 End



Runway 4 End



Source: Jacobs Engineering Inc.

Legend

Existing Features

Proposed EMAS Bed

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Figure 3-7

RSA Alternative 4:
Non-Standard EMAS
(Less than 30 Knots)
on Existing Structure

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This alternative would accommodate an EMAS bed length that is not sufficient to stop the design aircraft moving faster than 30 knots, which is below the minimum of 40 knots required by FAA for a cost-effective safety enhancement.[14] Approximately 61 feet on each runway end would be available for a vehicle service road with this type of EMAS bed. No deck extensions would be required and no undershoot protection for aircraft approaches would be provided. The existing EMAS beds at the Runways 13 and 22 Ends would remain.

No demolition of the existing approach light piers would be required because no deck extensions would be constructed. No additional obstruction lighting would be required nor would any other new lighting be required for Refined Alternative 4. In addition, modifications of NAVAIDS would not be required. Therefore, no upgrades to the existing airfield electrical vault would be required.

Feasibility. Refined Alternative 4 would involve the smallest construction footprint and duration (6 months) of all the alternatives considered in Level 2. There would be no deck construction involved with Refined Alternative 4. Construction would consist of installing EMAS blocks at the existing Runways 4 and 31 Ends and minor adjustments to the approach lights.

The only impacts to NAVAIDS would be the use of temporary approach light facilities while the existing approach lights are modified due to the EMAS installation. It is possible that the Runway 4 localizer could be made operational at the end of each work shift by installing the EMAS blocks in such a way that they are symmetrical about the runway centerline at the end of each work shift.

Cost. The cost of Refined Alternative 4 was estimated to be $6.2 million for capital construction in 2013 dollars. The life-cycle costs of Refined Alternative 4 were estimated to be $21.4 million.

RSA Refined Alternative Level 2 Screening Conclusion

Although the construction and life-cycle costs of Refined Alternative 4 would be much less than Refined Alternatives 1, 2 and 3, it would not meet the minimum FAA-required aircraft arrestment because there is not enough available space on the end of each of the existing decks to place an adequately-sized EMAS bed. Therefore, Refined Alternative 4 is not considered a cost-effective safety enhancement[15] and is not considered further.

The remaining alternatives would satisfy FAA's required safety standards, but all exceed the maximum feasible RSA improvement costs identified in FAA's Order 5200.9, *Financial Feasibility and*

14 FAA's Order 5200.9. *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, Section 7.a.
15 *Ibid.*

Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems (up to approximately $19 million).[16] However, approximately 10 million annual passengers are estimated to travel in aircraft that use the Runway 4 End and approximately three million annual passengers are estimated to travel in aircraft that use the Runway 31 End.[17] It is at the discretion of the FAA to consider RSA enhancement projects that exceed the maximum feasible costs based on the use of the runway, complexity of construction, and importance to the NAS. The Port Authority has determined through Board approval that RSA Enhancement project costs up to $142.3 million are feasible (Appendix H, *Port Authority Board of Commissioners Program Authorization, April 24, 2013*).

The construction duration and cost of Refined Alternative 1 would be substantially greater than the other alternatives in the Level 2 screening process (Table 3-2). This alternative would accomplish the project purpose but at greater financial cost and impacts to airport operations during construction than the other Level 2 alternatives. Therefore, Refined Alternative 1 was eliminated from further consideration.

Table 3-2 RSA Refined Alternative Level 2 Screening Cost Considerations

RSA Refined Alternative	Description	Estimated Capital Construction Cost Only (2013 Dollars)	Estimated Life-cycle Costs[1] (2013 Dollars)
1	Provide full dimension RSAs on concrete decks at Runways 4 and 31 Ends	$553,088,000	$557,839,000
2	Provide RSAs with standard EMAS (70-knot arrestment) on concrete deck extensions at Runways 4 and 31 Ends	$235,392,000	$338,599,000
3	**Provide RSAs with non-standard EMAS (40-knot arrestment) on concrete deck extensions at Runways 4 and 31 Ends**	**$97,031,000[2]**	**$148,694,000**
4	Provide RSAs with non-standard EMAS (< 30 knots) on existing decks at Runways 4 and 31 Ends	$6,176,000	$21,378,000

Sources: Halcrow, LaGuardia Airport Runway Safety Improvements: Design Development Package 100% Submission, Table 11-1, June 1, 2011.
Jacobs, 2013 (original cost estimates from Halcrow were in 2010 dollars and an escalation factor of 18.765% was used by Jacobs to convert to 2013 dollars)
1 Life-cycle costs represent costs over a 50-year period and include the capital construction costs, the operational maintenance costs, and the capital maintenance costs.
2 Includes capital construction costs only. These estimates were completed based on a specific scope of work requesting estimates for several RSA alternatives in 2010 and did not incorporate design costs.
Notes: RSA Refined Alternative 3, which advances to the Design Alternative Level 3 screening, is shown in **bold**.

16 FAA's Order 5200.9. *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, Figure 4.
17 The estimated number of passengers using each runway end was determined by multiplying the annual passengers at LGA by the average annual use of each runway, as provided by the Port Authority.

FAA's Order 5200.9 states that "when neither a standard RSA nor a standard EMAS system can be provided within maximum feasible costs, a non-standard EMAS that would stop the design aircraft traveling at 40 knots or more should be considered." Refined Alternative 3 would meet FAA's requirements for aircraft arrestment with a non-standard EMAS leaving the construction cost as the final determinant. Due to the shorter deck needed to accommodate a smaller EMAS bed, Refined Alternative 3 would cost less than half to construct, or approximately $138.4 million less, than Refined Alternative 2. The life-cycle costs of Refined Alternative 3 would be $189.9 million less than Refined Alternative 2. Refined Alternative 3 is feasible, as other RSA EMAS beds at the Airport (Runways 13 and 22 Ends) use non-standard EMAS systems capable of 40-knot aircraft arrestment and have been accepted by the FAA.

Although Refined Alternatives 2 and 3 both exceed the FAA's guidance for maximum feasible costs, the less expensive alternative, Refined Alternative 3, would satisfy the FAA's safety requirements for these RSAs. Based on this rationale, Refined Alternative 3 was selected as the most feasible and cost effective alternative to meet the Purpose and Need for enhancement of the RSAs.

3.3.1.3 RSA Design Refinement Level 3 Screening

RSA Refined Alternative 3 was advanced from Level 2 to the Level 3 screening to further optimize the design of this alternative. The Level 3 screening evaluates the most favorable design options based on design and construction methods, operational and maintenance considerations, and costs.

A detailed engineering evaluation was conducted by the Port Authority for Refined Alternative 3 to determine the feasibility of various RSA design refinements for extending the existing concrete deck, including the type of platform structure and support.[18] The evaluation began with a high-level feasibility analysis of five structural design options:

- Flat slab system - consists of a concrete deck extension, spanning between pile caps that are supported by piles; similar to existing structures at LGA.
- Beam and girder system – large, precast concrete elements that form a pier structure supported by piles and girders installed on the pile caps.
- Steel pre-fabricated deck units – a series of large steel pontoon-like structures with sleeves for installing piles; the units would be prefabricated off-site, with the concrete slab extension pre-installed.

18 Halcrow Group. June 2011. *Performance of Expert Professional - Runway Safety Areas Improvement Analysis Services at LaGuardia Airport, Design Development Package (Task C) 100% Final Submission.*

- Anchored floating barge units – similar to the steel pre-fabricated deck units, these would be floated into place, and secured to the existing deck by a series of seabed anchors or pilings.
- Tension leg floating platform – similar to the floating barge unit concept but secured by vertical tension elements that are commonly used in offshore platforms.

From a construction and operational standpoint, the flat slab and beam and girder systems were considered most practicable because it is currently being used successfully at the Airport (flat slab system) or it is a common construction method for many highway bridges (beam and girder system). The other design refinement alternatives were not considered practicable for the following reasons:

- Steel pre-fabricated deck units would require larger piles to make the option economical and increased corrosion and maintenance complications would be associated with the steel structure. In addition, the specialized nature of this type of construction may limit the number of contractors to bid on the work.
- Anchored floating barge units would result in a varying runway surface and vertical elevation of the floating runway relative to the NAVAIDs, which could create unsafe aircraft approach conditions.
- Tension leg floating platforms were not considered further because the water depth is inadequate to provide the necessary buoyancy of the barge system and therefore this was not a practicable design for the water conditions at the runway ends.

Therefore, only flat slab and beam and girder systems were considered further in the Level 3 screening process. The following design refinement alternatives using these methods are listed below and shown in Figure 3-8:

- Flat slab system: 24-inch diameter pile size
- Flat slab system: 30-inch diameter pile size
- Flat slab system: 36-inch diameter pile size
- Beam and girder system: 30-inch and 36-inch diameter pile sizes

A cost comparison for the flat slab and beam and girder system design refinement alternatives (Table 3-3) considered the following criteria:

- Slab spans and depth
- Pile diameter and spacing
- Girder spans (only for beam and girder system alternatives)

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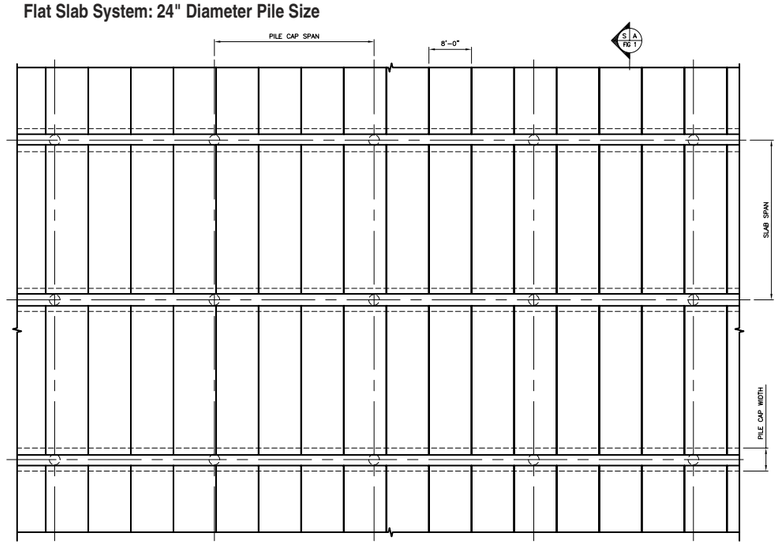
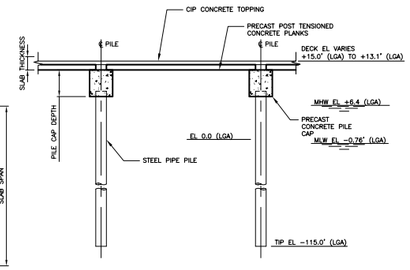
Flat Slab System: 24" Diameter Pile Size



PARTIAL FRAMING PLAN

SCALE IN FEET



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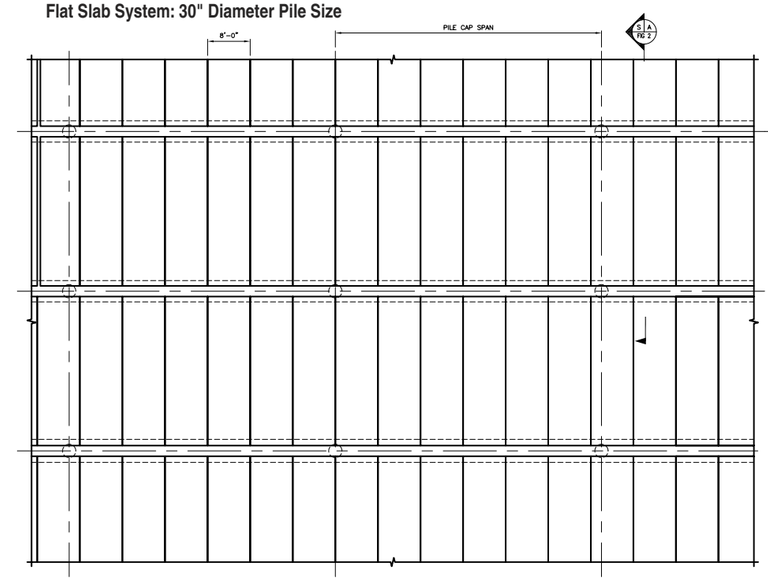
Flat Slab System: 30" Diameter Pile Size



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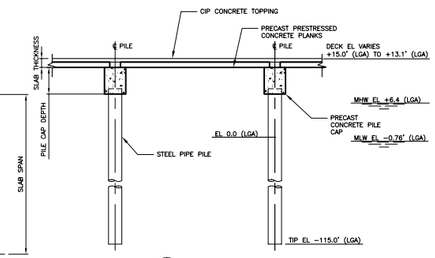

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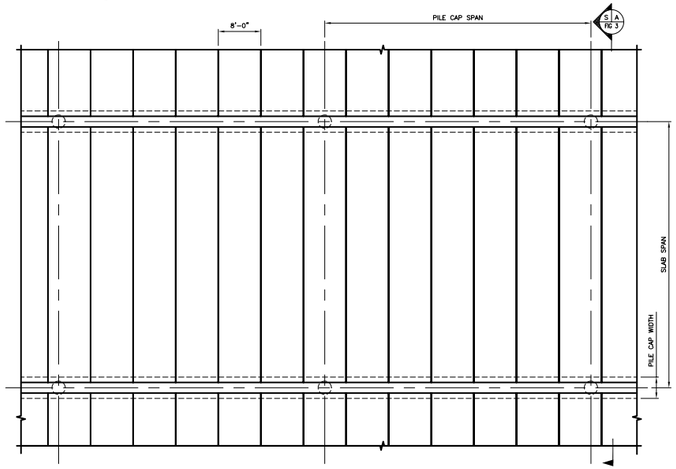
Flat Slab System: 36" Diameter Pile Size



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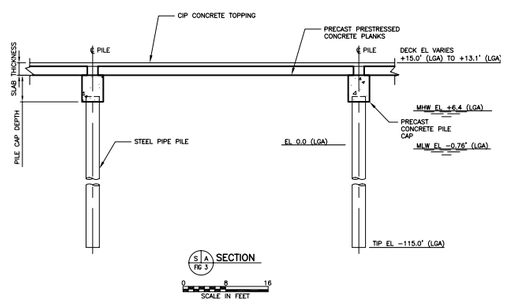

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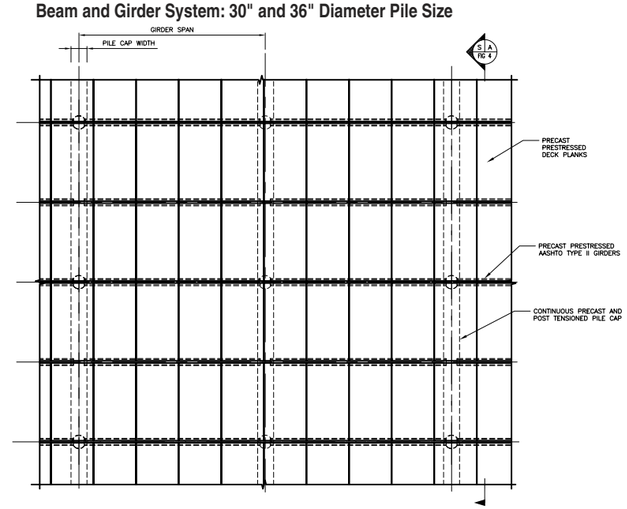
SCALE IN FEET

Beam and Girder System: 30" and 36" Diameter Pile Size



PARTIAL PLAN

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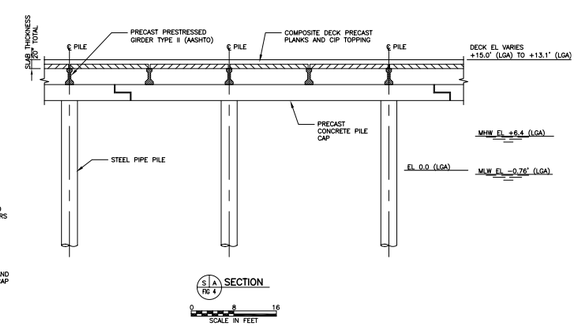

SECTION

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Source: Halcrow Group. June 2011. Performance of Expert Professional - Runway Safety Areas Improvement Analysis Services at LaGuardia Airport, Design Development Package (Task C) 100% Final Submission.

Note: Based on updated information and subsequent to the initial design refinement analysis, the Port Authority determined that use of 30-inch piles in the same configuration as the 24-inch piles would be less expensive and could be installed more quickly. Therefore, the preferred RSA Design Refinement Alternative includes 30-inch steel piles in a spacing configuration of 30' x 35'.

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Figure 3-8
RSA Design Refinement Alternatives

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The relative construction costs provided in Table 3-3 show the percentage that construction costs would be greater than the lowest cost alternative, which is a flat slab system supported by steel pipe piles that are 24 inches in diameter placed in a 30x35-foot grid (shown with a relative cost of 0.0 percent).

RSA Design Refinement Level 3 Screening Conclusion

The Level 3 screening concluded that the design refinement alternative resulting in the lowest capital construction costs[19] would consist of a flat slab system supported by steel pipe piles that are 24 inches in diameter, driven to the underlying bedrock. The steel pilings would be placed in a 30x35-foot grid. However, subsequent to the analysis documented in Table 3-3 and based on updated information developed during further design refinement, the Port Authority determined that use of 30-inch piles in the same configuration would be less expensive and could be installed more quickly. Therefore, the preferred RSA Design Refinement Alternative includes 30-inch steel piles. A summary of the RSA enhancement alternatives screening is provided in Table 3-4.

The design of the deck system was based on loading criteria that considered both horizontal and vertical loadings to accommodate Airplane Design Group IV aircraft,[20] and structural options that allow for temporary loadings to accommodate accidental runway overruns. Vehicular traffic associated with activities such as snow removal or rescue vehicles were determined not to be a critical load factor.[21] A preliminary hydrodynamic modeling evaluation indicated that the proposed additional pile field would have negligible impact on sedimentation and/or erosion of the seabed within the Project Area.

19 The other alternatives that were considered in the cost evaluation would result in construction costs between 5 to 63 percent greater than the proposed alternative.

20 According to FAA Advisory Circular (AC) 150/5300-13A, Airport Design, Airplane Design Group IV aircraft have a tail height between 45 and 60 feet, and a wingspan between 118 and 171 feet.

21 Halcrow Group. June 2011. *Performance of Expert Professional - Runway Safety Areas Improvement Analysis Services at LaGuardia Airport, Design Development Package (Task C) 100% Final Submission*.

Table 3-3 Relative Cost Comparison of RSA Structure Systems

Structure System Type	Pile Diameter, wall thickness (inches)	Slab span (feet)	Slab depth (inches), type	Pile spacing (feet)	Girder span (feet)	Relative Increased Construction Costs (%)
Flat slab	24 x 0.5	25	20, solid	30 feet	N/A	18.5
	24 x 0.5	25	25, voided	30	N/A	32.9
	24 x 0.5	25	20, solid	35	N/A	12.7
	24 x 0.5	25	25, voided	35	N/A	29.5
	24 x 0.5	30	20, solid	30	N/A	5.5
	24 x 0.5	30	25, voided	30	N/A	19.2
	24 x 0.5	**30**	**20, solid**	**35**	**N/A**	**0.0**
	24 x 0.5	30	25, voided	35	N/A	13.8
	30 x 0.5625	30	20, solid	50	N/A	19.7
	30 x 0.5625	30	25, voided	50	N/A	16.4
	30 x 0.75	40	26, solid	50	N/A	22.3
	30 x 0.75	40	30, voided	50	N/A	37.1
	36 x 0.75	25	20, solid	50	N/A	48.2
	36 x 0.75	25	25, voided	50	N/A	62.8
	36 x 0.75	25	20, solid	75	N/A	26.7
	36 x 0.75	30	20, solid	50	N/A	33.0
	36 x 0.75	30	25, voided	50	N/A	47.4
	36 x 0.75	30	26, solid	50	N/A	31.5
	36 x 0.75	40	30, voided	50	N/A	43.6
	36 x 0.75	50	32, solid	50	N/A	41.3
	36 x 0.75	50	36, voided	50	N/A	49.1
Beam and girder	30	25	20, solid	25	75 feet	38.2
	36	30	20, solid	30	75	29.3

Source: Halcrow, LaGuardia Airport Runway Safety Improvements: Design Development Package 100% Submission, Table 5-3, June 1, 2011.
Notes: N/A = Not applicable.
Initial Preferred Design Refinement Alternative is shown in **bold**.
Final Preferred Design Refinement Alternative uses 30-inch piles.

Table 3-4 LGA RSA Alternatives Screening Summary

RSA Conceptual Alternative Level 1 Screening – Runway Utility and Capacity				
RSA Conceptual Alternative A: Shorten the runways.	RSA Conceptual Alternative B: Shift runway threshold ends/ displaced thresholds.	RSA Conceptual Alternative C: Shift the runways.	RSA Conceptual Alternative D: Provide full dimension RSAs on concrete decks at Runway 4 and 31 Ends.	RSA Conceptual Alternative E: Provide EMAS on concrete decks at the Runway 4 and 31 Ends.
Eliminated	*Eliminated*	*Eliminated*	*Passed*	*Passed*

RSA Refined Alternative Level 2 Screening – Feasibility and Cost			
Refined Alternative 1: Provide full-dimension RSAs on concrete decks at Runways 4 and 31 Ends.	Refined Alternative 2: Provide RSAs with standard EMAS on concrete deck extensions at Runways 4 and 31 Ends.	Refined Alternative 3: Provide RSAs with non-standard EMAS (40-knot arrestment) on concrete deck extensions at Runways 4 and 31 Ends.	Refined Alternative 4: Provide RSAs with non-standard EMAS (< 30-knot arrestment) on existing decks at Runways 4 and 31 Ends.
Eliminated	*Eliminated*	*Passed*	*Eliminated*

RSA Design Refinement Level 3 Screening – Design Optimization

RSA Refined Alternative 3: Provide RSAs with non-standard EMAS (40-knot arrestment) on concrete deck extensions at Runways 4 and 31 Ends. Five structural design options evaluated.

Proposed Action

RSA Design Refinement Alternative: Provide RSAs with non-standard EMAS (40-knot arrestment) on concrete deck extensions (flat slab system) at Runways 4 and 31 Ends using 30-inch diameter steel pilings with 30x35-foot spacing.

Source: VHB, 2013

3.3.2 Restricted Vehicle Service Road

Constructing a new RVSR section would provide restricted vehicular access between the western and eastern sides of LGA around the south end of Runway 4-22. Two alternatives were developed and screened according to operational and maintenance considerations.

Both of the alternatives that were developed for consideration in the alternatives screening process comply with FAA design guidelines for operating service vehicles in the runway and taxiway

environment. The alternatives are differentiated by their constructability and maintenance requirements.

3.3.2.1 RVSR Alternative 1- At-Grade Road

The RVSR Alternative 1 (Figure 3-9) would include constructing a new two-lane restricted-access road built at grade connecting the existing RVSR between Guard Post (GP) 3 and GP1 to create an integrated RVSR system for the Airport. The RVSR construction in this area would require relocating the existing Airport Operations Area (AOA) fence, realigning Runway Drive to the intersection of Marine Terminal Road and Bowery Bay Boulevard and realigning Marine Terminal Road from the intersection of Runway Drive and Bowery Bay Boulevard to GP3.

The RVSR and reconfigured Runway Drive would be located within the Runway Object Free Area (ROFA) of Runway 4-22. The ROFA is an area with similar dimensions as an RSA but wider (800 feet in width centered along the runway centerline), and requires clearing above-ground objects above the nearest point of the RSA. The reconfigured Runway Drive would also be located within the Runway Protection Zone (RPZ) of Runway 4-22. The purpose of an RPZ is to enhance the protection of people and property on the ground, which is accomplished by clearing the area of incompatible objects and activities. Although restricted-access airport service roads are permitted within an RPZ, public roads are identified as a use that would require further evaluation by FAA to determine if they are permissible.[22] Alternative 1 would relocate Runway Drive approximately 75 feet further away from the center of the Runway 22 End threshold than where it is currently located. Alternative 1, with all roadways at grade, could be constructed with conventional techniques and maintained through routine measures.

3.3.2.2 RVSR Alternative 2 – Depressed Road

The RVSR Alternative 2 (Figure 3-10) would include constructing a two-lane restricted-access road built partially at grade and lowering the reconfigured Runway Drive by approximately 20 feet within the area of the extended Runway 4-22 centerline. The RVSR in this area would require relocating the existing AOA fence between the two guard posts, realigning Runway Drive from GP1 to the intersection of Marine Terminal Road and Bowery Bay Boulevard and realigning Marine Terminal Road from the intersection of Runway Drive and Bowery Bay Boulevard to GP3. Unlike Alternative 1, the depressed Runway Drive would not penetrate the ROFA of Runway 4-22 because it would be

22 According to FAAs' Advisory Circular (AC) 150/5300-13A, *Airport Design*, Paragraph 310.e (September 28, 2012), the FAA's Evaluation and Approval of RPZ Land Use Guidelines (currently being developed) outlines the procedures for the FAA's Office of Airports review of proposed land uses in the RPZ. This document also provides direction on the evaluation of existing land uses in an RPZ and methods and procedures available to communities to protect the RPZ and prevent the congregation of people and property on the ground.

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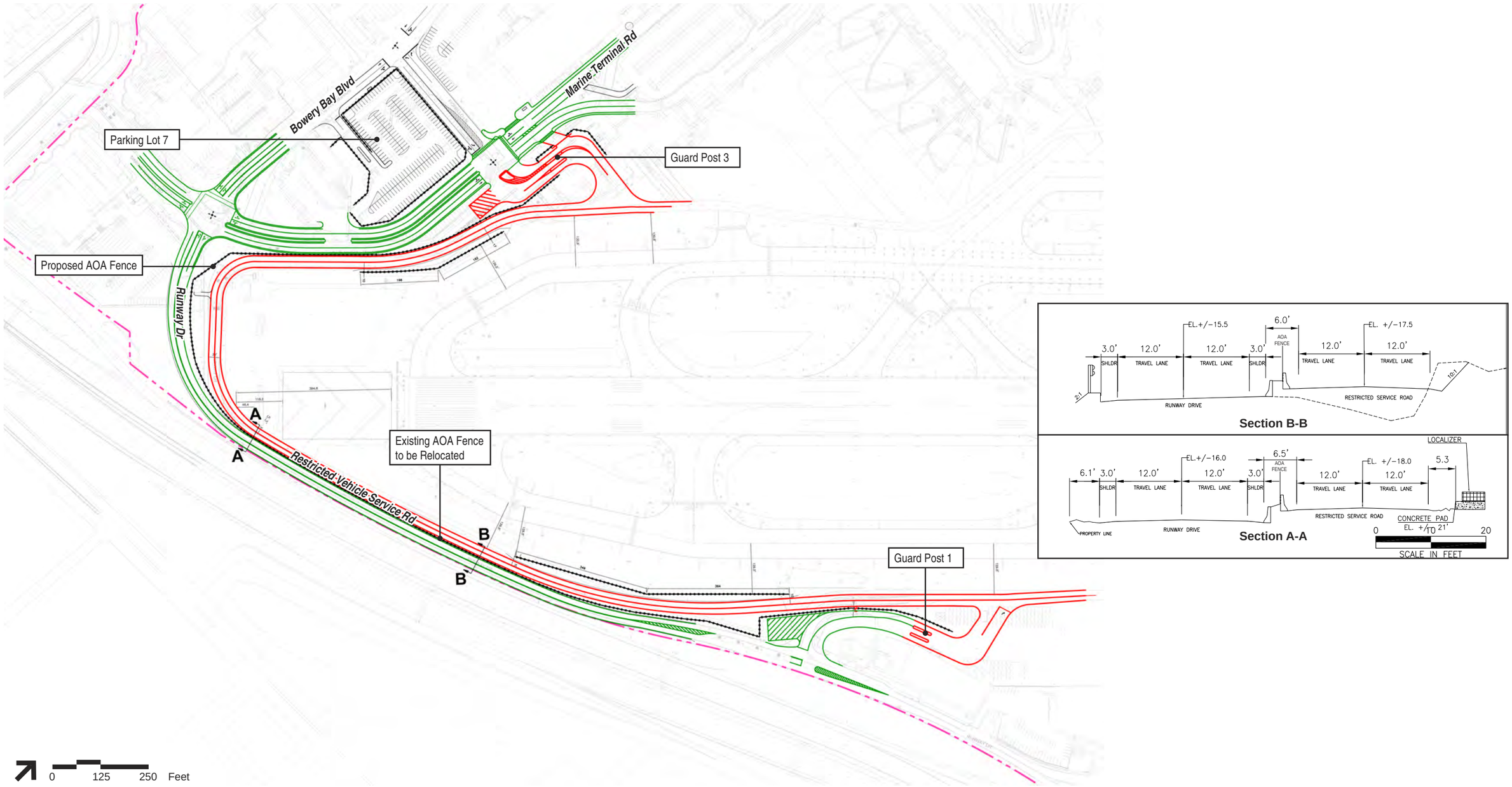

Source: Port Authority of New York and New Jersey, 2013

Legend

- Proposed Restricted Vehicle Service Road
- On-Airport Public Roads
- Airport Boundary

EL = Elevation
H = Height
AOA = Airport Operations Area

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Figure 3-9
RVSR Alternative 1:
At-Grade Road
(Proposed Action)

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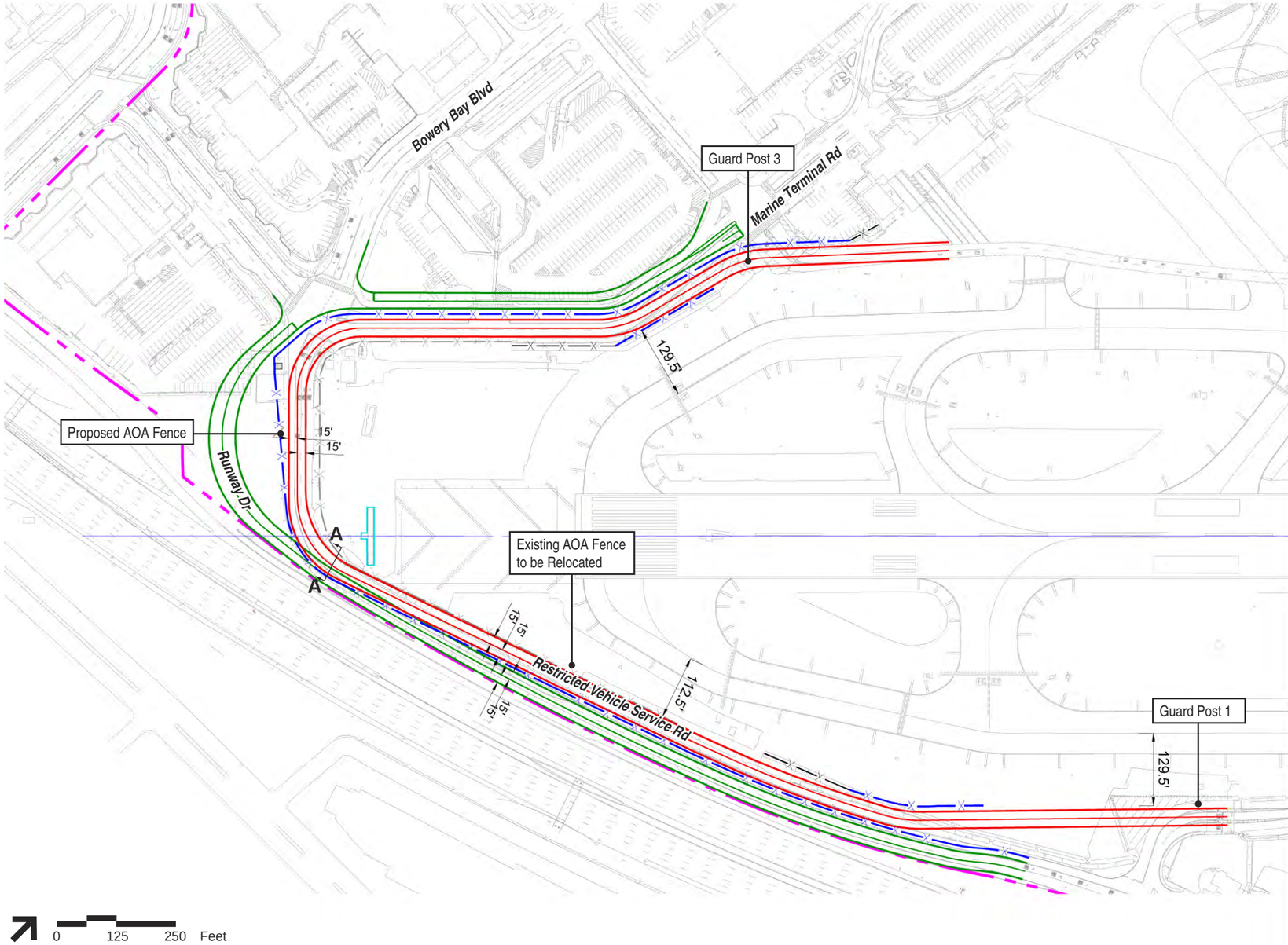
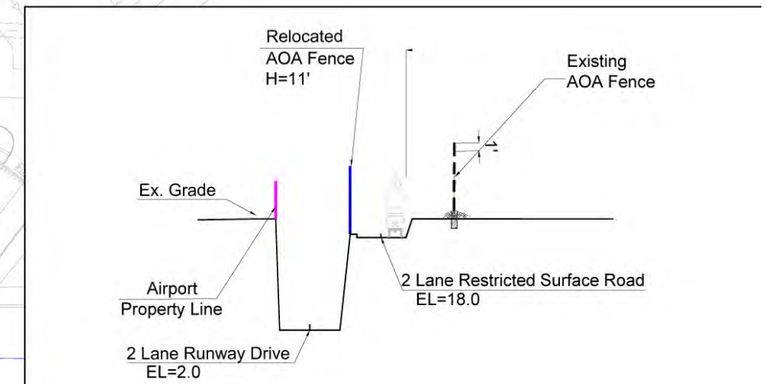
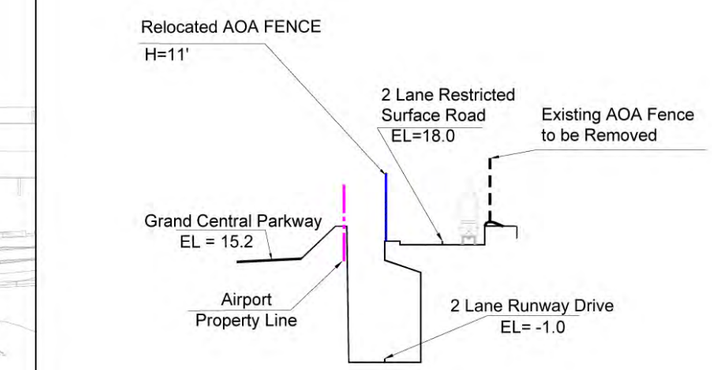




Section through Runway 4 Centerline



Section A-A

Source: Port Authority of New York and New Jersey, 2013

Legend

- Proposed Restricted Vehicle Service Road
- On-Airport Public Roads
- Airport Boundary

EL = Elevation
H = Height
AOA = Airport Operations Area

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Figure 3-10
RVSR Alternative 2:
Depressed Road

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below the plane of the RSA. Similar to Alternative 1, Alternative 2 would include a public road (Runway Drive) reconfigured 75 feet farther away from the center of the Runway 22 End threshold than where it is currently located and within an RPZ, which would require further evaluation by FAA.

Alternative 2 would include construction and maintenance elements that would not be associated with Alternative 1:

- Existing underground utilities would need to be relocated due to the depressed Runway Drive.
- Lighting would be needed for the depressed areas.
- Potential rain and flooding issues would require the ability to pump water out of the depressed section, and would require a back-up generator.
- Snow removal would be more challenging in the area of the depressed roadway and could result in closures of Runway Drive.

3.3.2.3 RVSR Construction Screening Conclusion

RVSR Alternatives 1 and 2 would meet the project purpose. However, Alternative 2 would have more complex construction and maintenance than Alternative 1, which would also result in higher costs of construction. Due to its more complex construction and maintenance, Alternative 2 was eliminated from further consideration in the EA process and Alternative 1 is included as a component of the Proposed Action.

3.3.3 Construction Staging Area(s) (Contractor Mobilization and Laydown Areas)

As a connected action to the Runway 4 and 31 End RSA Enhancements and the RVSR, a construction staging and contractor mobilization area of at least 10 acres would be needed to support all construction activities. The following describes the alternatives analysis for the construction staging area.

Two general areas could be created to accommodate construction staging at the Airport: an area in the Airport leasehold known as Ingraham's Mountain, and Employee Parking Lot 10E, also within the Airport leasehold (Figure 1-3). Ingraham's Mountain is an undeveloped property located 0.2 miles west of the airport operations area (AOA) and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. The two alternatives considered were:

- Construction Staging Alternative 1 – Use Employee Parking Lot 10E for All Construction Staging
- Construction Staging Alternative 2 – Partial Construction Staging at Employee Parking Lot 10E and Partial Construction Staging at Ingraham's Mountain

3.3.3.1 Construction Staging Alternative 1 – Use Employee Parking Lot 10E for All Construction Staging

Construction Staging Alternative 1 (Figure 3-11) would convert the entire existing Employee Parking Lot 10E (14.5 acres) into a construction staging area with employee parking relocated to a new paved, marked and lighted parking lot constructed at Ingraham's Mountain. Employee Parking Lot 10E was selected as a potential staging area because of its size and proximity to the proposed RSA construction sites.

Under Construction Staging Alternative 1, Ingraham's Mountain would be reduced from a current elevation of 86 feet to approximately 55 feet. The relocated parking lot and road to access the lot would be paved. Construction Staging Alternative 1 would include a permanent access road between Ingraham's Mountain and the AOA. The permanent access road would require modifications to Elmjack Field, most likely resulting in new park access, a relocated concession stand, and a reconfigured baseball field.

3.3.3.2 Construction Staging Alternative 2 - Partial Construction Staging at Employee Parking Lot 10E and Partial Construction Staging at Ingraham's Mountain.

Construction Staging Alternative 2 (Figure 3-12) consists of partial use of Employee Parking Lot 10E as a construction staging area (3.5 acres) and a construction staging area (approximately 9 acres) to be constructed at Ingraham's Mountain. Ingraham's Mountain would be reduced in height from its current elevation of 86 feet to approximately 67 feet. The proposed construction staging area and entrance to access the area from Berrian Boulevard would not require paving. More efficient use and employee parking consolidation at Employee Parking Lot 10E would allow for partial construction staging at that site. The partial construction staging area at Employee Parking Lot 10E would be in close proximity to the construction sites for the proposed RSA and RVSR constructions and would not require any new construction

Construction Staging Alternative 2 would require a new Controlled Airport Access Point to the Airport at 19th Avenue and 81st Street in order for construction vehicles to access the RSA and RVSR construction sites. Only construction vehicles would be allowed to access LGA at this Controlled Access Point.

3.3.3.3 Construction Staging Area Screening Conclusion

The primary difference between Alternatives 1 and 2 is the cost of construction. Although Alternative 2 would include two staging areas and a new Controlled Access Point, construction staging in two locations is not anticipated to affect construction scheduling or duration. Alternative 1 would require a permanent access road, greater fill removal, and parking lot infrastructure (pavement and lighting/electricity), which would increase costs approximately tenfold over Alternative 2.

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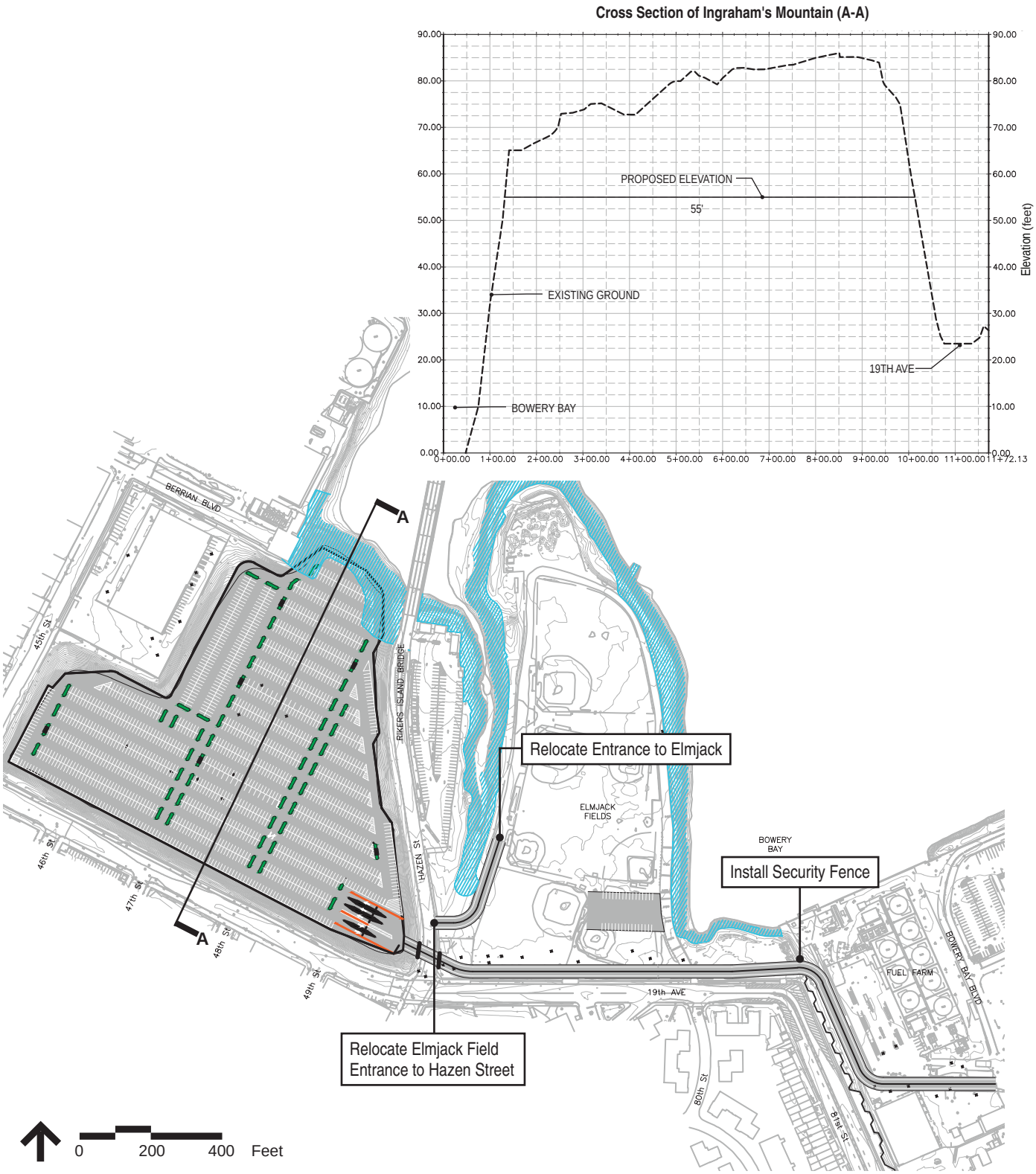

Source: Port Authority of New York and New Jersey, 2013

Legend

- Bus Shelter
- Concrete Barrier
- Proposed Features
- Proposed Airport Access Road
- Wetland Buffer

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Figure 3-11

Construction Staging Area Alternative 1

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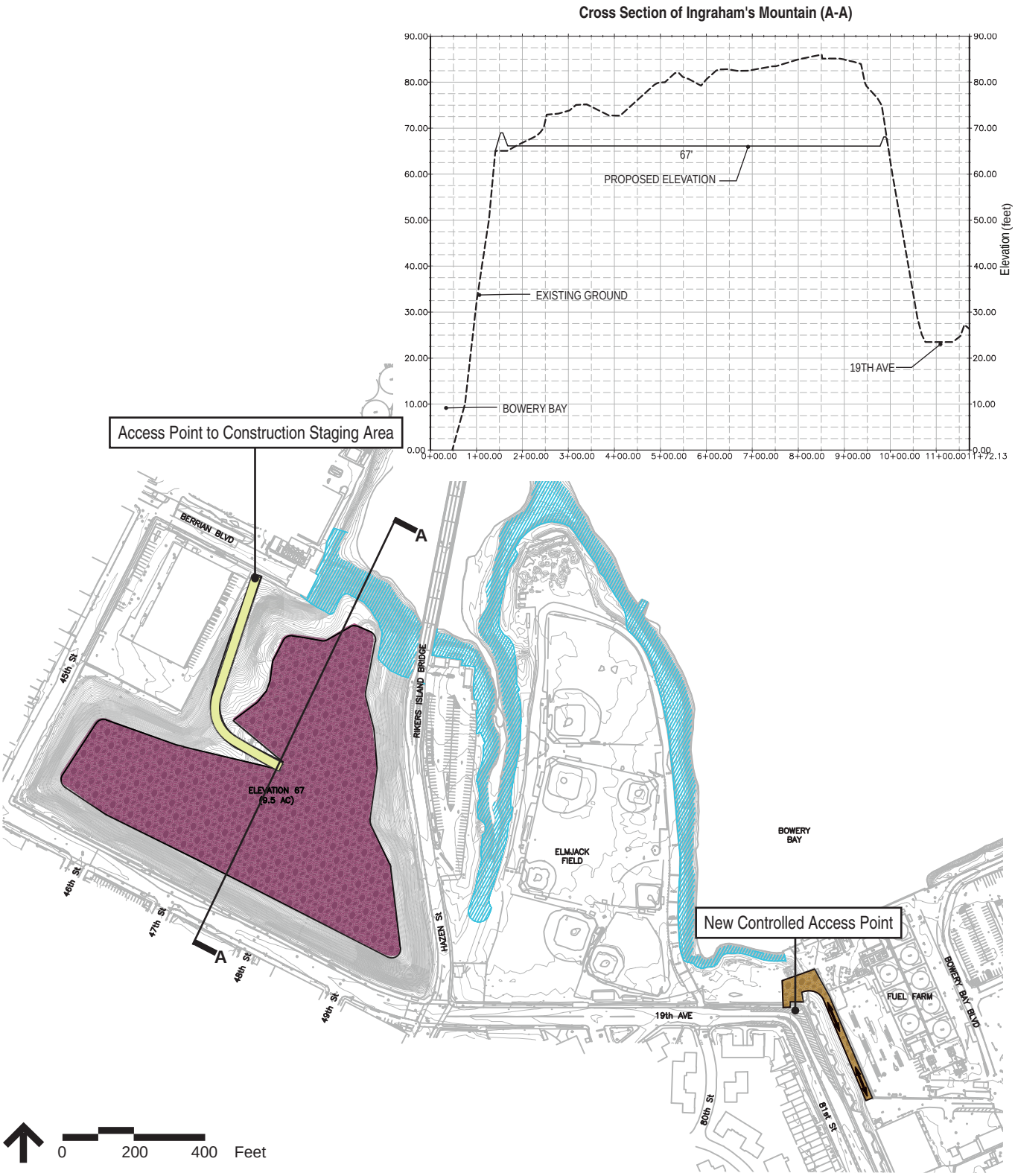

Source: Port Authority of New York and New Jersey, 2013

Legend

- Construction Staging Area
- Temporary Airport Construction Access Road
- Construction Staging Access Road
- Wetland Buffer

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Figure 3-12

Construction Staging Area
Alternative 2
(Proposed Action)

Alternative 2 would minimize transportation impacts on the surrounding community to the greatest extent practical. Alternative 2 would also avoid impacts to Elmjack Field. For these reasons, Alternative 2 was identified as the preferred component of the Proposed Action.

3.4 Proposed Action

The Proposed Action would include the RSA Enhancements, the new RVSR segment, and construction staging areas. RSA Enhancements would include extending the existing concrete decks and installing EMAS beds at the Runway 4 and 31 Ends capable of 40-knot aircraft arrestment. Construction would require a staging area. The RVSR enhancement would include constructing a new RVSR section at the Runway 22 End and reconfiguring on-Airport public roadways. The following describes these program elements in detail.

3.4.1 RSA Enhancements

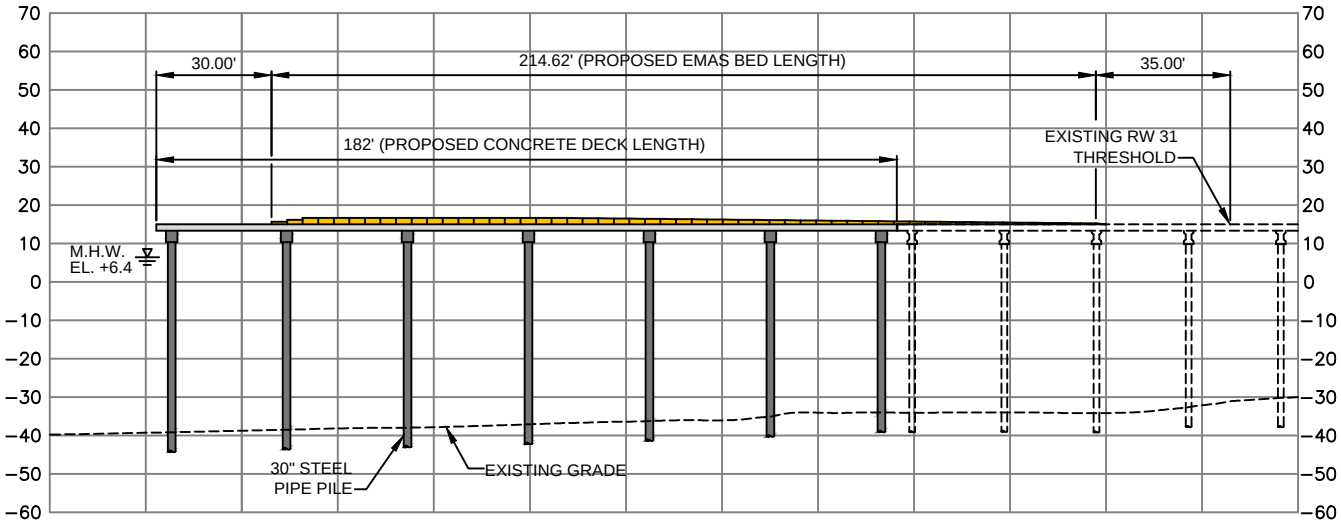
Elements of the proposed RSA Enhancements at the Runways 4 and 31 Ends are described below, and shown in Figure 3-6. Combined with the two existing EMAS systems at the Runways 13 and 22 Ends, these upgraded RSAs would comply with current FAA safety standards, and would be in place by the end of 2015.

3.4.1.1 Deck Extensions

In order to bring LGA RSAs into compliance with FAA standards in Advisory Circular (AC) 150/5300-13, *Airport Design*, the Proposed Action would extend the existing decks at the Runways 4 and Runway 31 Ends. The deck extensions would not change the runway thresholds nor lengthen the runway, and, therefore, would not permanently affect aircraft operations. Each proposed deck extension would extend an additional approximately 182 feet beyond the existing deck and would be 500 feet wide (the width of the current deck). The total dimensions of the proposed RSA would be approximately 280 feet by 500 feet. The deck extensions would be designed as flat slab concrete decks with concrete pile caps supported by a total of 240 steel pipe piles (120 per deck). The piles would be 30 inches in diameter and would be placed in a 30x35-foot grid based on the current level of design (Figure 3-13).

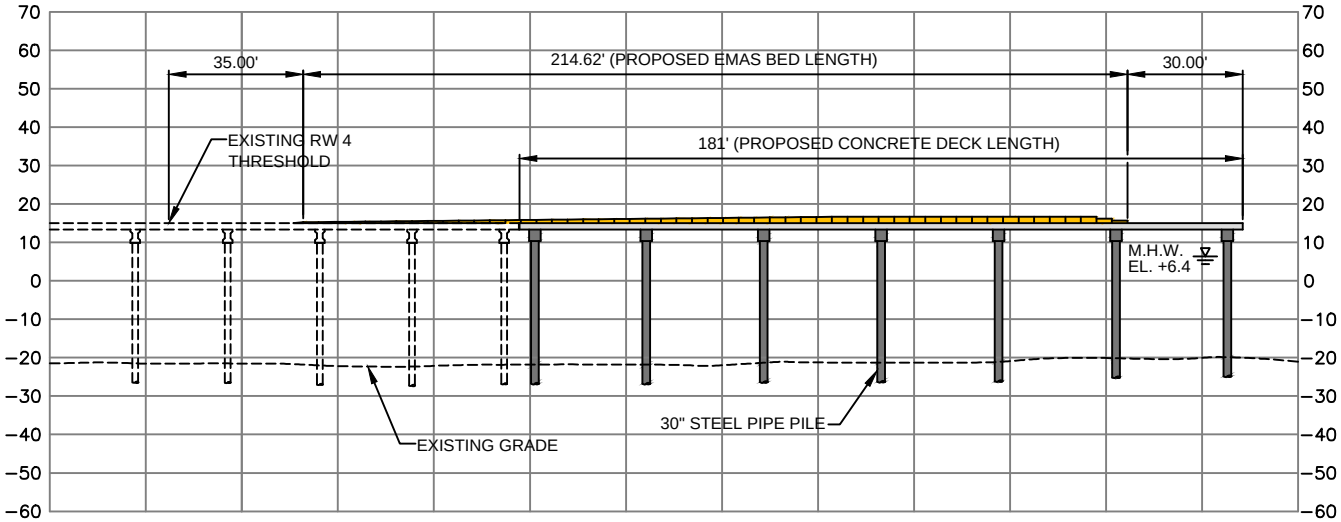
The deck system was designed to allow for temporary loadings to accommodate accidental runway overruns. Vehicular traffic associated with activities such as snow removal or rescue vehicles can be accommodated.

Runway 31 End



0 25 50 Feet

Runway 4 End



Approximate Scale

0 25 50 Feet

Source: Jacobs Engineering Inc.

Legend

------ Existing Features

Proposed EMAS Bed

Proposed Deck

Proposed Piles & Pier Caps

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Figure 3-13

Proposed Runway 4 and 31 Deck Cross Sections (Conceptual Desgn)

\\NYNYDATA\projects\28878.00 LaGuardia RSA EA\graphics\FIGURES\EXHIBIT 3-Y ALT03 DECK PROFILE.dwg

3.4.1.2 EMAS

The RSA deck extensions would accommodate a non-standard EMAS system capable of 40-knot aircraft arrestment at the Runways 4 and 31 Ends. The EMAS bed on each RSA extension would be 215 feet long and 170 feet wide, and set back 35 feet from each runway threshold. The Proposed Action would maintain the current usable lengths of both Runways 4-22 and 13-31 and would not require relocating any runway thresholds.

The proposed EMAS beds would complement existing EMAS beds at the Runways 22 and 13 Ends. These are also non-standard EMAS systems capable of 40-knot aircraft arrestment and have been accepted by the FAA. These EMAS beds were installed in 2005.

3.4.1.3 Navigation Equipment Modifications

Only minimal modifications to the electrical systems or NAVAIDS would be required under the Proposed Action:

- The obstruction lighting systems at the edge of the existing decks would be modified to allow for additional obstruction lights to delineate the new edges of the decks.
- Some of the approach lights currently located on the existing approach light piers would be incorporated onto the new deck extensions. New approach lights within the EMAS bed would include frangible mountings.

This project would not result in any changes to the runway thresholds, and consequently, the locations of the NAVAIDS (glide slopes, localizers, radar) are anticipated to remain the same. However, the existing localizer at the Runway 4 End, while not being relocated, may be impacted by RSA construction activities. The potential impacts to the localizer are being modeled, and mitigation measures for these potential impacts will be developed as required. Once the deck extensions and the EMAS are in place, the localizer would be reprogrammed to function adjacent to the new deck surface.

The Proposed Action would not require:

- Lengthening the existing approach light piers;
- Upgrading the airfield lighting circuits or electrical vault;
- Relocating any NAVAIDS;
- Relocating the runway thresholds or extending the runway; or
- Changes to flight procedures.

3.4.2 Construction Staging Area(s) (Contractor Mobilization and Laydown Areas)

Approximately 10 acres of land would be required for the contractor mobilization and laydown for the two RSA Enhancements and RVSR construction at the peak of construction. The staging would occur in two areas: a portion of Employee Parking Lot 10E and Ingraham's Mountain. Initially, a portion of Employee Parking Lot 10E would be used as construction staging for the preliminary RSA construction work. Once Ingraham's Mountain is cleared and graded, it would be used as a supplemental construction staging area for the remainder of the RSA construction as well as for the RVSR construction.

The construction staging areas would accommodate the following temporary activities:

- Contractor parking
- Contractor vehicle and equipment storage
- Construction trailer parking
- Construction material storage

Construction workers would be shuttled from Employee Parking Lot 10E or Ingraham's Mountain to their respective construction sites.

Employee Parking Lot 10E

Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily converted to a construction staging area to support the RSA construction project. Employee Parking Lot 10E is adjacent to Bowery Bay, southwest of the Runway 31 End. The area is optimally located for construction laydown because access to the water would allow materials to be brought in by barge. Specific details on the transport of materials would be determined by the contractor during the construction phase of the project.

The Construction Staging Area at Employee Parking Lot 10E would be established by using concrete barriers, a fence, and gate to isolate the staging area. No construction or site modifications would be required. The site would be prepared for use as a construction staging area beginning in early 2014, and would be used throughout the RSA construction. The portion of Employee Parking Lot 10E used for construction staging would revert to an employee parking lot after the RSA construction.

Ingraham's Mountain

A new area at Ingraham's Mountain would be cleared to accommodate an additional area for construction staging, because no other on-airport areas are available. The site at Ingraham's Mountain would be cleared of vegetation and graded using on-site fill, creating an approximate 9-acre area for laydown and staging (Figure 3-12). A new Controlled Access Point to the Airport would be created in

the vicinity of 19th Avenue and 81st Street, north of the noise barrier, and limited to construction vehicles. Construction vehicles would then proceed down 19th Avenue, onto 45th Street and then on to Berrian Boulevard. The entrance to the site would be from Berrian Boulevard, via a gravel access road at eight percent grade, per the New York State Department of Transportation standard. The Construction Staging Area would be gravel, fenced and gated for security. Approximately 246,000 cubic yards (cy) of material would be excavated, a portion of which would be stockpiled or re-used on-site. The remaining material, approximately 150,000 cy of soil and rock, would be hauled off-site.

Small amounts of excess soil and construction debris may be disposed of as solid waste. Soil and construction debris would be reused or recycled to the greatest extent possible. If separate disposal methods are required for larger quantities of material, a disposal facility would be identified that is properly permitted to receive the excess soils and/or construction debris. The transporter would be properly permitted as well. The contractor retained for the project would ultimately select the disposal site. Possible locations for material disposal, depending on its characterization, could be at appropriately-licensed facilities in Bellmawr, Carteret, Secaucus, Teterboro or South Kearny, New Jersey.

Ingraham's Mountain would gradually become available as a construction laydown area following leveling of the site and constructing the on-site access road as the LaGuardia Airport Runway Safety Area Enhancements project progresses. Beginning in the second quarter of 2014, 3.0 acres would be available, increasing to 6.0 acres in the third quarter of 2014, and then reaching its full approximately 9-acre capacity beginning in the fourth quarter of 2014. The Ingraham's Mountain Contractor Mobilization and Laydown Area would be used for the remainder of the construction period for the RSA and the RVSR, and could be used by future construction projects at LGA. Future potential impacts related to use of this area would be evaluated in environmental documents for those future projects. The only planned project known at the time of this analysis that would use the Construction Staging Area is the proposed Central Terminal Building Redevelopment Program, currently in the planning stages.

3.4.3 Restricted Vehicle Service Road

The Proposed Action includes constructing a 2,100-foot section of the RVSR around the Runway 22 End to complete a roadway system for restricted vehicles that is fully contained within the boundaries of the AOA. Runway Drive would be realigned to continue to provide public access.

The new section of the RVSR would have two lanes and would connect to the existing RVSR from GP3 to GP1 in order to complete the integrated RVSR system. The existing AOA fence from GP3 to

GP1 would be removed and replaced with a new AOA fence line separating Marine Terminal Drive and Runway Drive from the RVSR (Figure 3-9). Runway Drive would be realigned and reconstructed as two 12-foot travel lanes with 3-foot shoulders from GP1 to the intersection of Marine Terminal Road and Bowery Bay Boulevard. Three intersections and associated roads would also be realigned or reconfigured:

- Marine Terminal Road/ Bowery Bay Boulevard;
- Bowery Bay Boulevard/ Fiorello Lane; and
- Marine Terminal Road/ Fiorello Lane.

To accommodate the roads and intersection realignments, Parking Lot 7, a 262-space lot located between Marine Terminal Road and Bowery Bay Boulevard (Figure 3-9), would be reconfigured. The loss of parking spaces resulting from the reconfiguration would be taken from the existing taxi-hold located on the western edge of Parking Lot 7, which serves as an overflow for the existing taxi-hold located south of the Marine Air Terminal. This overflow taxi hold would not be replaced as its functions can be accommodated in the existing taxi hold adjacent to the Marine Air Terminal. There would be no loss of parking spaces. The road realignments would also impact the parking lot associated with Building 30 (the former police emergency garage, which is now vacant) as well as portions of two rental car facilities (with no foreseeable effects on their operations). Existing curved blast fences located alongside Taxiway BB and Taxiway B in the area opposite Runway 4 would be removed and replaced with vertical jet blast barrier system similar to Transpo "Blast-Safe". This blast fence design has a narrow footprint (less than 24 inches) that would be installed in the same relative location as the existing blast fences, but parallel to the right side of the new section of RVSR.

The entrance to GP3, connecting Runway Drive to the new RVSR, would be modified, resulting in a loss of approximately ten spaces for fuel truck parking, as well as an area allocated to snow removal equipment staging. Existing uses would be accommodated elsewhere on the Airport. The fuel truck parking adjacent to GP1 would no longer be needed as fuel trucks would not have to be staged adjacent to GP1 because of the construction of the RVSR. Instead, the fuel trucks could be stored in the existing fuel farm. The snow removal equipment would be accommodated during the snow season in the areas dedicated for AOA paving contractors that are inactive during the snow season. No construction is required for these relocations.

New roadway lighting would be installed along Runway Drive and Marine Terminal Road. The Port Authority is coordinating with the FAA regarding the location of the RVSR with regard to the locations of NAVAIDS.

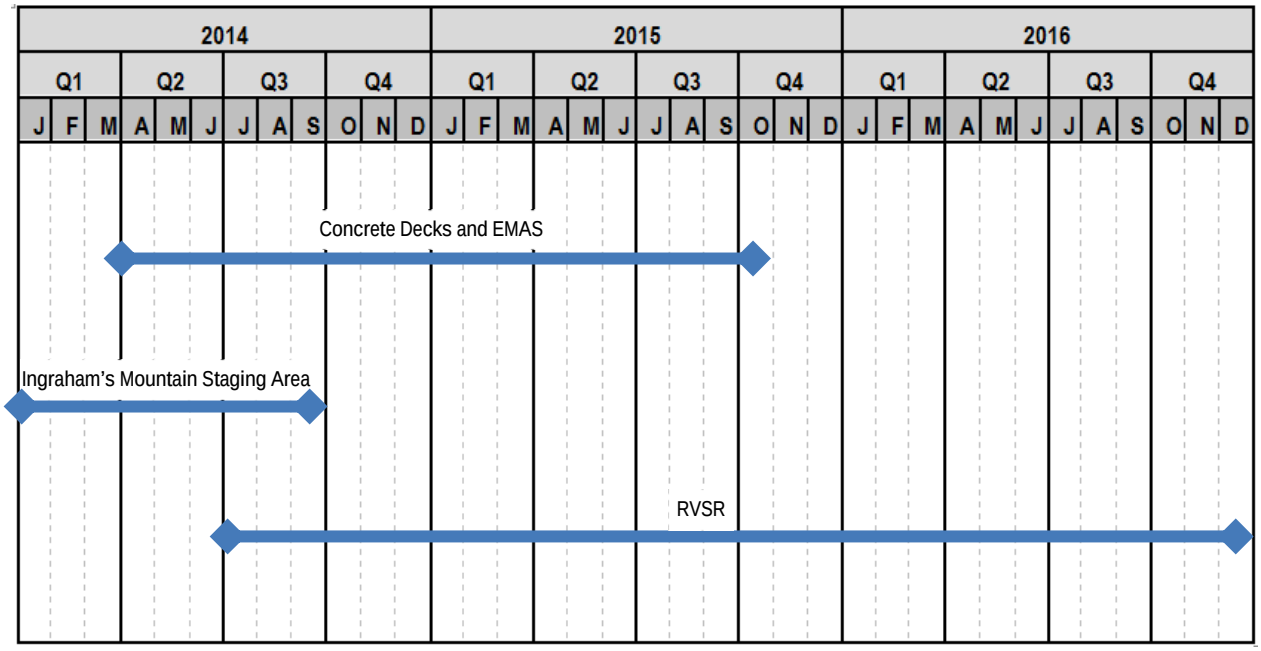
3.4.3 Construction Phasing

Project construction would include three primary phases:

- Ingraham's Mountain staging area construction;
- Deck extension construction and EMAS installation; and,
- RVSR construction.

Figure 3-14 summarizes the construction schedules for each project element and the sequence in which they would be performed.

Figure 3-14 Construction Phasing Summary



Source: Port Authority of New York and New Jersey, 2013

Hours available for construction on the Airport are limited and would vary with each activity. Deck extension construction could occur during weeknights and weekends only, in order to minimize impact on aircraft operations. Weeknight hours are 12:01 AM to 6:00 AM. Weekend hours include either an 18-hour window from midnight Saturday to 6:00 PM Saturday or a 36-hour window from midnight Saturday to noon Sunday. However, construction activities that involve pile driving would be limited to daytime hours during weekend runway closures in order to minimize community disruption.

Staging area construction at Ingraham's Mountain could occur on weekdays between 7:00 AM and 3:00 PM. RVSR construction would be permitted on weekdays, weeknights, and weekends. However, heavy construction for the RVSR would occur primarily during weekends as well as weekdays from 7:00 AM to 3:00 PM. A summary of anticipated heavy work hours associated with the project elements is shown in Table 3-5.

Table 3-5 Construction Elements and Heavy Work Hours

Project Element	Heavy[1] Work Hours
RSA Deck Construction	
Runway 4 and 31 Ends Deck Extension – impact pile driving	Sat. 8:00 AM – 7:00 PM; Sun. 8:00 AM – 11:59 AM
Runway 4 and 31 Ends Deck Extension – all other work[2]	Sat. 12:01 AM – Sun. 11:59 AM
Ingraham's Mountain Construction Staging Area Development	Mon. – Fri. 7:00 AM – 3:00 PM
RVSR Construction	Sat. 12:01 AM – Sun. 11:59 AM; Mon – Fri. 7:00 AM – 3:00 PM

Source: Port Authority of New York and New Jersey.
1 Some single runway closures would also occur on weeknights between 12:01 AM and 6:00 AM when the Airport is closed; however, construction work during these times would be minimal, mainly involving acceptance of material deliveries. RVSR construction would also be permitted on weekdays and weeknights, though heavy construction would primarily occur on weekdays between 7:00 AM and 3:00 PM and weekends, as indicated in the table.
2 All other work includes concrete work as well as use of a vibratory hammer to install piles. This methodology of pile installation is not restricted within contract specifications.

3.4.3.1 Ingraham's Mountain Construction Staging Area

Construction of the Ingraham's Mountain Construction Staging Area would occur during typical daytime construction hours, 7:00 AM to 3:00 PM, Monday through Friday, from January 2014 to the end of the third quarter calendar year of 2014. A portion of the Ingraham's Mountain Construction Staging Area would be available for use beginning the second quarter of 2014.

3.4.3.2 Deck Extension and EMAS Construction

Concrete deck extension construction would begin in the second quarter of 2014 and would conclude in the third quarter of 2015. A portion of Employee Parking Lot 10E would be used as the initial construction staging area while the Ingraham's Mountain staging area construction is being completed.

Construction would begin with demolishing a portion of the existing approach light pier at the end of each existing deck. Temporary approach lights would be installed to maintain this navigational feature of the runway. Pile driving to support the new concrete decks would follow. Pile driving would be conducted from barges on the water and would be limited to daytime hours during weekend runway closures in order to minimize community disruption. Once installed, the piles must

be left at an acceptable position prior to using the runways to insure that they do not penetrate any protected airspace surfaces defined by the FAA. A requirement would be placed in the contract for the design-build contractor that these systems shall be maintained and operated as per the FAA requirements for NAVAIDS as well as any other requirements provided by the FAA during the Design Drawing submission process.

Concrete deck construction would follow the piles installation, after which the EMAS block installation would begin. The EMAS blocks are manufactured off-site and transported to the construction site in tractor trailer trucks. Once installation begins, each trailer would be taken to the construction site and each block would be unloaded by forklift and placed in its final position.

3.4.3.3 RVSR Construction

The RVSR construction would begin in the second quarter of 2014 and conclude in the fourth quarter of 2016. Construction activities would include excavation; storm drainage infrastructure, curb and gutter installation, asphalt paving; and utilities/lighting installation. Construction could only occur during runway closures and would only be performed during the same weeknight and weekend hours as the Runway 4 End deck extension construction. The RVSR construction (including the Runway Drive reconfiguration) would overlap with the deck construction from the second quarter of 2014 to the third quarter of 2015.

3.5 No-Action Alternative

The No-Action Alternative assumes that the RSAs at the LGA Runways 4 and 31 Ends would remain in their current condition and would not meet the Congressional Mandate to improve RSAs by the end of 2015. Employee Parking Lot 10E would continue to be used as an employee parking lot and a portion would not be used as a construction staging area. A construction staging area at Ingraham's Mountain would not be constructed. A new RVSR would not be constructed, and vehicles traveling between the east and west ends of the Airport would continue to use existing routes.

The No-Action Alternative also includes projects that have gone through environmental review and approval or are reasonably foreseeable by 2016, when the LaGuardia Airport Runway Safety Area Enhancements project would conclude. Such projects include the East End Substation and East Garage construction between 2013 and 2015 (Figure 3-15). Other than state-of-good repair projects, such as pump house upgrades and runway and taxiway rehabilitations, no other major projects or actions affecting LGA or the Grand Central Parkway (adjacent to the Airport) are planned or programmed to occur before 2015. These projects would also occur if the Proposed Action is implemented.

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Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

No-Action Alternative Projects

College Point Neighborhood

Queens Borough

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Figure 3-15

No-Action Alternative

As required by NEPA, the No-Action Alternative is the basis against what the environmental impacts of the Proposed Action are evaluated. The No-Action Alternative fails to satisfy the project's Purpose and Need, it would not meet the Congressional mandate to improve RSAs by the end of 2015, and would not improve the RVSR to avoid repeated exits and entries of service vehicles and reduce the risk of runway incursions.

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4 Affected Environment

4.1 Project Location and Setting

LaGuardia Airport (LGA) is located in the Borough of Queens, New York City, New York. The Airport is approximately eight miles from midtown Manhattan, in a densely developed metropolitan area. The property consists of 680 acres and is bordered by Flushing Bay and Bowery Bay to the north. The Grand Central Parkway runs along the southern property line, which connects to Interstate 278 (I-278) and I-495. The Airport is adjacent to the neighborhoods of Steinway, Jackson Heights, and East Elmhurst. Chapter 1, Section 1.5, *Public Involvement*, and Appendix F, *Public Involvement* describe the public outreach efforts that the Port Authority of New York and New Jersey (Port Authority) has taken to communicate with representatives of these neighborhoods regarding the Proposed Action. Some commercial and industrial lots are interspersed among the residential developments. The Port Authority subleases a portion of its property located west of the Airport's terminal and airfield, referred to as Elmjack Field, for use by a local community Little League. Directly west of Elmjack Field, still within the Airport's leasehold and approximately 0.2 miles from the airfield, is Ingraham's Mountain, bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Ingraham's Mountain is a vegetated topographic feature created from the excavated material from construction of the third tube of the Lincoln Tunnel. Figure 1-1 shows LGA and the surrounding area.

The Proposed Action would occur in several distinct areas: at the ends of the two existing runway decks in Bowery Bay and Flushing Bay; along Runway Drive south of the Runway 22 End; Employee Parking Lot 10E; and at Ingraham's Mountain. These areas compose the Project Area (Figure 1-3).

4.2 Resources Potentially Affected

This section, as required by Federal Aviation Administration (FAA) Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1E, Change 1), paragraph 405(e) and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* (FAA Order 5050.4B), paragraph 706(e), succinctly describes those environmental resources that the Proposed Action is likely to affect. Resources are described for the Project Area (the footprint of the Proposed Action, within which construction would occur) and, where relevant, for a larger Study Area that may experience indirect impacts.

4.2.1 Air Quality

FAA Order 5050.4B[1] provides the basis for delineating the scope of air quality impacts under NEPA and the Clean Air Act (CAA), and contains guiding criteria for determining the extent of air quality analysis. FAA Order 1050.1E, Change 1, also directs that an air quality assessment prepared under NEPA includes an analysis and summary conclusions of the Proposed Action's impacts on air quality and, when a NEPA analysis is needed, an assessment of the Proposed Action is required to evaluate the impact on the National Ambient Air Quality Standards (NAAQS).

The CAA requires the United States Environmental Protection Agency (EPA) to establish, and periodically review, NAAQS to protect public health, welfare and the environment. NAAQS have been established for the following seven air pollutants (known as criteria pollutants): ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to or less than 10 micrometers (coarse particulates or PM_{10}), particulate matter equal to or less than 2.5 micrometers (fine particulates or $PM_{2.5}$), and lead (Pb).

If one of the seven criteria pollutants in a geographic area is found to exceed the NAAQS, the area is classified as a non-attainment area. States with non-attainment areas must develop a State Implementation Plan (SIP) demonstrating how the area would be brought back into attainment of the NAAQS within designated timeframes. Areas where concentrations of the criteria pollutants are below (i.e., within) these threshold levels are classified as attainment areas. Former non-attainment areas that are in transition to attainment areas are designated as attainment-maintenance (or maintenance) areas.

1 Federal Aviation Administration. April 26, 2006. Order 5050.4B, National Environmental Policy (NEPA) *Implementing Instructions for Airport Actions*.

The management of air quality conditions in New York is the responsibility of federal, New York State, and local governmental air quality regulatory agencies. On the federal level, the EPA establishes the guiding principles and policies for protecting air quality conditions throughout the nation. Under the CAA, EPA's responsibilities include the approval of the SIP in designated non-attainment and maintenance areas and establishment of emission standards for stationary and mobile sources of air pollution (i.e., motor vehicles and off-road vehicles such as ground support equipment [GSE], construction vehicles, etc.). On the state level, the New York State Department of Environmental Conservation (NYSDEC) is responsible for enforcing the CAA including the compliance with the NAAQS, the issuance of air emission sources permits, the monitoring of air quality conditions and preparing the SIP. Within New York City, the New York City Department of Environmental Protection (NYCDEP) is responsible for updating and enforcing the City's Air Pollution Control Code, which has the goal to preserve, protect and improve the air resources of the city through implementing air quality initiatives.

LGA is located in the New Jersey-New York-Connecticut Intrastate Air Quality Control Region (AQCR).[2] Presently, this region does not meet the federal standards (i.e., is in non-attainment) for the 8-hour concentration of ozone and the 24-hour and annual arithmetic mean concentrations of $PM_{2.5}$. In the past, Queens County within this region was designated as non-attainment for CO; however, on May 20, 2002, the EPA determined the region had attained the CO standard and the region was re-designated to attainment for CO. The area now operates under a maintenance plan which was approved in May 2002 and is in attainment for all other criteria pollutants. Therefore, the air quality assessment for this project evaluated emissions of CO and $PM_{2.5}$ as well as volatile organic compounds (VOC) and nitrogen oxides (NO_X) – known as precursors to ozone formation, along with SO_2 and PM_{10}.

As required by the EPA, the NYSDEC has established and maintains a permanent network of air quality monitoring stations throughout New York State, including Queens County. These monitors measure concentrations of pollutants in the ambient (i.e., outdoor) air to gauge compliance with the NAAQS. Air quality monitoring data collected at stations closest to LGA from 2009 through 2011 (the three most recent years available) are shown in Table 4-1. For ease of reference, the applicable NAAQS for each monitored pollutant is included. The Queens College monitoring station is located approximately three miles to the southeast of LGA. The monitoring data show that 8-hour ozone concentrations exceed the NAAQS in 2010; therefore, the area has non-attainment status.

2 U.S. Environmental Protection Agency (USEPA). December 23, 1980. 40 CFR Part 81, Section 81.13, New Jersey-New York-Connecticut Intrastate Air Quality Control Region.

Table 4-1 Ambient Air Quality Monitoring Data in the LGA Area

Monitoring Station	Pollutant	Averaging Period	NAAQS	2009	2010	2011
Queens College	CO	1-hour	35 ppm	3.1	3.4	2.1
		8-hour	9 ppm	1.9	2.7	1.8
	SO_2	Annual	30 ppb	3.41	2.83	2.65
		1-hour	75 ppb	36.5	25.4	29.6
		3-hour	500 ppb	NA	25.8	31.1
		24-hour	140 ppb	NA	15.6	15.7
	PM_{10}	Annual	--	17	17	16
		24-hour	150 µg/m³	56	54	47
	$PM_{2.5}$	Annual	15 µg/m³	9.6	11.2	9.5
		24-hour	35 µg/m³	26.7	29.8	26.0
	O_3	1-hour	--	0.094	0.116	0.128
		8-hour	0.075 ppm	0.075	0.080	0.067
	NO_2	Annual	53 ppb	20.91	19.28	21.62
		1-hour	75 ppb	67.0	69.0	66.3
IS 52[1]	Pb	3-month average	0.15 µg/m³	0.006	0.006	NA

Source: New York State Ambient Air Quality Report for 2011, 2010, and 2009, http://www.dec.ny.gov/chemical/8536.html.
1 Inwood Intermediate School 52.
ppm parts per million.
ppb parts per billion.
µg/m³ micrograms per cubic meter.

4.2.1.1 Coastal Barriers

Barrier islands are geologically unstable formations that protect the mainland by buffering storm or hurricane-driven winds or waves. As a result, these islands protect fish, wildlife, human life, and property along coasts and shorelines. The United States Department of the Interior (DOI), through the United States Fish and Wildlife Service (USFWS) and the United States National Park Service (NPS), develops and maintains maps entitled *Coastal Barrier Resource System*. According to these maps, there are no coastal barriers or any areas subject to the Coastal Barrier Resources Act of 1982 (CBRA), as amended by the Coastal Barrier Improvement Act of 1990, in the vicinity of LGA.

4.2.1.2 Coastal Zone Management

Coastal zones are those waters and their bordering areas in states along the coastlines of the Atlantic and Pacific Oceans and the Gulf of Mexico and the shorelines of the Great Lakes. These zones include islands, beaches, transitional and intertidal areas, and salt marshes. The Coastal Zone Management Act of 1972, as amended (CZMA) established the Federal Coastal Zone Management (CZM) Program to encourage and assist states in preparing and implementing management programs to "preserve,

protect, develop, and, where possible, to restore or enhance the resources of the nation's coastal zone."[3]

Pursuant to the CZMA, New York State adopted the Waterfront Revitalization and Coastal Resources Act (WRCRA) in 1981, which created the New York Coastal Management Program (CMP) under the New York State Department of the State (NYSDOS), Division of Coastal Resources direction. The CMP encourages coordination among all levels of government and communities to develop Local Waterfront Revitalization Programs (LWRPs) that promote sound waterfront planning that is consistent with federal, state, and local coastal policies and objectives. Once a LWRP is adopted by the community and approved by the New York Secretary of State and by the National Oceanic and Atmospheric Administration (NOAA), all state and federal permitting, funding, and direct actions must be consistent with the approved LWRP.

New York City participates in the CMP through the New York City Waterfront Revitalization Program (WRP). New York City's WRP was the first in New York State and was approved in 1982, amended in 2002, and is currently in the process of being revised. These revisions are based upon recommendations within the *2011 Update of Vision 2020: New York City Comprehensive Waterfront Plan (Vision 2020)*. As depicted in Figure 4-1, the entire Project Area is located within the New York City Coastal Zone Boundary (as designated in the LWRP, Vision 2020, and available mapping).

To-date, there have not been any changes to the Federal CZMA, State WRCRA, State, or New York City's WRP in response to Hurricane Sandy. As noted above, NYCDCP is proposing a series of revisions to the WRP, based on recommendations in the *2011 Update of Vision 2020: New York City Comprehensive Waterfront Plan*. Although the processing of those revisions was halted in the wake of Hurricane Sandy, NYCDCP has indicated that they expect to begin the revision process again. The process can be lengthy and would provide opportunity for public and agency comment, including the Port Authority. It can be expected that the revisions would be re-examined based on the lessons learned from Hurricane Sandy. However, the goals remain the same: the proposed changes would solidify New York City's leadership in the area of sustainability and climate resilience planning as one of the first major cities in the U.S. to incorporate climate change considerations into its Coastal Zone Management Program.

The Port Authority has conducted several efforts aimed at identifying risks from flooding that inform current capital planning projects at LGA. All planned capital projects are designed to withstand

3 The *Coastal Zone Management Act of 1972* (U.S. Code Title 16 Chapter 33 Sec. 1251-1465)

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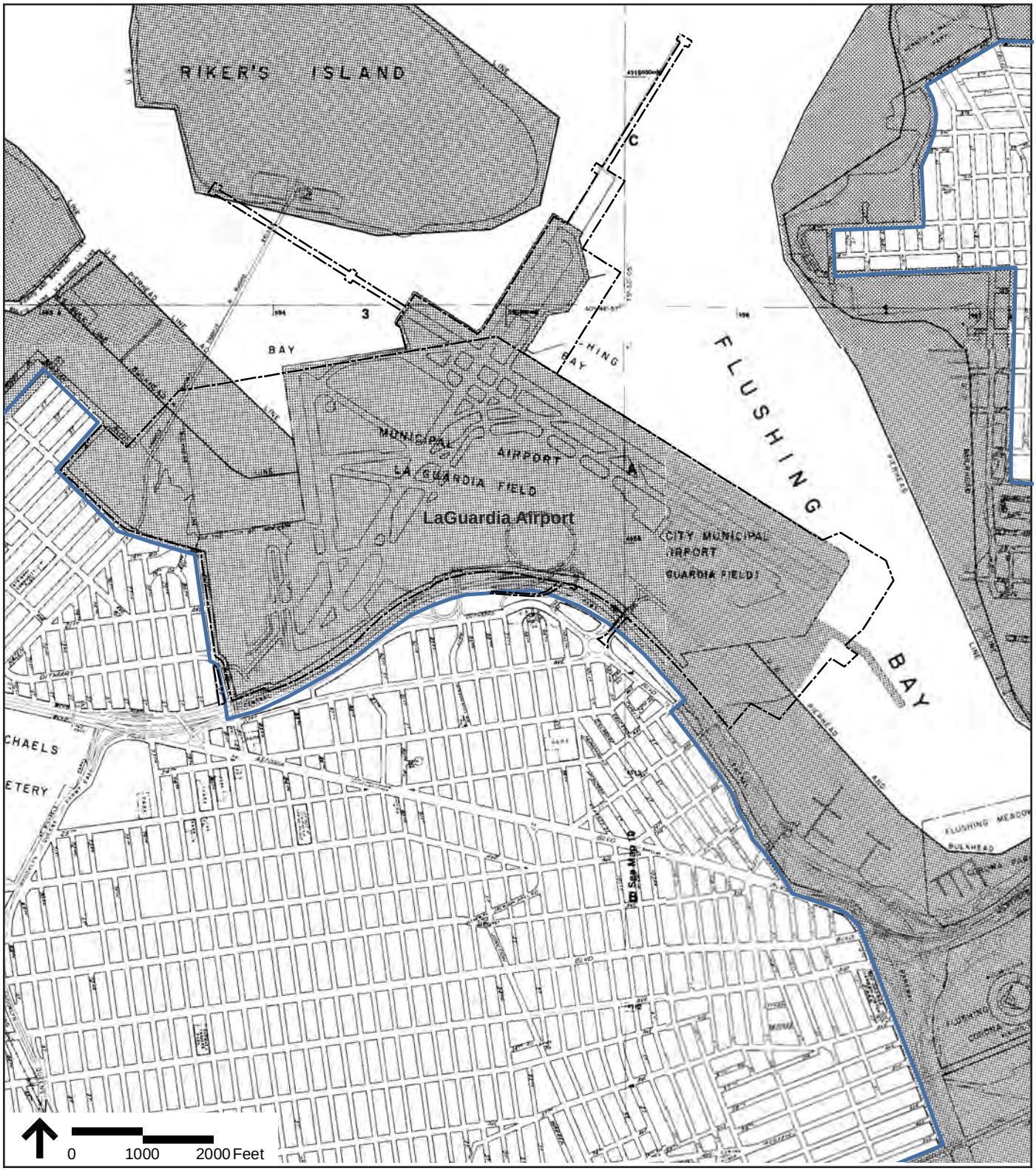

Sources: ArcGIS Bing Aerial Service; NYC DCP, Coastal Zone Boundary of New York

LaGuardia Airport

Coastal Zone Boundary

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Runway Safety Area Enhancements
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Figure 4-1
Coastal Zone

future flooding risks. In the summer of 2012, the Port Authority conducted a quantitative facility flood risk assessment in collaboration with the NYC Mayor's Office of Long Term Planning and Sustainability. The assessment helped the Airport identify vulnerable assets and incorporate asset protection into emergency planning. After Hurricane Sandy, the Port Authority undertook a comprehensive floodplain study for Newark Liberty International Airport, Teterboro Airport, John F. Kennedy International Airport, and LGA to develop high resolution, state-of-the-art flood mapping that would be used in future planning projects.

4.2.2 Fish, Wildlife and Plants

This section describes the existing fish, wildlife and plants, including threatened and endangered species, in accordance with FAA Order 1050.1E, Change 1, Appendix A.8. The airfield of LGA is fully developed and includes areas of paved surfaces and grassed areas between the runways and taxiways, which do not support wildlife habitat. Therefore, this section describes the natural plant and animal communities at the Ingraham's Mountain location, the intertidal and benthic communities in Bowery and Flushing Bays, including essential fish habitat (EFH) and threatened and endangered species potentially occurring in the vicinity of the Project Area.

4.2.2.1 Vegetation and Wildlife

Existing ecological conditions were evaluated through review of federal and New York State regulatory agency maps and records, publicly available data, and field inspection.

Ecological Communities and Vegetation

The woodland habitat at Ingraham's Mountain was classified under the NYSDEC as a Successional Southern Hardwoods community.[4] According to the New York Natural Heritage Program (NYNHP), the Successional Southern Hardwoods community is distributed throughout the southern half of New York State and is ranked as *G5, S5*. The *G5* ranking indicates a community that is considered "demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery." The *S5* ranking refers to a community that is considered to be "demonstrably secure in New York State." The community observed at Ingraham's Mountain appears to be a regional variant of this Southern Hardwoods community. Dominant canopy trees include both native and non-native species, including big-tooth aspen, black locust, tree-of-heaven, Norway maple, black cherry and red maple.[5] Although some locally-dense thickets of understory vegetation occur, the shrub and groundcover strata are generally sparse and comprised primarily of saplings, as well as several shrub, woody vine and herbaceous plant species including multiflora rose, poison ivy and garlic mustard.

4 Edinger, G. J. et. al. 2002. *Ecological Communities of New York State*. Second Edition. New York Natural Heritage Program. NYSDEC.
5 The plant community descriptions include representative/dominant species observed during a January 24, 2013 field inspection and are not intended to represent an inventory of all on-site vegetation.

In addition to woodland vegetation, the upper portions of Ingraham's Mountain are vegetated primarily by grasses and early successional non-native/invasive species such as mugwort, common reed, Asiatic bittersweet, Japanese honeysuckle, Japanese knotweed and multiflora rose, as well as native species including pokeweed, goldenrods and brambles (Table 4-2).

Some of the non-native/invasive plant species within the canopy, shrub, and groundcover strata are dominant or co-dominant. As a general rule, the presence of non-native/invasive vegetation reduces the ecological value of a habitat by out-competing native vegetation, lowering overall vegetative species diversity and reducing or eliminating breeding and non-breeding habitat for native wildlife species. The overall habitat quality of the property has been partially degraded due to historic and recent human-induced disturbance and subsequent colonization by non-native/invasive plant species.

Table 4-2 Plant Species Likely to Occur at the Ingraham's Mountain Site

Common Name	Scientific Name
Norway maple	*Acer platanoides*
Red maple	*Acer rubrum*
Tree of heaven	*Ailantus altissima*
Garlic mustard	*Alliaria petiolata*
Mugwort	*Artemesia vulgaris*
Asiatic bittersweet	*Celastrus orbiculatus*
Japanese honeysuckle	*Lonicera japonica*
Common reed	*Phragmites australis*
Pokeweed	*Phytolacca americana*
Japanese knotweed	*Polygonum (Fallopia) cuspidatum*
Big-tooth aspen	*Populus grandidentata*
Black cherry	*Prunus serotina*
Black locust	*Robinia pseudo-acacia*
Multiflora rose	*Rosa multiflora*
Brambles	*Rubus spp.*
Goldenrods	*Solidago spp.*
Poison ivy	*Toxicodendron radicans*

Source: New York State Department of Environmental Conservation. *New York State Breeding Bird Atlas*. Available online at www.dec.ny.gov/animals/7312.html. Accessed February 12, 2013.

Wildlife

The majority of the Project Area lacks any natural vegetation and does not support wildlife habitat. Avian and other species are highly controlled on the airfield according to the FAA's wildlife hazard management requirements.

Avian species are the most common form of wildlife observed and expected at the Ingraham's Mountain site. Table 4-3 lists bird species observed or expected at Ingraham's Mountain, a man-made topographic feature bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard.[6]

With the exception of peregrine falcon, it is expected that all of the expected species may use the Ingraham's Mountain site as breeding and/or non-breeding habitat. These species, as well as those birds observed at the site during a field inspection, represent typical species assemblages for wooded successional habitat in urban/suburban settings. Other common bird species associated with these habitat types that were not observed during the field inspection and/or included on the New York State Breeding Bird Atlas (NYSBBA) list may also use the Ingraham's Mountain site. With respect to peregrine falcon, the open areas near the Ingraham's Mountain site, including LGA and surrounding shoreline, tidal wetland and open water communities, may provide marginal non-breeding (i.e., hunting) habitat. However, the site does not provide breeding habitat or optimal non-breeding habitat for this species.

Tidal and open-water habitats for various waterfowl species occurs north and east of the Project Area. South Brother and North Brother Islands, located 1.3 and 1.5 miles northwest of the Project Area, support important nesting colonies of waterfowl, including yellow-crowned night heron, cattle egret, glossy ibis, little blue heron and snowy egret. However, no breeding records for these species at Ingraham's Mountain currently exist within the NYSBBA or NYNHP databases, and, based upon observations of the site and adjacent properties, it is not anticipated that the Ingraham's Mountain site represents significant breeding or non-breeding habitat for local waterfowl populations.

The Ingraham's Mountain site appears to be used primarily by common birds that are typically associated with successional woodland habitats in urban/suburban settings. It is not expected that Ingraham's Mountain site represents a significant breeding or non-breeding habitat area for other bird species groups, including raptors and waterfowl.

6 New York State Department of Environmental Conservation. Accessed February 12, 2013. New York State Breeding Bird Atlas. http://www.dec.ny.gov/animals/7312.html.

Table 4-3 Birds Likely to Occur at the Ingraham's Mountain Site

Common Name	Scientific Name	Breeding Status in Atlas Block 5851D	Site Status
Northern cardinal	*Cardinalis cardinalis*	Confirmed	Observed
House finch	*Carpodaus mexicanus*	Confirmed	Not observed
Rock dove	*Columba livia*	Confirmed	Not observed
American crow	*Corvus brachyrhynchos*	Confirmed	Not observed
Blue jay	*Cyanocitta cristata*	Not listed	Observed
Gray catbird	*Dumetella carolinensis*	Possible	Not observed
Peregrine falcon	*Falco peregrines*	Probable	Not observed
Northern mockingbird	*Mimus polyglottos*	Confirmed	Not observed
House sparrow	*Passer domesticus*	Confirmed	Not observed
Downy woodpecker	*Picoides pubescens*	Not listed	Observed
Chipping sparrow	*Spizella passerine*	Not listed	Observed
European starling	*Sturnus vulgaris*	Confirmed	Observed
American robin	*Turdus migratorius*	Probable	Observed
Mourning dove	*Zenaida macroura*	Confirmed	Not observed

Source: New York State Department of Environmental Conservation. *New York State Breeding Bird Atlas.* Available online at www.dec.ny.gov/animals/7312.html. Accessed February 12, 2013.

Amphibian and reptile species likely to exist within the Project Area were identified based on existing site conditions and the New York State Amphibian and Reptile Atlas Project (NYSARAP).[7] Due to the absence of temporary or permanent fresh water bodies at or in the vicinity of the Project Area, the site would not support the fully- or semi-aquatic species on the NYSARAP list. The Ingraham's Mountain site could potentially provide habitat for the four species listed in Table 4-4. No surveys were performed as part of this assessment.

Based upon published resources,[8,9] as well as an evaluation of existing ecological conditions at the site and in the general surrounding area, the common urban mammal species listed in Table 4-5 have been identified as potentially using the Ingraham's Mountain site.

7 New York State Department of Environmental Conservation. Accessed January 12, 2013. New York State Amphibian and Reptile Atlas Project. http://www.dec.ny.gov/animals/7140.html.
8 Connor, Paul F. 1971. *The Mammals of Long Island, New York*. State University of New York, New York Museum and Science Service.
9 United States Army Corps of Engineers. 2002. *Final Small Mammal and Herpetile Field Sampling and Summary Report for the South Shore of Long Island, New York*.

Table 4-4 Reptiles and Amphibians Likely to Occur at the Ingraham's Mountain Site

Common Name	Scientific Name	Site Status
Northern redbacked salamander	*Plethodon c. cinereus*	Not observed
Italian wall lizard	*Podarcis sicula*	Not observed
Northern brown snake	*Storeria dekayi*	Not observed
Common garter snake	*Thamnophis sirtalis*	Not observed

Source: New York State Department of Environmental Conservation. *New York State Amphibian and Reptile Atlas*. Available online at www.dec.ny.gov/animals/7140.html. Accessed February 12, 2013.

Although common species of bats are expected to use the Ingraham's Mountain site, the Indiana bat (*Myotis sodalis*), listed as endangered by both the federal government and New York State, is not known to be present. No records currently exist for Indiana Bat hibernacula (caves or shelters where bats hibernate), bachelor or maternity roosting colonies in Queens or adjacent counties; based on the habitat observed within the Project Area, these are not expected to occur at or around LGA. Furthermore, based upon the distance from the nearest known roosting colonies in Orange and Dutchess Counties, it is unlikely that bats roosting at these locations would use the Project Area as foraging habitat.

Table 4-5 Mammals Likely to Occur at the Ingraham's Mountain Site

Common Name	Scientific Name	Site Status
Short-tailed shrew	*Blarina brevicauda*	Not observed
Bats	Chiroptera spp.	Not observed
Virginia opossum	*Didelphis virginialis*	Not observed
House mouse	*Mus musculus*	Not observed
White-footed mouse	*Peromyscus leucopus*	Not observed
Raccoon	*Procyon lotor*	Not observed
Norway rat	*Rattus norvegicus*	Not observed
Eastern mole	*Scalopus aquaticus*	Not observed
Eastern gray squirrel	*Sciurus carolinensis*	Observed
Masked shrew	*Sorex cinerus*	Not observed
Eastern cottontail	*Sylvilagus floridanus*	Not observed
Eastern chipmunk	*Tamias striatus*	Not observed

Source: United States Army Corps of Engineers. 2002. *Final Small Mammal and Herpetile Field Sampling and Summary Report for the South Shore of Long Island, New York.*

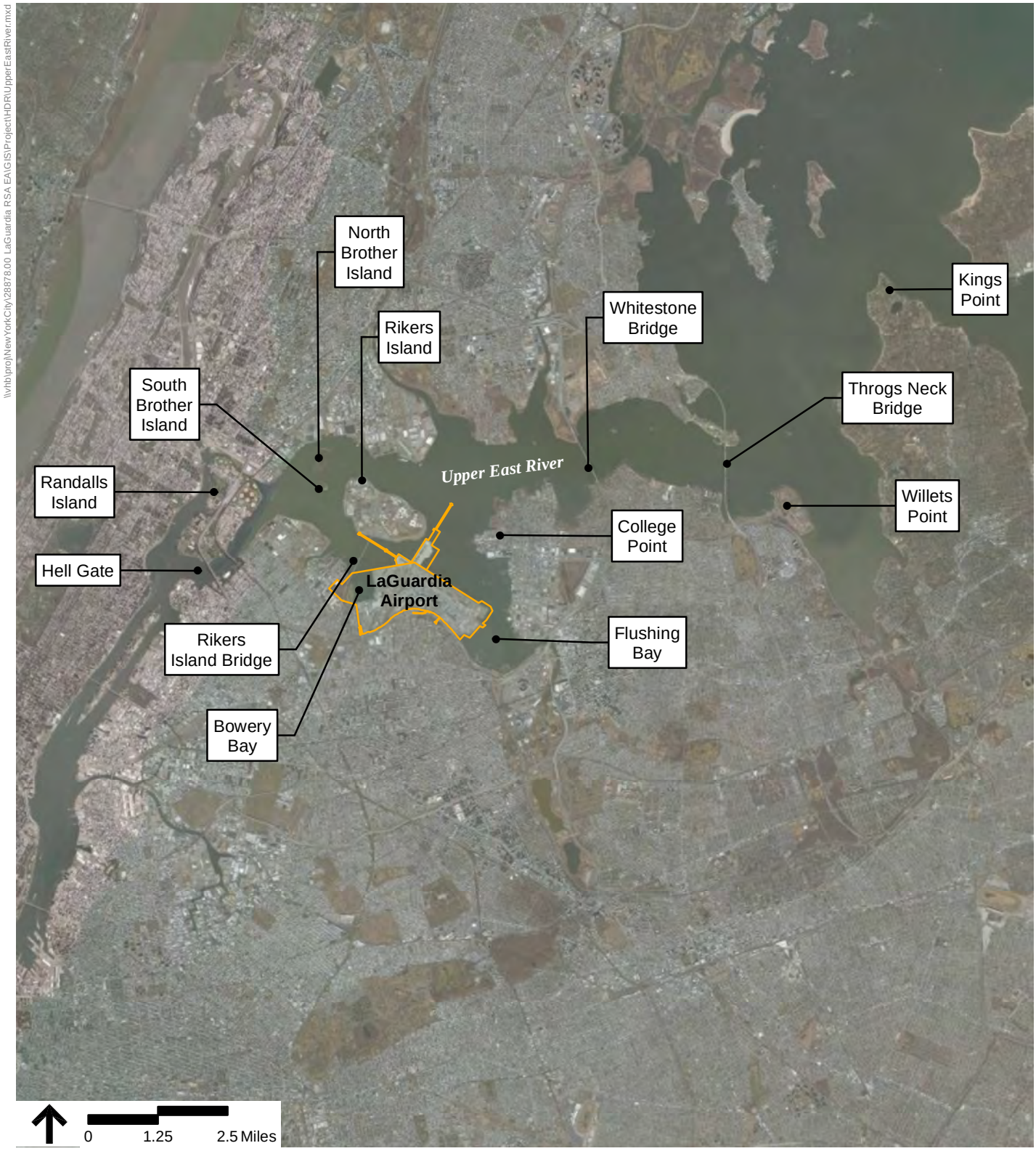
4.2.2.2 Intertidal and Benthic Communities

LGA is located south and east of Rikers Island in the Upper East River on fill that extends into a natural embayment (Figure 4-2). The East River, including Flushing and Bowery Bays, has a complex distribution of sediments because of variable currents in high and low energy areas and human influences on sediment deposition. Typically high-energy areas contain coarse sands and gravels, while low-energy areas have fine grain silts and clays. In areas with open water flow and fast currents, fine grain sediments are suspended in the water column. Coarse grain, sandy, rocky bottom is present throughout most of the East River's deep channel areas. In shallow embayments protected from swift currents, silty sediment predominates. Strong currents flow around the north side of Rikers Island where sediments are generally composed of rock bottom consisting of gravel, cobble, rocks and boulders covered with a shallow layer of sediment.[10] Around LGA in Flushing and Bowery Bays, there are large areas of soft mud and silty sediments.[11]

The benthic (bottom-dwelling) community of the East River system is composed of sessile suspension and deposit feeders including polychaetes (a class of marine ringed worms), crustaceans (arthropods include amphipods, shrimp and crab) and bivalves (molluscs such as clams or oysters). These organisms are important to an ecosystem because they control the energy flow through the trophic system by converting detrital and suspended organic material into living tissue while also making up a large portion of the diets of fish and waterfowl species that are important both ecologically and commercially.

Two benthic invertebrate communities have been identified in the East River on the basis of sediment type.[12] The hard substrate community is made up mostly of organisms that firmly adhere to rocks and other hard objects (e.g., barnacles, mussels, oysters) or organisms that build or live in tubes. Other amphipods or polychaetes can inhabit these areas as well by colonizing the abandoned tubes or shells of other species. In more protected areas of the East River where softer substrates occur and detritus, clay, silt and sand have accumulated in shallow, lower energy areas near piers and pilings, a different community occurs. Oligochaete worms (a subclass of animals that includes earthworms), soft-shelled clams, and a variety of flatworms, polychaetes and crustaceans dominate these soft-bottom communities.[13] Data from 1995 grab sampling in both Bowery and Flushing Bays around LGA

10 New York City Department of City Planning. 2010. *Domino Sugar Rezoning Final Environmental Impact Statement*. Chapter 11, Page 16. Prepared by AKRF. http://www.nyc.gov/html/dcp/html/env_review/domino_sugar.shtml
11 Locco LE, P Wilber, RJ Diaz, DG Clarke, and RJ Will, 2000. *Benthic Habitats of New York/New Jersey Harbor: 1995 Survey of Jamaica, Upper, Newark, Bowery, and Flushing Bays*. NOAA Coastal Services Center and US Army Corps of Engineers.
12 Hazen and Sawyer, P.C. 1983. Newtown Creek Water Pollution Control Plant. Revised application for modification of the requirements of secondary treatment under Section 301(h), PL 97-117. Prepared for the City of New York, Department of Environmental Protection.
13 Hazen and Sawyer, P.C. 1985. Newtown Creek Water Pollution Control Plant. Revised application for modification of the requirements of secondary treatment. VII: Additional biologic and toxics information. Prepared for the City of New York, Department of Environmental Protection.



Source: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

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Final Environmental Assessment

Figure 4-2
Upper East River

showed very high abundances of pollution tolerant species and suggested that habitat quality in these bays was degraded.[14] The benthic community east and west of LGA in Flushing Bay and Bowery Bay is dominated by polychaetes.[15] Mollusks such as surf clam, northern dwarf tellis, and American oysters also occur in these communities, which are typical of those found throughout the New York/New Jersey Harbor. Table 4-6 lists benthic invertebrates that inhabit Flushing and Bowery Bays.

The invertebrate communities attached to hard substrates removes particles from the water while also releasing organic particles to the seabed. The flux of particles enriches the benthic community living in the sediment below piers, through organic particle production.[16] In the East River the development of attached communities is limited by the amount of available hard surface for settlement, species interactions and water exchange rates. This community is highly complex and is dominated by suspension feeders. An average of 14 species per sample was observed during sampling conducted under New York Harbor piers. Crustaceans, mainly amphipods, were abundant along with polychaetes and tunicates.[17]

Table 4-6 Benthic Invertebrates Likely to Occur in Flushing and Bowery Bays

Common Name	Scientific Name
American oyster	*Crassostrea virginica*
amphipod	*Microdeutopus gryllotalpa*
Northern dwarf tellis	*Tellina agilis*
Polychaete worms	*Leitoscoloplos fragilis*, *L. robustus*, *Streblospio benedicti*, *Nephtys incisa*, *Polydora cornuta*, *Capitella capitata* and *Asabellides oculata*
Soft-shell clam	*Mya arenaria*
Surf clam	*Mulinia lateralis*
Tunicates	*Molgula manhattensis* and *Botryllus*

Source: HDR, 2013

4.2.2.3 Finfish Community

Estuaries (the transition zone between river and maritime environments) are highly productive environments that are critical to fishes, with about 75 percent of the commercial fish and shellfish

14 Locco LE, P Wilber, RJ Diaz, DG Clarke, and RJ Will. 2000. *Benthic Habitats of New York/New Jersey Harbor: 1995 Survey of Jamaica, Upper, Newark, Bowery, and Flushing Bays*. NOAA Coastal Services Center and US Army Corps of Engineers.
15 Locco LE, P Wilber, RJ Diaz, DG Clarke, and RJ Will. 2000. *Benthic Habitats of New York/New Jersey Harbor: 1995 Survey of Jamaica, Upper, Newark, Bowery, and Flushing Bays*. NOAA Coastal Services Center and US Army Corps of Engineers.
16 Zappala, S. 2001. *Growth and Development of Epibenthic of Benthic Communities Associated with Waterfront Shipping Piers of the Upper Bay of New York Harbor*. Masters Thesis.
17 Woodhead, P.M., T. Rotunno, S. Zappala. 1999. New York Harbor habitat assessment project: biological assessment of fish habitat associated with shipping piers in the New York Harbor. Marine Sciences Research Center, State University of New York at Stony Brook, NY. 93p.

species of the United States living in estuaries during some part of their life cycle. Despite its highly urban watershed, the New York/New Jersey Harbor Estuary is a productive ecosystem that supports 100 or more species of finfish for some portion of their life cycle.[18] A number of fish reside and spawn in the harbor, while others use the harbor as a migratory pathway or seasonal residence. Resident fish species use the harbor throughout the year as feeding, spawning and nursery grounds. Anadromous[19] species, including striped bass and seasonally transient fish such as herring, shad, and menhaden, move through the estuary during their spawning migrations and, once hatched, the larvae and juvenile fish spend the first summer feeding in the estuarine waters. Northern Atlantic fish populations, such as Atlantic herring, overwinter in the harbor waters. Tropical fish are transported northward by the Gulf Stream and can be collected from the harbor during summer months.

Similar to the rest of New York/New Jersey Harbor, the East River supports a diverse fish community. The species that make up the fish community of the East River were compiled using data from power generating facilities and trawl data from fish sampling programs (Table 4-7). Based on data from the Astoria (Polletti), Ravenswood, and East River electric generating facilities, and on trawl data from the East River Ferry Landing and Riverwalk projects, at least 90 species of fish have been collected in the East River over the past 35 years.

Table 4-7 Common East River Resident and Seasonal Resident Fish Species

Common Name	Scientific Name	Status[1]
Blueback herring	*Alosa aestivalis*	S
Alewife	*Alosa pseudoharengus*	S
American eel	*Anguilla rostrata*	R
Atlantic herring	*Clupea harengus*	S
Mummichog	*Fundulus h. heteroclitus*	R
Lined seahorse	*Hippocampus erectus*	R
Atlantic silverside	*Menidia medidia*	S
Silver hake	*Merluccius bilineatus*	S
Atlantic tomcod	*Microgadius tomcod*	R
White perch	*Morone americana*	R
Striped bass	*Morone saxatilis*	R
Grubby	*Myoxocephalus aenaeus*	R
Tautog	*Paralichthys dentatus*	S

18 Steinberg, N., D.J. Suszkowski, L. Clark, and J. Way. 2004. Health of the Harbor. *The First Comprehensive Look at the State of the NY/NJ Harbor Estuary*. A report to the NY/NJ Harbor Estuary Program. Hudson River foundation, New York, NY. 82 pp.
19 Fish that live in salt water, but return to fresh water to spawn.

Table 4-7 Common East River Resident and Seasonal Resident Fish Species (cont.)

Common Name	Scientific Name	Status[1]
Winter flounder	*Pseudopleuronectes americanus*	R
Windowpane flounder	*Scophthalmus aquosus*	R
Northern pipefish	*Syngnathus fuscus*	R
Cunner	*Tautoga adspersus*	R
Red hake	*Urophycis chuss*	R
Spotted hake	*Urophycis regia*	R

Source: TRC Environmental. 1999. Combined Cycle Project, Astoria Queens, New York. Application for Certification of a Major Electric Generating Facility. Prepared for the Power Authority of New York.
1 R = resident, S = seasonal resident

4.2.2.4 Essential Fish Habitat (EFH)

EFH has been designated for the various life stages of 17 managed species in the vicinity of the Project Area based upon the National Marine Fisheries Service (NMFS) 10 x 10 minute quadrant area (Table 4-8).

Table 4-8 Designated Essential Fish Habitat in the Study Area

Common Name	Scientific Name	Eggs	Larvae	Juveniles	Adults
Dusky shark	*Carcharhinus obscurus*		X		
Sandbar shark	*Carcharhinus plumbeus*		X		X
Sand tiger shark	*Carcharias taurus*		X		
Black sea bass	*Centropristis striata*	n/a		X	X
Atlantic sea herring	*Clupea harengus*		X	X	X
Summer flounder	*Paralichthys dentatus*		X	X	X
Atlantic butterfish	*Peprilus triacanthus*		X	X	X
Pollock	*Pollachius virens*			X	X
Bluefish	*Pomatomus saltatrix*			X	X
Winter flounder	*Pseudopleuronectes americanus*	X	X	X	X
Cobia	*Rachycentron canadum*	X	X	X	X
Atlantic mackerel	*Scomber scombrus*			X	X
King mackerel	*Scomberomorus cavalla*	X	X	X	X
Spanish mackerel	*Scomberomorus maculatus*	X	X	X	X
Windowpane flounder	*Scophthalmus aquosus*	X	X	X	X
Scup	*Stenotomus chrysops*	X	X	X	X
Red hake	*Urophycis chuss*		X	X	X

Source: NMFS, 2013.

Several of the species listed have been collected near the Project Area and would be expected to be seasonal or permanent residents of the Upper East River. Atlantic butterfish, Atlantic sea herring, black sea bass and bluefish could be expected to be found in the vicinity of the Project Area based on their habitat preferences. Windowpane flounder and winter flounder eggs, post yolk-sac larvae and juveniles were collected at a nearby sampling location in 2002, at the time data were collected for this study.[20] This indicates that these species use the East River for spawning and nursery habitat. Larval and juvenile black sea bass were also collected at a nearby sampling location in 2002.[21]

A number of seasonally abundant forage fish may potentially occur within Bowery Bay or the East River. These include Atlantic menhaden, Atlantic silverside, Atlantic tomcod and bay anchovy. These forage species are primarily pelagic- not relying on specific habitats. Bay anchovy, Atlantic menhaden eggs and larvae were collected in 2002 at a sampling station in Astoria, indicating that they use the waters surrounding the Project Area as spawning and nursery habitat.

The immediate vicinity of Project Area is also designated as EFH for juvenile sand tiger shark, juvenile dusky shark and juvenile sandbar shark. In addition it is also designated as EFH for adult sandbar sharks. Sand tiger sharks, although commonly found in estuaries, are usually found south of the Project Area from Barnegat Inlet, New Jersey south to Cape Canaveral, Florida. Dusky and sandbar sharks are not commonly found in estuaries and avoid low salinity levels. The shallow (less than 7 feet) estuarine habitat within Flushing Bay and Bowery Bay would not meet the preferred habitat requirements for these species and they would not be expected to occur within the immediate vicinity of the Project Area. These species may migrate through the deeper waters of the East River.

4.2.2.5 Threatened and Endangered Species

Requests for information on threatened, endangered and special concern species within the immediate vicinity of the Study Area were submitted to NYNHP, NMFS, and the USFWS New York Field Offices. Correspondence received from the NYNHP indicated that there were "no records or known occurrences of rare or state-listed animals, plants, significant natural communities or other significant habitats" at or in the immediate vicinity of the Project Area. NMFS indicated that the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), which has been proposed for listing as endangered, may occur in Flushing Bay. NMFS and USFWS list four sea turtle species, the federally threatened loggerhead (*Caretta caretta*), the federally endangered Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), and leatherback (*Dermonchelys coriacea*), as potentially occurring within the

20 PBS&J/LMS Joint Venture. 2003. *Population-Level Effects of Entrainment and Impingement at the Charles Poletti Power Plant on Fish Stocks of Long Island Sound, Raritan Bay, Lower Hudson River and New York Harbor*, prepared for New York Power Authority.
21 Ibid.

East River in the vicinity of the project site. The USFWS also lists the endangered Roseate tern (*Sterna dougallii dougallii*) and threatened piping plover (*Charadius melodus*) and seabeach amaranth (*Amaranthus pumilus*) as species possibly occurring in the vicinity of LGA. These species are described below.

Atlantic Sturgeon

The New York Bight population of the Atlantic sturgeon has been designated a distinct population segment (DPS) of this species that has been proposed for re-classification along with the Chesapeake Bay, Carolina, and south Atlantic coastal sub-population to "endangered" in accordance with the Endangered Species Act (ESA). The species has been in decline due to bycatch, habitat degradation, ship strikes, and locks and dams. The Gulf of Maine sub-population would be re-classified as threatened. Individuals of all subpopulations could potentially occur in the Upper East River.

Atlantic sturgeon are reported to forage in shallow nearshore waters with sand or gravel substrates, and feed on a variety of benthic macro-organisms (finfish, mollusks, bivalves, gastropods, shrimp, polychaetes). Although they have been reported from Long Island Sound and the Hudson River, the East River (including Flushing Bay and Bowery Bay) is not critical habitat, does not provide breeding habitat, and is not the direct estuary of any river where these species have been reported to breed. The Project Area (Upper East River) is also highly degraded due to discharges from combined sewer overflows, marine industry, and other historic discharges.

The Port Authority has recently commissioned a study of the Project Area to evaluate winter flounder (EFH) values. To-date, the study suggests that there is no evidence that the area is used for overwintering or spawning by winter flounder, i.e. no larvae. There is little to no evidence of shellfish in the area – mostly soft bottom sediments with a low density of polychaetes and oligochaetes present. An area identified in the literature as an "oyster reef" showed only decomposing shell hash. Larvae found at the site were mostly from EFH prey species (not EFH-managed species) that are found throughout the region. As the area has relatively strong currents, it is not unexpected that larvae from a range of species are found moving through the area. The study found no evidence of the use of the region by either Atlantic or shortnose sturgeon, and indicates that there is no suitable preferred habitat for foraging, as the silty substrate is not optimal, there are no mollusk beds, and no concentrations of other prey species.

Sea Turtles

Four species of marine turtles, all state- and federally listed, can occur in western Long Island Sound and the New York Harbor complex, typically as small juveniles. Juvenile Kemp's ridley and loggerhead turtles regularly enter the New York Harbor and bays in the summer and fall. The other

two species, green sea turtle and leatherback sea turtle, are usually restricted to the higher salinity areas of the Harbor and are rarely found in-shore.[22] These four turtle species mostly inhabit Long Island Sound, and the Peconic and Southern Bays. They do not nest in the New York Harbor Estuary and do not reside there year-round.[23] Turtles leaving Long Island Sound for the winter usually do so by heading east to the Atlantic Ocean before turning south.[24] It is unlikely that these turtle species would occur in the Study Area in the Upper East River except as occasional transients.

Seabeach Amaranth

The seabeach amaranth is a federally listed threatened plant species native to Atlantic Coast beaches and barrier islands. The primary habitat of seabeach amaranth consists of overwash flats at accreting ends of islands, lower foredunes, and upper strands of non-eroding beaches (landward of the wrackline), although the species occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, areas between dunes, and on sand and shell material deposited for beach replenishment or as dredge spoil. Seabeach amaranth usually grows on a nearly pure sand substrate, occasionally with shell fragments mixed in.[25] Due to the lack of habitat observed in the Study Area, this plant species is not expected to occur around LGA.

Roseate Tern

Roseate tern is a federally listed endangered bird species that breeds on barrier islands, such as those in Long Island Sound and Upper East River, and begin arriving to these areas at the end of April. North and South Brother Islands may be possible habitat for this species. Terns typically breed through the summer and then migrate south starting in late August/early September.[26] Roseate terns often forage and nest with common terns, which have been observed flying over or foraging west of the Airport in Flushing Bay during recent surveys (2012).

Piping Plover

Piping plover is a federally listed threatened bird species that prefers flat and open sandy beaches with minimal vegetation cover for breeding, such as those found along the sandy beaches of Long Island Sound. Piping plovers arrive at their breeding sites in early to mid-March and breed through

22 United States Fish and Wildlife Services (USFWS). 1997. *Significant Habitats and Habitat Complexes of the New York Bight Watershed*. USFWS Southern New England – New York Bight Coastal Ecosystem Program, Charlestown, RI.
23 Morreale, S.J. and E.A. Standora. 1995. *Cumulative evidence of southward migration of juvenile sea turtles from temperate northeastern waters*. Proceedings of the Twelfth Annual Workshop on Sea Turtle Biology and Conservation. Pp. 85-86. NOAA Technical Memorandum NMFS-SEFSC-361.
24 Standora, E.A., S.J. Morreale, R.D. Thompson, and V.J. Burke. 1990. *Telemetric monitoring of diving behavior and movements of Kemp's ridleys*. Proceedings of the Tenth Annual Workshop on Sea Turtle. Biology and Conservation. Page 133. NOAA Technical Memorandum NMFS-SEFC-278.
25 United States Fish and Wildlife Services (USFWS). May 2011. Seabeach Amaranth (*Amaranthus pumilus*) Fact Sheet. Accessed 18 February 2013. http://www.fws.gov/northeast/njfieldoffice/Endangered/amaranth.html
26 United States Fish and Wildlife Services (USFWS). May 2011. Roseate Tern: North American Subspecies (*Sterna dougallii dougallii*) Fact Sheet. Accessed 18 February 2013. www.fws.gov/northeast/pdf/Roseatetern0511.pdf

early September before migrating south in the fall.[27] Due to the lack of habitat, they are not expected to be using the Study Area.

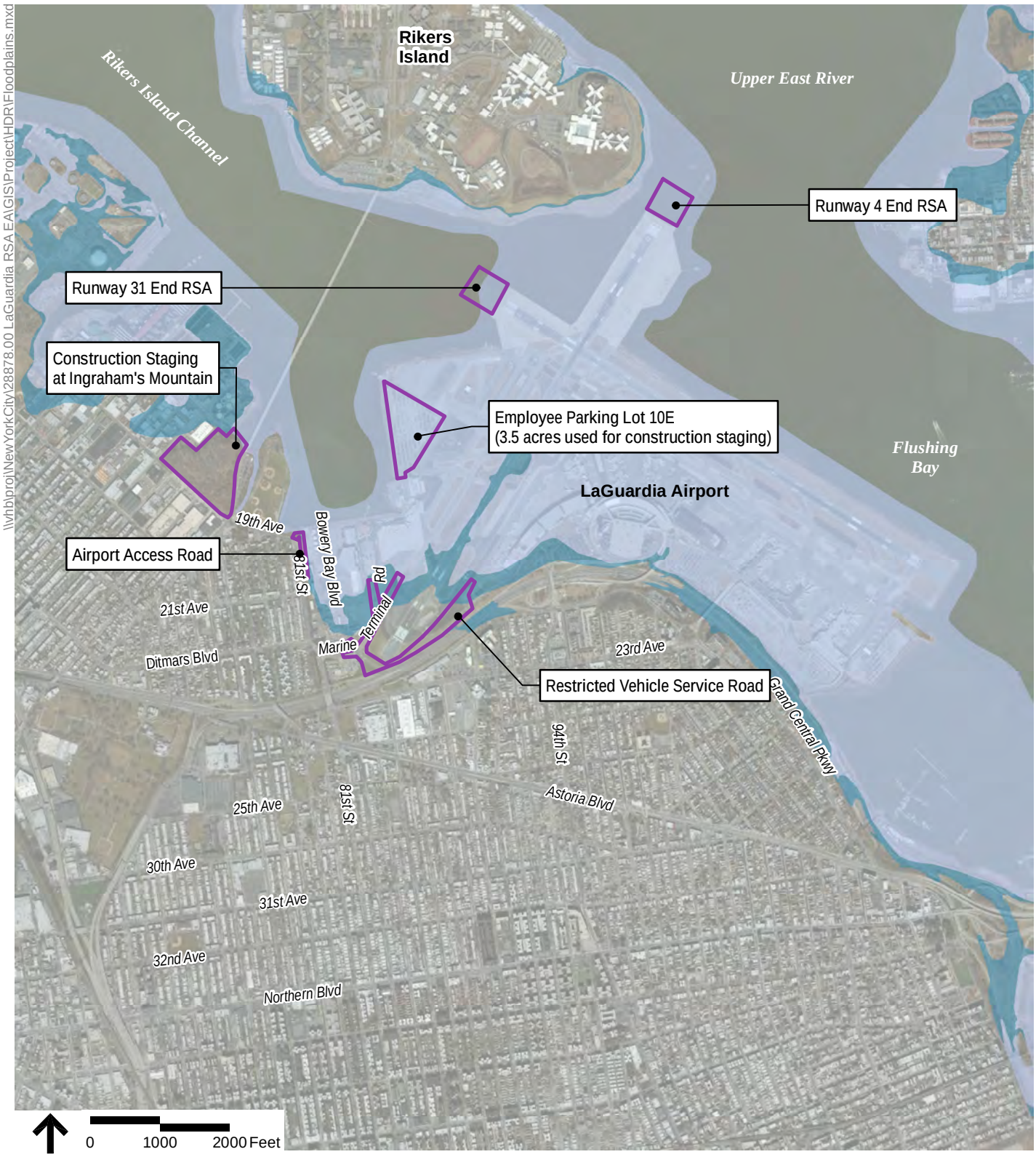
4.2.3 Floodplains

Floodplains are evaluated as required by FAA Order 5050.4B and Order 1050.1E, Change 1, Appendix A.9 as well as Executive Order (EO) 11988.[28] Extreme flooding levels are dominated by storm effects (i.e., storm surge) in combination with the astronomical tides. Storm surge is a temporary rise in the water level generated either by large-scale extra-tropical storms (known as northeasters), or by hurricanes. Storm tide elevations were taken from the Federal Emergency Management Agency (FEMA) Flood Insurance Study of New York City (2007).[29] As shown in Figure 4-3, FEMA has mapped the eastern perimeter of the Airport facility (including the Runway 4 End) as *VE*, indicating additional velocity hazards due to storm-induced wave action.[30] Calculated Base Flood Elevations for the 100-year flood event are between approximately 12.9 and 14.9 feet.[31] The shoreline along the western portion of LGA (including the Runway 31 End) is mapped as *AE*, indicating less of a chance for velocity hazard due to wave action, with a Base Flood Elevation of approximately 13.9 feet.

LGA was significantly impacted by flooding from Hurricane Sandy in October 2012, but recovery was relatively quick despite the inundation. The infrastructure held up well after the storm including items such as the existing EMAS beds. The lessons learned from Hurricane Sandy are incorporated into a Port Authority-wide response to planning for similar types of events including improving infrastructure resiliency and operational recovery.

In 2013, after Hurricane Sandy, FEMA published Advisory Base Flood Elevation maps for New York City.[32] The Advisory Base Flood Elevations along the shorelines of LGA are between 14 and 16 feet NAVD88 for the 100-year flood event and between 17 and 19 feet for the 500-year event. Most of the shoreline surrounding both runways is mapped as *V*, indicating additional velocity hazards due to storm-induced wave action.

27 United States Fish and Wildlife Services (USFWS). May 2007. Piping Plover Project Review Fact Sheet. New York Field Office. Accessed 18 February 2013. www.fws.gov/northeast/nyfo/es/PipingPloverFactSheet07.pdf
28 Executive Order 11988, *Floodplain Management.* May 24, 1977.
29 Federal Emergency Management Agency. 2007. New York City Flood Insurance Study, Report No. 7: Total Stillwater Frequency-Elevations.
30 FEMA Flood Insurance Rate Map Nos. 3604970111F; 360497113F; 3604970092F; 3604970094F
31 All elevations are based on the NAVD88 datum.
32 FEMA Advisory Base Elevations Map. 2013. http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=2f0a884bfb434d76af8c15c26541a545



Source: ArcGIS Bing Aerial Service, FEMA FIRMettes

Legend

- Project Area
- 500-Year Floodplain
- 100-Year Floodplain

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 4-3
Floodplains

4.2.4 Hazardous Materials

Research was conducted to identify known, or suspect, petroleum, hazardous materials and solid waste present in, and around, the Project Area. Due to a history of industrialization and urbanization in the area, New York Harbor sediments, including the East River, are contaminated with substances such as pesticides, metals, and various polycyclic hydrocarbons. Over the past 30 years, the levels of most sediment contaminants (e.g., dioxin, DDT, and mercury) have decreased on average by an order of magnitude.[33] Between 1993 and 1998, the percentage of sediment sampling locations considered impacted, or of degraded quality, decreased throughout the Harbor.[34] A strong east-west concentration gradient was observed for silver, lead, nitrates and phosphates in the East River-Long Island Sound system with the highest concentrations found in the Lower East River and decreasing to the east.[35] Cadmium and copper were found to be relatively constant throughout the East River into Long Island Sound.

In relation to the Ingraham's Mountain Construction Staging Area, records show that there have been previous petroleum and hazardous material impacts to soil, as well as the presence of solid waste, at Ingraham's Mountain. The Restricted Vehicle Service Road (RVSR) construction has the potential to encounter soil and groundwater impact by petroleum and hazardous materials. There are no sites in the Project Area that are listed on the EPA's National Priority List.

4.2.5 Historic, Architectural and Cultural Resources

Cultural resource impact evaluations were conducted in accordance with FAA Order 5050.4B, FAA Order 1050.1E, Change 1, Appendix A.11, and the *FAA Environmental Desk Reference for Airport Actions*, Chapter 14. The historical and cultural resources evaluation was conducted to support FAA's requirements for compliance with the Section 106 regulations issued pursuant to the National Historic Preservation Act, as amended (36 CFR 800). These evaluations also considered the New York State Section 14.09 regulations and the New York City Landmarks Preservation Commission (LPC) guidelines pertinent to the treatment of projects involving state and local jurisdictions.

The FAA notified the New York Office of Parks, Recreation, and Historic Preservation (OPRHP) of the Proposed Action and defined an Area of Potential Effect (APE) for direct and indirect impacts. The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The

33 Steinberg, N., D.J. Suszkowski, L. Clark, and J. Way. 2004. Health of the Harbor. The First Comprehensive Look at the State of the NY/NJ Harbor Estuary. A report to the NY/NJ Harbor Estuary Program. Hudson River foundation, New York, NY. 82 pp.
34 Ibid.
35 Sweeney, A., S.A. Sanudo-Wilhelmy. 2004. Dissolved metal contamination in the East River – Long Island sound system: potential biological effects. Marine Pollution Bulletin. 48: 663-670.

APE includes all areas subject to direct impact during the preparation of and implementation of the Proposed Action or which may be affected by indirect actions such as light or noise changes. For purposes of this study, the indirect impact area was defined as ¼-mile from the edge of the Project Area (Figure 4-4).

The proposed RVSR is adjacent to the Grand Central Parkway, which is a listed property on the State Register and in the LPC listing. The NRHP-listed Lent Homestead and Cemetery (OPRHP 90NR01565), Steinway House (90NR01587), and the Marine Air Terminal (90NR01580) are within the APE, as is Hangar 5, which has been determined to be potentially eligible for the National Register. However, none of the elements of the proposed project are within 90 feet of these properties.

No previously reported archaeological sites are located within the Project Area, which includes the terrestrial and off-shore direct impact areas.[36] Four archaeological sites are reported in the APE.[37] Due to the presence of these sites, the OPRHP classifies the area along 19th Avenue as archaeologically-sensitive. Based on Department of Commerce Coastal & Geodectic Survey (C&GS) maps dated between 1877 and 2000 and United States Geological Survey coverage dated between 1891 and 1900, 19th Avenue follows the original shoreline. The original shoreline, however, has been altered by residential and commercial development and fill emplacement which reduced Bowery Bay significantly on its west side and filled a mud flat between the original shore and a peninsular feature immediately east of Steinway Creek. While it is unlikely that structural remnants or associated features remain due to the alteration of that area, the available mapping indicates that some of Ingraham's Mountain rests on the original peninsula. Based on the locations of other known sites along the larger shoreline, the peninsula now under Ingraham's Mountain would have been an attractive location for settlement by Native Americans.

The C&GS maps show the presence of a single shipwreck off the shore of LGA. This shipwreck lies outside of the Project Area and the United States Army Corps of Engineers (USACE) reports no shipwrecks within the Project Area.

36 By email dated 3/25/13, Nancy J. Brighton (USACE) confirmed that no off-shore cultural resources are present in the Proposed Action's direct impact areas. See Appendix A, *Agency Coordination.*

37 These four sites are OPRHP sites 08101.000102 and 08101.000103 and New York State Museum (NYSM) sites 04532 and 04533.

Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Direct Impacts APE

Indirect Impacts APE

College Point — Neighborhood

Queens — Borough

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 4-4

Section 106 Area of Potential Effect

\\nynydata\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Area of Potential Effect1.mxd

4.2.6 Light Emissions and Visual Environment

According to FAA Order 1050.1E, Change 1, Appendix A.12, the FAA must consider the extent to which any lighting associated with any action would create an annoyance among people in the vicinity or interfere with their normal activities.[38]

Lighting systems at LGA provide for the safe and secure movement of aircraft, vehicles, and pedestrians. LGA is illuminated by various types of lighting (e.g., security lighting, approach lights, vehicle lights, obstruction lights, airport beacon, aircraft lights, warning lighting system), which generate light emissions that can impact light-sensitive areas in the vicinity of LGA.

Airfield Lighting and NAVAIDS

The Runway 4 and 31 Ends have runway edge lights and centerline lights. Runway edge lights are classified according to the intensity the lights are capable of producing (as high, medium, or low). Each of these runways is equipped with High Intensity Runway Lights (HIRLs), equally spaced in one row on each side of the runway, and approximately 10 feet from the runway edge. The Runways 4 and 31 Ends both have touchdown zone lighting and Runway End Identifier Lights (REIL).

Approach lighting systems are used in conjunction with NAVAIDS to guide approaches to the runways. The Runway 31 End is equipped with a Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). The Runway 4 End has a light pier with a MALSR that extends 2,400 feet away from the runway threshold. It is a required component of an Instrument Landing System (ILS) approach. The taxiways at LGA are equipped with centerline lights, except for Taxiway AC.

Although there are light-sensitive areas located adjacent to LGA (such as residential areas in Ditmars/Steinway and East Elmhurst), the existing airfield and NAVAIDS lighting are not directed towards these areas.

Surface Transportation Lighting

Internal on-Airport roadways at LGA, such as Bowery Bay Boulevard, Marine Terminal Road, Runway Drive, and LaGuardia Road, are lit by street lighting that has been designed to minimize light emissions to the extent required by applicable regulations. Similarly, off-Airport roadways surrounding LGA, including 81st Street, Ditmars Boulevard, the Grand Central Parkway, and 94th Street are equipped with street/highway lighting. Currently there is no lighting on the Ingraham's Mountain property.

38 Federal Aviation Administration. 20 March 2006. Order 1050.1E, *Environmental Impacts: Policies and Procedures*.

4.2.6.1 Visual Environment

Per FAA Order 5050.4B and FAA Order 1050.1E, Change 1, Appendix A.12, the FAA must evaluate any impacts to the visual and aesthetic environment on and around airports. The existing visual environment of the Project Area, as well as views of the Project Area from potentially affected nearby residential properties in Astoria Heights/Steinway and East Elmhurst, are described below. This evaluation was conducted through a review of aerial photography, land use, and topographic maps to identify important existing viewsheds from areas accessible to the public. These viewsheds were then inventoried via a photographic survey in January 2013, with vegetation in leaf-off conditions.

Runway 4-22

Runway 4-22 extends from the southwestern portion of LGA northeast to Flushing Bay.

- **Runway 4 End**—The Runway 4 End faces Flushing Bay. There are no developed areas adjacent to the Runway 4 End, as it is at the edge of Flushing Bay. The Runway 4 End can be seen from the eastern end of Rikers Island,[39] as well as from the College Point neighborhood in Queens, including the publicly accessible Hermon A. Macneil Park. The view from Rikers Island is of the entire runway and any adjacent piers, with open water. Due to the distance between the Runway 4 End and College Point (Macneil Park, approximately 1 mile), the view from College Point is primarily of open water, the light pier, and the distant runway end.
- **RVSR Area**—The RVSR area faces the southwestern portion of LGA, the Grand Central Parkway, and the East Elmhurst neighborhood. The area immediatly adjacent to the Runway 22 End is Airport property, including the runway protection zone (RPZ), landscaped areas, and rental car facilities. These areas are surrounded by access roadways (Runway Drive and Marine Terminal Road), changes in topography and landscaping that obscure views, and the Grand Central Parkway. Beyond the Grand Central Parkway right-of-way are the industrial and retail uses of East Elmhurst. As residential uses are further beyond 82nd Street and Astoria Boulevard, the RVSR portion of the Project Area cannot be seen from any residential areas.

Runway 13-31

Runway 13-31 extends from the northwest portion of LGA southeast to Flushing Bay. The Runway 31 End faces Bowery Bay. There are no developed areas adjacent to the Runway 31 End, as its end is at the edge of Bowery Bay and the runway itself is surrounded by Airport property. The Runway 31 End can be seen from Rikers Island and the Rikers Island Bridge. However, the Runway 31 End cannot be seen from any residential or publicly-accessible areas, such as Elmjack Field or the Astoria

39 Rikers Island is a facility run by the New York City Department of Corrections.

Heights/Steinway neighborhood. The view from Rikers Island is of the entire runway and any adjacent piers, with open water in the foreground.

Ingraham's Mountain

Ingraham's Mountain, bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard, is a prominent landscape feature, especially in the industrial section of the Astoria Heights/Steinway neighborhood, along 19th Avenue. It is wooded and rises approximately 86 feet above the adjacent streets. Given its height and mass, it is similar to an eight-story building, which is higher than most of the buildings in the surrounding area (most of which are one- and two-story industrial/distribution uses). Ingraham's Mountain can be seen throughout the Ditmars/Steinway neighborhood – along 19th Avenue, 45th Street, Berrian Boulevard, and further away along the viewsheds down 45th Street through Hazen Street. The bay-facing side of Ingraham's Mountain can also be seen from the Rikers Island Bridge, Rikers Island, and the Amtrak Northeast Corridor tracks.

4.2.7 Noise

The Project Area environment includes noise sensitive sites such as residential dwellings and hotels along Ditmars Boulevard and the Grand Central Parkway, south and west of the LGA; residences along 81st Street and 19th Avenue; residences east of the Runway 4 End across Flushing Bay; as well as residential buildings at Rikers Island. The noise environment within these areas is greatly influenced by vehicular traffic and aircraft flyovers, typical of an urban setting near an airport. Chapter 17 of the FAA *Environmental Desk Reference for Airport Actions* outlines noise analysis procedures for FAA NEPA evaluations. As the Proposed Action would not affect runway length or aircraft operations, characterization of existing noise levels and an analysis of aviation impacts on surrounding noise sensitive land use are not necessary. The existing noise conditions in the vicinity of construction activities are described in Section 5.14.5, *Noise*.

4.2.8 Socioeconomic Conditions and Environmental Justice Communities

According to FAA Order 5050.4B and FAA Order 1050.1E, Change 1, the FAA must evaluate proposed airport development actions to determine if they would cause social impacts, including effects on health and safety risks to children, socioeconomic impacts, and assessment of the potential to cause disproportionate and adverse effects on low-income or minority populations. This section provides an overview of the existing socioeconomic conditions in the Study Area, and identifies low-income and minority populations.

4.2.8.1 Socioeconomic Conditions

LGA currently employs about 10,000 people. Recent economic studies have shown that the Airport contributes more than $13.6 billion in annual economic activity to the New York/New Jersey region

and generates about 103,000 total jobs and $4.9 billion in annual wages and salaries.[40] Additional income and employment opportunities are generated in the region on a temporary basis whenever the Airport undertakes a significant capital project (such as the Proposed Action).

For the purposes of this Environmental Assessment (EA), the Study Area for socioeconomic and environmental justice communities is defined as the land within ¼-mile from Proposed Action activities, as this is the area that has the potential for the project activities to have direct and indirect impacts on residential populations and publicly-accessible locations. As previously noted, LGA is located adjacent to two Queens neighborhoods (East Elmhurst and Ditmars/Steinway) as well as Rikers Island (technically a neighborhood of the Bronx). Each of the neighborhoods are described below and shown in Figure 4-5.

Ditmars/Steinway

The Ditmars/Steinway neighborhood is bound by the East River to the west, LGA to the east, Bowery Bay to the north, and Astoria Boulevard and the Grand Central Parkway to the south. It is characterized predominantly by one-, two- and three-family detached homes, including the Riker-Lent Homestead, as well as a few multi-family apartment complexes, and industrial uses north of 20th Avenue.[41]

East Elmhurst

The East Elmhurst neighborhood is bounded on the east and north by the Grand Central Parkway and Flushing Bay, on the south by Northern Boulevard, and on the west by 85th Street. It is characterized mostly by one- and two-family homes.[42]

Rikers Island

Rikers Island is within the East River and is connected to the Borough of Queens and the Ditmars/Steinway neighborhood via the Rikers Island Bridge (Francis Buono Bridge) along Hazen Street. Rikers Island is actually in the Bronx, however, like Ditmars/Steinway, Rikers Island is part of Queens Community District 1, but is within Bronx Census Tract 1. Rikers Island is New York City's main jail complex, with a total of 10 facilities as well as supporting uses such as schools, medical clinics, houses of worship, recreational facilities, retail and service uses, and a power plant.

40 Port Authority of New York and New Jersey. Accessed March 20, 2013. www.panynj.gov/airports/lga-facts-info.html. LaGuardia Facts and Information.
41 Ditmars/Steinway is part of Queens Community District 1 and Queens Census Tracts 107.01, 123.01, 135, and 317 are in this neighborhood.
42 East Elmhurst is part of Queens Community District 3. Queens Census Tracts 309.04, 329, 331 (which is LGA), 347, and 357 are in this neighborhood.

Sources: ArcGIS Bing Aerial Service; NYCDCP, MaPLUTO

Legend

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Socioeconomic Study Area

New York State Census Tracts

College Point Neighborhood

Queens Borough

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Figure 4-5

Socioeconomic Study Area

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Table 4-9 presents a comparison of the socioeconomic characteristics of the Study Area for each neighborhood (figures only include those portions of the neighborhood that fall within census tracts that are within the Study Area), the borough of Queens, and New York City.

Table 4-9 Comparison of Existing Demographic and Housing Characteristics

	Neighborhood					
	Ditmars/Steinway	East Elmhurst	Rikers Island	Study Area[1]	Queens Borough	New York City
Population	10,772	15,945	11,091	5,483	2,230,722	8,175,133
Race						
White	8,781	6,438	1,724	2,612	886,053	3,597,341
African American	179	2,341	6,515	291	426,683	2,088,510
Asian	608	2,323	180	573	511,787	1,038,388
Native American	15	142	117	19	15,364	57,512
Pacific Islander	5	9	28	7	1,530	5,147
Other	1,184	4,692	2,527	1,981	389,305	1,388,235
Hispanic	1,798	8,857	3,779	1,805	613,750	2,336,076
Households	4,279	4,723	NA	1,893	773,130	3,049,978
Housing Units	4,654	5,179	NA	2,048	833,401	3,356,992
Housing Occupancy						
Occupied (Total)	4,279	4,723	NA	1,893	773,130	3,049,978
Owner-Occupied	2,330	2,622	NA	968	347,077	993,511
Renter Occupied	1,949	2,101	NA	925	426,053	2,056,467
Vacant	375	456	NA	155	60,271	307,014

Source: 2010 United States Census; 2007-2011 American Community Survey 5-Year Estimates.
1 Study Area information based upon ESRI Business Analyst 2010 Census Profile.
NA Not Applicable.

4.2.8.2 Environmental Justice Communities

EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations,*[43] 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. United States Department of Transportation (USDOT) Order 5610.2, *Environmental Justice in Minority Populations and Low-Income Populations,*[44] was issued to implement EO 12898, as

43 Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.* February 11, 1994.
44 United States Department of Transportation. Order 5610.2(a), *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.*

referenced in FAA Order 5050.4B and FAA Order 1050.1E, Change 1. This environmental justice assessment is consistent with Commissioner Policy 29 (CP-29), *Environmental Justice and Permitting,*[45] which is the NYSDEC's policy on environmental justice.

USDOT Order 5610.2 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 United States Department of Health and Human Services.

Federal standards defer to state or local standards when available. Regionally-defined thresholds are more sensitive to specific conditions and provide a better metric for identifying minority, Hispanic, and low-income populations. Methods for identifying environmental justice populations followed the guidelines of the regional planning agency. The New York Metropolitan Transportation Council (NYMTC) is the designated Metropolitan Planning Organization for the New York metropolitan region. NYMTC established regional thresholds for defining environmental justice populations in *Environmental Justice Assessment* (June 2009):

- **Minority Community:** The minority population of a census tract in 2000 was 52 or more percent of the population (the regional average). USDOT Order 5610.2 defines minorities as people who are Black, Hispanic, Asian-American, American Indian or Alaskan Native, or Native Hawaiian or Pacific Islander.
- **Low-Income Community:** The regional average in 2000 was 16 percent or more of a census tract population earning an income in 1999 at or below the poverty level.
- A **Community of Concern** is a census tract where both the minority population and low income population criteria are met.

Figures 4.4 and 4.7 of the *Environmental Justice Assessment* (NYMTC Low Income and Minority Populations: Bronx County and Queens County), respectively, indicated that some of the census tracts within the Study Area are characterized as Minority, Low-income, or Communities of Concern in 2009, based on the 2000 United States Census. Note that similar areas were identified by NYSDEC in its *Potential Environmental Justice Areas in Queens County, New York* and *Potential Environmental Justice Areas in Bronx County, New York* maps, which were based on the 2000 United States Census.

Since the issuance of the *Environmental Justice Assessment* in 2009, new census information has been released by the United States Census Bureau. Therefore, for the purposes of this EA, each of the

45 New York State Department of Environmental Conservation. 2003. Commissioner Policy 29, *Environmental Justice and Permitting.* March 19, 2003

census tracts within the Study Area was re-evaluated for the presence of environmental justice communities based upon 2010 United States Census data. As NYMTC has not updated its *Environmental Justice Assessment*, the same percent thresholds were used (52 percent minority; 16 percent low-income). Note that the entire census tract was evaluated, not just the portion within the Study Area boundaries, as NYMTC established the regional environmental justice thresholds at the census tract level (as opposed to the block or block group level, which would more closely align with the Study Area boundaries). Table 4-10 presents information on environmental justice populations within the Study Area.

Table 4-10 Environmental Justice Populations

Neighborhood	Census Tract[2]	Population	% Minority	% Below Poverty Line	Community of Concern?
Ditmars/Steinway	*Q107.01*	NA	NA	NA	No
	Q123.01	2,910	21.8	12.0	No
	Q135	1,711	14.0	8.4	No
	Q317	6,151	28.1	14.8	No
East Elmhurst	*Q309.04*	3,712	72.4	12.6	No
	Q329	4,018	89.1	11.4	No
	Q331	NA	NA	NA	No
	Q347	3,268	93.3	15.7	No
	Q357	4,947	88.0	12.4	No
Rikers Island	*Bx1*	11,091	95.7	NA	No
Study Area[1]		5,483	49.2	10.0	No
Queens Borough		2,230,722	70.3	13.7	NA
New York City		8,175,133	67.6	19.4	NA

Source: 2010 United States Census; 2007-2011 American Community Survey 5-Year Estimates.
Notes: **Bold** numbers indicate minority concentrations.
1 Study Area information based upon ESRI Business Analyst 2010 Census Profile.
2 Q=Queens; Bx=Bronx.

Table 4-10 shows that some of the census tracts within the Study Area contain minority concentrations (highlighted in bold), notably the East Elmhurst neighborhood, which contains a higher percentage of Asian-American and Hispanic/Latino populations than in Queens Borough as a whole. None of the census tracts contain low-income concentrations, and there are no Communities of Concern.

4.2.8.3 Municipal Plans

Public policies, plans, and documents in New York City include: Urban Renewal Plans; 197-a Plans (named for guidance provided in Section 197-a of the City Charter); Solid Waste Management Plan; and the WRP, among others. Within New York City, community-based plans can be developed by community boards, borough boards, the Mayor, New York City Department of City Planning, and any Borough President, as set out in Section 197-a of the City Charter. These plans must be approved by the New York City, City Planning Commission and adopted by the City Council. There are no 197-a plans associated with the Ditmars/Steinway, East Elmhurst or Rikers Island communities, nor with Queens Community Districts 1 or 3. However, the Citywide WRP is considered a 197-a plan and was adopted in 1982 and again in 1999. Section 4.2.2, *Coastal Resources,* discusses the waterfront policies relevant to this project.

4.2.9 Surface Transportation

In accordance with FAA Order 1050.1E, Change 1, paragraph 405(e) and FAA Order 5050.4B paragraph 706(e), this section describes the roadway network and existing levels of service within the Traffic Study Area (Figure 4-8). The existing traffic conditions are summarized in terms of the existing levels of service.

4.2.9.1 Study Intersections

Nine existing study intersections were selected along the major approach route of 81st/82nd Streets and 19th Avenue to the Ingraham's Mountain Construction Staging Area from the Brooklyn-Queens Expressway, Grand Central Parkway and Astoria Boulevard, as shown in Figure 4-6. These include:

- 19th Avenue / 45th Street
- 19th Avenue / Hazen Street
- 81st Street / 21st Avenue
- 81st Street / Ditmars Boulevard
- Ditmars Boulevard and 82nd Street / Marine Terminal Road
- 82nd Street / Westbound Grand Central Parkway Off-Ramp
- 82nd Street / 23rd Avenue
- Grand Central Parkway North Service Road / Astoria Boulevard North
- 23rd Avenue / Astoria Boulevard North

Source: PANYNJ

Legend

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Study Intersections

Proposed Construction Vehicle Access to Airport [1]

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Figure 4-6

Traffic Analysis Study Area

[1] Temporarily used during the RSA Enhancement Project construction period.

4.2.9.2 Existing Levels of Service

All nine existing intersections currently operate at acceptable levels of service during the 6:30 to 7:30 AM peak hour. However, at other times of the day, three traffic movements operate at unacceptable levels of service: the northbound approach at 19th Avenue / Hazen Street; the westbound right-turn movement at 82nd Street/23rd Avenue; and the westbound approach at Grand Central Parkway North Service Road / Astoria Boulevard North. The weekday AM traffic volume map and detailed level of service tables for the existing AM construction peak hour are provided in Appendix D, *Surface Transportation*.

4.2.10 Water Quality

FAA Order 5050.4B provides the basis for delineating the scope of the FAA's assessment of water quality impacts under NEPA, the Clean Water Act (CWA), and the Safe Drinking Water Act (SDWA) and contains guiding criteria for determining the extent of water quality analysis. FAA Order 1050.1E, Change 1 also directs agency personnel to ensure that a water quality assessment prepared under NEPA includes an analysis and summary conclusions of the Proposed Action's impacts on water quality.

The following discussion presents a brief summary of the physical conditions of the Upper East River that influence water quality. The East River is a tidal strait extending approximately 16 miles from the Battery at the southern end of Manhattan north along its eastern shore to Randall's Island, where it connects with the Harlem River and turns east toward its confluence with the Long Island Sound. Hell Gate is recognized as the dividing line between the Upper and Lower East River (Figure 4-2). The Upper East River is a deep, swift channel with numerous shallow embayments along both shores and several major islands. The federal Navigation Channels[46] are at depths of 40 feet below mean low water (MLW) from the Battery to the Brooklyn Navy Yard and 35 feet from that point through the Throgs Neck Bridge. The Upper East River passes around Rikers Island to the north and south. The LGA runways extend out into the East River into the channel south and east of Rikers Island.

Freshwater flows to the East River are not substantial compared to the tidal hydrodynamics of the system, with a relatively small volume of freshwater inflow. NOAA (1985) estimated that the volume of water introduced from freshwater tributaries is smaller than the amount introduced from tidal action by about 220 times on an annual basis. However, the freshwater inflows substantially affect the chemical oceanography of the system resulting in seasonal variability of salinity events and water quality associated with precipitation events. The principal sources of freshwater to the East River are:

46 A deeper channel cut into the river bed, to enable larger ships to pass through to a port.

- The Hudson River (via the Harlem River and the Battery);
- Wastewater discharges from treatment plants;
- Several combined sewer and stormwater overflows;
- Tributaries to the East River; and
- Direct stormwater runoff.

NYCDEP has conducted water quality monitoring throughout the Harbor for decades. Measured water quality parameters in the Upper East River and Long Island Sound area have been exhibiting improving trends over the past 25 years. Fecal coliform levels in the Upper East River have generally declined and stayed below the NYSDEC's standard for bathing and other recreational use. Since the early 1970s, dissolved oxygen trends have improved in the Upper East River. From 1991 to the present, dissolved oxygen concentrations have remained at or above 5.0 milligrams per liter (mg/L), meeting the NYSDEC bathing standard and fishing and boating requirements.

In addition to dissolved oxygen and fecal coliform levels, excessive nutrient input (represented by chlorophyll a), turbidity (Secchi transparency), and pH have been monitored. Chlorophyll a is a green pigment found in macro-algae and phytoplankton and is an indicator of the amount of primary productivity occurring in the system. Levels exceeding 20 micrograms per liter (µg/L) are considered indicative of nutrient levels that may support a dense growth of algae and other organisms (eutrophic conditions). Since 1986, this level has only been exceeded twice (1995 and 1996), while remaining less than 10 µg/L for the last 10 years. Turbidity, measured using a Secchi disk technique, was used to estimate the clarity of surface waters. High Secchi transparency (greater than 5 feet) is indicative of clear water. Since 1986, Secchi transparency has varied between 3.3 and 6.1 feet, indicating moderate to clear water.[47] Monitoring of pH during the NYCDEP Harbor Survey indicated values that were well within the acceptable range for Class I waters, and are typical of saline waters, which tend to be well buffered.[48]

Salinity in the East River is influenced by the freshwater flow from the Hudson River and wastewater treatment plants (WWTPs), and by the contribution of salt water from the Long Island Sound and Upper New York Harbor tidal boundaries. The East River does not exhibit vertical layers of salinity, due to high velocities, turbulent mixing at Hell Gate and the relatively small amount of direct freshwater input from tributaries to the system. However, seasonal variability can be great. A low

47 New York City Department of Environmental Protection (NYCDEP). 2012. *2011 New York Harbor Water Quality Report.*
48 New York City Department of Environmental Protection (NYCDEP). 1998. *New York Harbor Water Quality Survey, 1998.*

salinity of 5.5 parts per thousand (ppt) was recorded at the Battery in April 1987, and in that same year, a high of 26.5 ppt was recorded.[49]

According to the NYSDEC's Final 2012 CWA Section 303(d) list, the Upper East River is impaired due to the presence of polychlorinated biphenyls (PCBs), in which a Total Maximum Daily Load (TMDL) is imposed. Flushing Bay is impaired due to organic enrichment/oxygen depletion, and also requires a TMDL. Bowery Bay is not listed as impaired but is part of the larger East River. The TMDLs for copper, mercury, nickel and lead in the New York-New Jersey Harbor also apply to the Upper East River. The Long Island Sound TMDL includes Upper East River and Flushing Bay.

LGA's stormwater drainage system consists of nine drainage sub-basins with two inflow and 17 outfall locations. The outfalls drain into the adjacent Flushing Bay, Rikers Island Channel, or Bowery Bay. Surface water runoff is collected in seven of the drainage basins and transported by stormwater pipes to outflow locations. Surface water runoff is not collected by a drainage system at the Runway 22 End of Runway 4-22, or the Runway 13 End of Runway 13-31, and drains directly into the Rikers Island Channel. Outfall #008 is located beneath the deck of Runway 13, but is currently inoperable.[50] Two of the drainage basins pump collected stormwater into Flushing Bay over the dike that separates LGA from Flushing Bay. The Airport is located above the Brooklyn-Queens sole-source aquifer but does not discharge to groundwater.

A combined sewer system enters LGA property from Grand Central Parkway. This system receives stormwater and has a weir chamber for overflow at Outfall #001. Discharge at Outfall #001 potentially contains combined sewer overflow from Airport and non-Airport property. Sanitary waste associated with LGA is directed to New York City's Wastewater Treatment System. Many of LGA's tenants perform activities that present potential for stormwater runoff pollution, which could pollute the adjacent waterbodies. Tenant activities that contain potential for stormwater pollution include those associated with aircraft, vehicle, and equipment maintenance, building and grounds maintenance, chemical and fuel storage, aircraft and runway deicing/anti-icing, and others. Pollutants from these activities can be transported to adjacent waterbodies via direct spills or rainfall runoff.

LGA has a current State Pollution Discharge Elimination System (SPDES) Permit (Permit No. NY 0008133) for the discharge of storm runoff. The Best Management Practices Plan (BMPP) is

49 Lawler, Metusky, and Skelly Engineers (LMS). 1990. *Draft review of the New York Harbor aquatic data applicable to the Atlantic Basin*. Prepared for the Port Authority of New York & New Jersey.
50 Port Authority of New York & New Jersey. 2009. *LaGuardia Airport Best Management Practices Plan*.

currently implemented, and a Spill Prevention Control and Countermeasures Plan is in place. The SPDES permit requires the Port Authority to take actions to minimize stormwater impacts from Airport activities, which are outlined in the BMPP.

4.2.11 Surface Waters and Wetlands

Wetlands are evaluated in this EA as required by FAA Order 5050.4B and FAA Order 1050.1E, Change 1, Appendix A.18 and EO 11990. This section describes the existing wetland resource areas and the existing hydrodynamic conditions of the surface waters.

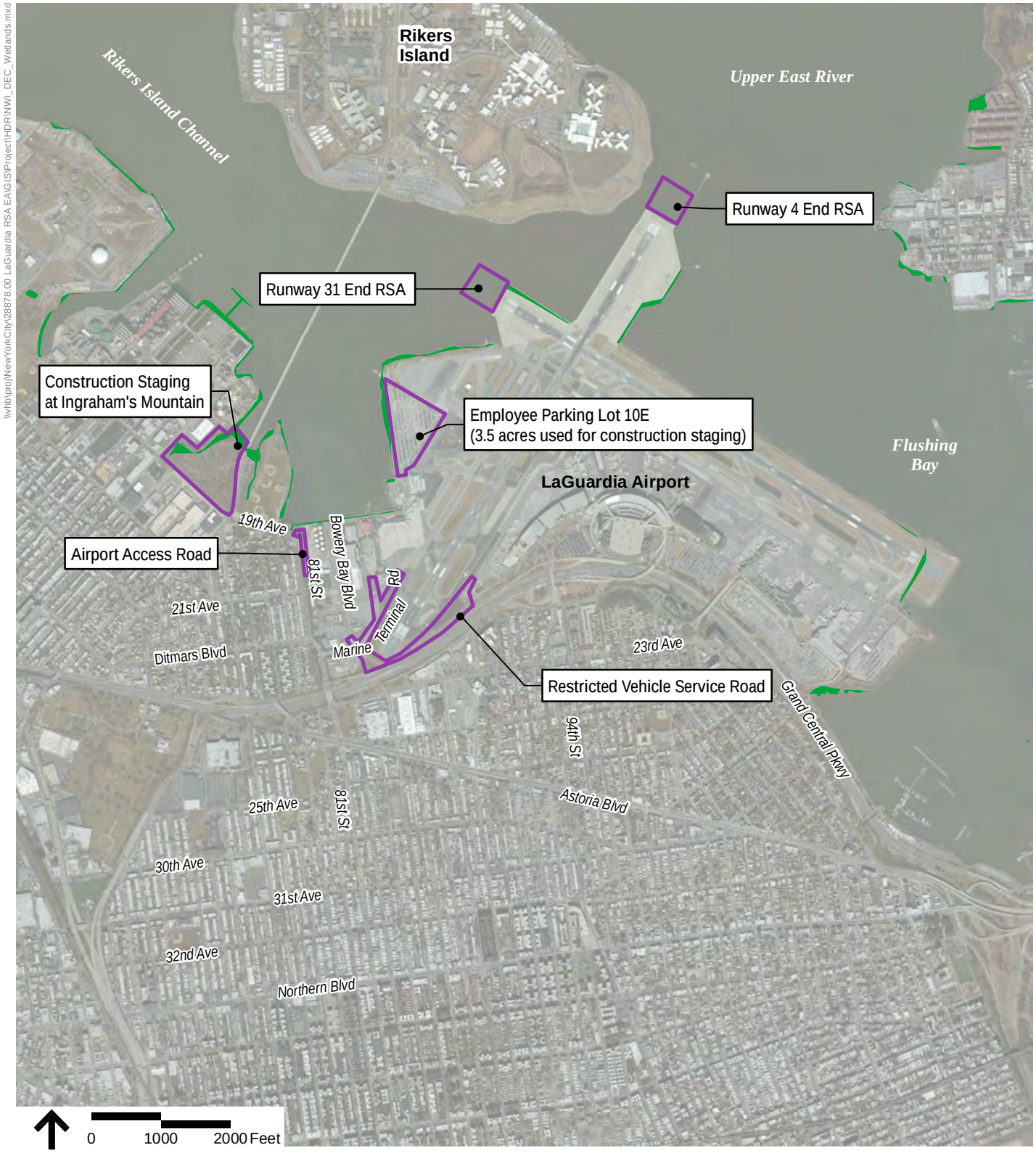
4.2.11.1 Wetlands

LGA was constructed on fill which extends into a natural embayment. Around LGA in Flushing and Bowery Bays, there are large areas of soft mud and silty sediments.[51] The shoreline surrounding Bowery Bay to the east of LGA is lined with riprap and, during low tide, tidal mudflats. Mudflats also exist in Flushing Bay along the Airport property and at the northern border of the Airport.

Wetland resources in the Study Area (waters of the United States) include the tidal and subtidal waters of Flushing Bay, which are subject to jurisdiction under Sections 401 and 404 of the CWA as well as Sections 9 and 10 of the Rivers and Harbors Act. Two vegetated wetland areas (Figure 4-7) were identified within the Study Area, based on the National Wetland Inventory (NWI) maps, NYSDEC wetland mapping, and field investigations. Based on the verification survey, which was limited to the shoreline of Bowery Bay, each wetland community was assigned a community classification based on the habitat descriptions from a USFWS habitat classification report[52] to allow comparison with mapped NWI and NYSDEC wetlands. The wetland east of Elmjack Field is classified by NWI as "Estuarine, hyperhaline, unconsolidated bottom, subtidal, and excavated." NYSDEC classifies this area as "Littoral Zone," which is consistent with the verification survey. The wetland west of Elmjack Field is classified as "Estuarine, hyperhaline, unconsolidated bottom, subtidal, excavated." NYSDEC classifies this area as "Coastal Shoals, Bars and Mudflats," which is also consistent with the verification survey. There are no vegetated or intertidal wetlands present within the Project Area at the ends of Runway 4 and 31, although the ends of the existing decks are within tidal and subtidal waters of Flushing Bay. There are no vegetated wetlands present at the Ingraham's Mountain site.

51 Locco LE, P Wilber, RJ Diaz, DG Clarke, and RJ Will. 2000. *Benthic Habitats of New York/New Jersey Harbor: 1995 Survey of Jamaica, Upper, Newark, Bowery, and Flushing Bays.* NOAA Coastal Services Center and US Army Corps of Engineers.

52 Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online.



Source: ArcGIS Bing Aerial Service, USFW NWI, NYSDEC

Legend

Project Areas

USFWS National Wetland Inventory (NWI) Wetland

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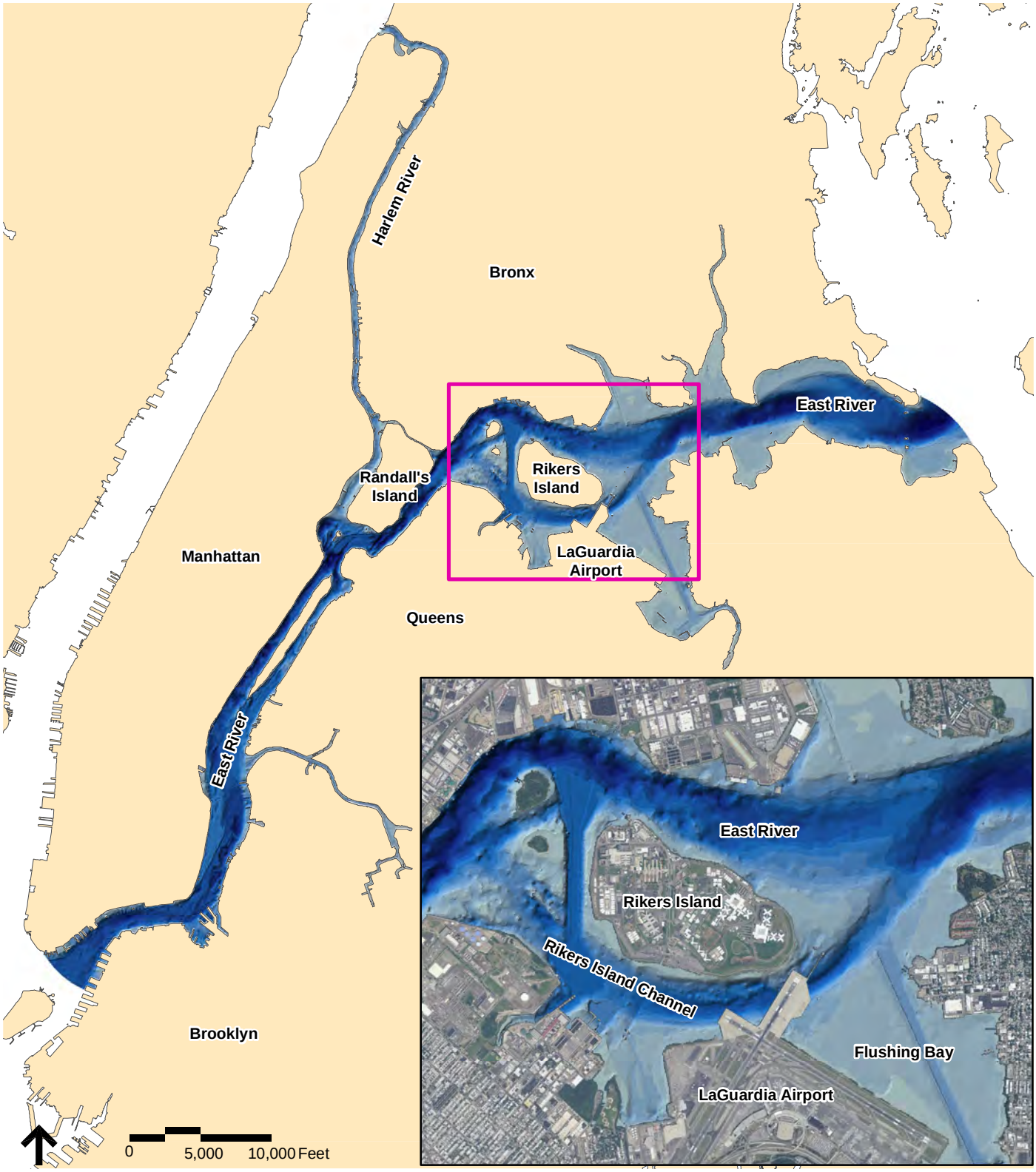
Figure 4-7
National Wetland Inventory Wetlands

The following provides a summary of the functions and associated values of these two tidally influenced wetlands. The functions and values cited are those listed in NYSDEC Part 661 (Tidal Wetlands-Land Use Regulations).

- *Wildlife Habitat* – The wetlands provide seasonal habitat for a variety of waterfowl, sea gulls and terns, traffic may also reduce bird use during the summer months. This function is significant because this type of habitat is limited within New York City.
- *Recreation* – The wetlands do not support hunting or fishing.
- *Flood and Storm Control* –The plant growth in the wetlands can serve to disperse wave energy and thus protect the adjacent shoreline.
- *Absorb Silt and Organic Material* – The wetlands, particularly the unvegetated mudflats near Bowery Bay, trap and sequester silt and organic material.
- *Aesthetic Appreciation and Open Space* – These wetlands is not publicly accessible except by boat. The aesthetic appeal of the area is compromised, particularly during the summer months, by the odors associated with the tidally exposed organic sediments.
- *Cleansing Ecosystems* – The wetlands perform the function of trapping sediments and thus discharge less turbid water to Bowery Bay and the East River.
- *Marine Food Production* – Plant growth in the wetlands contributes to the food supply for some species of waterfowl and benthic invertebrates in the sediments. This is a food source for a number of species forage fish in the tidal shallows, which in turn provide a food source for herons, egrets, and diving birds. This function may be compromised by degraded water and sediment quality.

Water Levels

Normal water level variations are generally dominated by tides. Tidal elevations in the East River are affected by tides in Upper New York Bay and the Long Island Sound. A phase lag exists between the tide in Upper New York Bay and the Long Island Sound. High tide is approximately 3 hours earlier in the Upper New York Bay than in the Long Island Sound. In addition, the tidal range in the Long Island Sound is several feet greater than in Upper New York Bay. Tides in the vicinity of LGA occur twice daily, with a mean tide range of 6.6 feet and a spring tide range of 8.2 feet.



Source: Rogers Surveying 7-25-2012, NOAA NOS Survey H11353, MIKE21 CMAP, NOAA NOS Chart Nos. 12335, 12339, 12366

Legend

Zoom Area

Elevation (feet, NAVD88)

> -5	-30 - -25	-70 - -60
-10 - -5	-35 - -30	-80 - -70
-15 - -10	-40 - -35	-100 - -80
-20 - -15	-50 - -40	< -100
-25 - -20	-60 - -50	

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Figure 4-8
East River Bathymetry

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Currents

Flow patterns in the East River are predominately tidally driven. A 3-hour phase lag exists between the tidal elevations at the western end (Upper New York Bay) and eastern end (Long Island Sound) of the East River. In addition, the tidal range in the Long Island Sound is several feet greater than in Upper New York Bay. This phase lag and inequality in tidal elevations produces a gradient in the water surface elevation which affects tidally driven currents in the East River. During the rising tide (tidal flooding), the water elevations in Upper New York Bay are greater than the water elevation in the Long Island Sound, resulting in flow directed towards the Long Island Sound (east) (Figure 4-9). On the falling tide (tidal ebbing), the water elevations in Upper New York Bay are lower than in the Long Island Sound, resulting in flow directed towards the Bay (west) (Figure-4-10).

The United States Department of Commerce publishes tidal current charts for New York Harbor.[53] According to these charts, tidal current speeds during tidal flooding are generally greater than during tidal ebbing in the East River section from Rikers Island to the Long Island Sound. In Rikers Island Channel this trend is reversed, with greater current speeds during tidal ebbing. According to these charts, the average maximum flood tidal current velocity in Rikers Island Channel (approximately 2,000 feet west of LGA) is 1.9 feet per second (feet/s), directed towards the west-northwest. Average maximum ebb tidal current velocity at this location is 2.2 feet/s, directed towards the east-southeast.

In addition, tidal currents within the East River were obtained using a two-dimensional depth-averaged hydrodynamic model of the East River developed on the Delft3D modeling platform.[54] The model was calibrated to measured water levels and currents throughout the East River. Appendix G, *Hydrodynamic Modeling Report,* provides detail on the model developed to analyze the hydrodynamics associated with this project. Model results, which account for the effect of the existing deck piles, capture the general flow patterns and are able to reproduce the inequality in ebb and tidal current speeds throughout the East River. Modeled flow patterns during spring tidal flooding (Figure 4-9) show that currents are flowing from west to east and current speeds in the main stem of the East River are generally greater than in Rikers Island Channel. Currents speeds in the East River exceed 4 feet/s during peak tidal flooding and generally are between 1.4 and 2 feet/s in Rikers Island Channel. Modeled flow patterns during spring tidal ebbing (Figure 4-10) show that water is flowing from east to west. During tidal ebbing, the relative difference between the current speeds in the main stem of the East River and Rikers Island Channel is lower than during tidal flooding. Maximum current speeds reach approximately 3.5 feet/s in the East River during peak tidal ebbing and are generally between 1.8 and 2.4 feet/s in Rikers Island Channel.

53 US Department of Commerce. 2013. Coast and Geodetic Survey, 2013. *Tidal Current Predictions*.
54 WL | Delft Hydraulics. 2008. Delft3D-FLOW: Simulation of Multi-Dimensional Hydrodynamic Flows and Transport Phenomena, Including Sediments.

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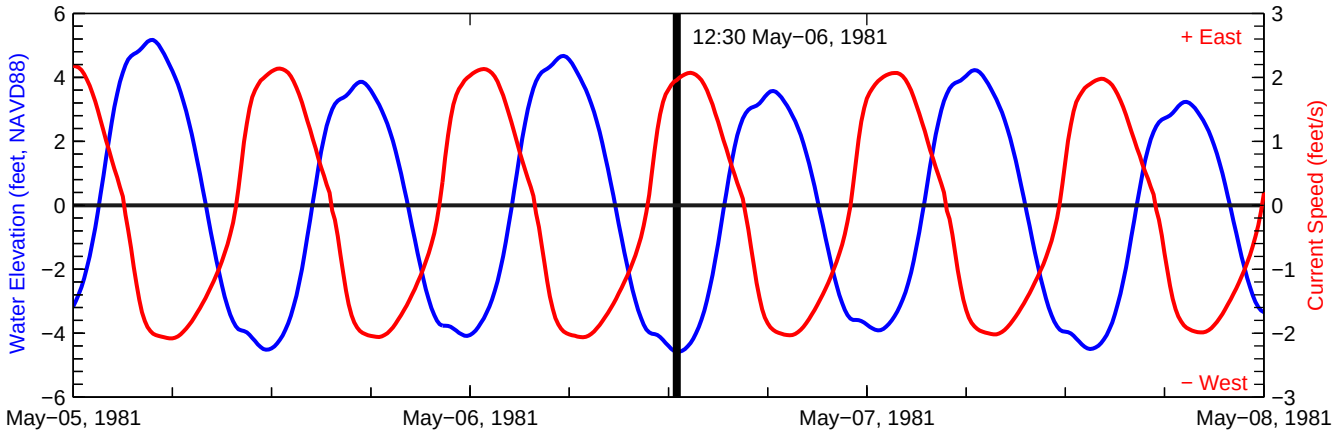

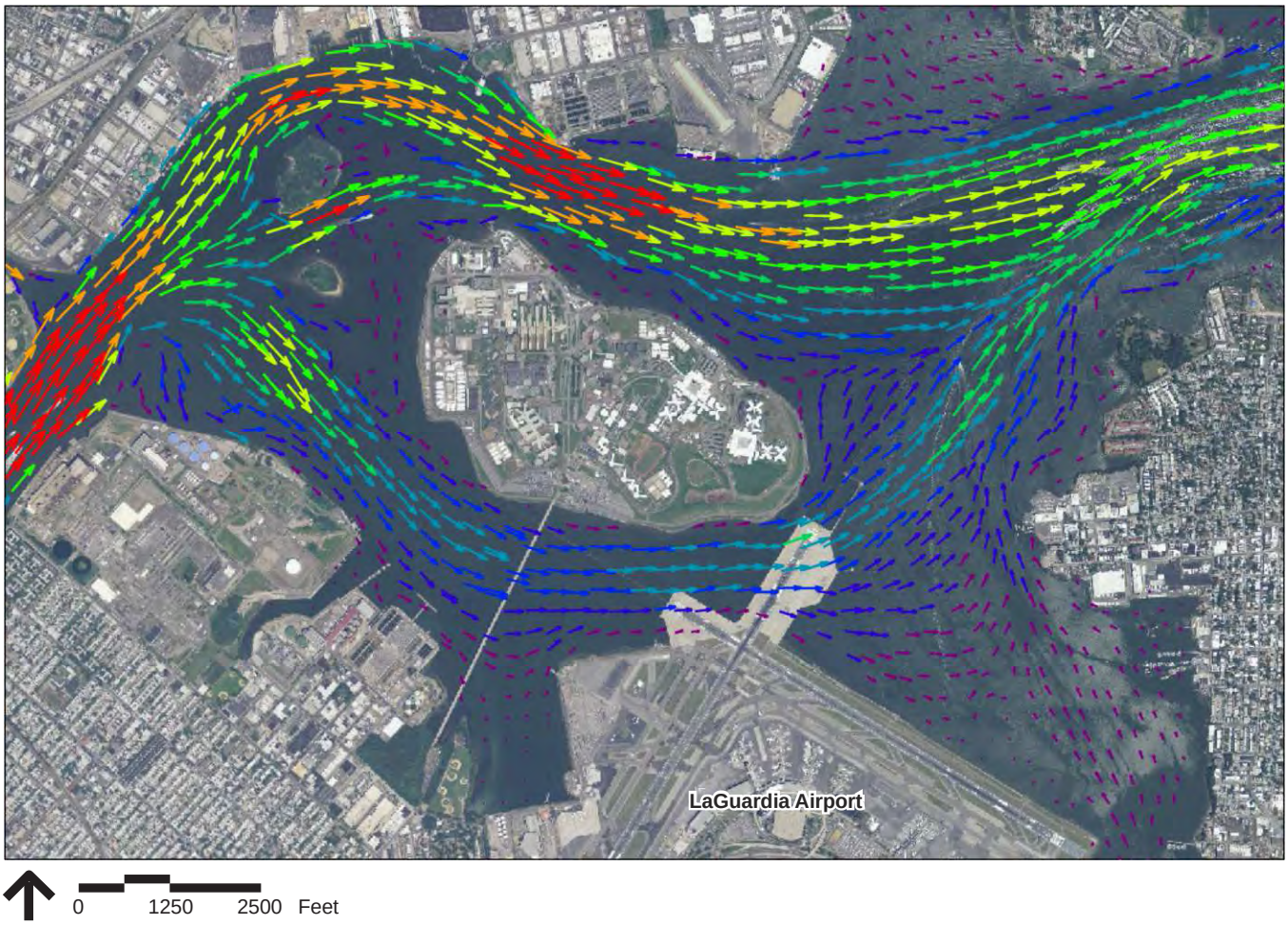

Source: Delft3D Hydrodynamic Model

Legend

Current Speeds (feet/s)

- Above 4
- 3.5 to 4
- 3 to 3.5
- 2.5 to 3
- 2 to 2.5
- 1.5 to 2
- 1 to 1.5
- 0.5 to 1
- Below 0.5

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Figure 4-9

Modeled Currents During Spring Tidal Flooding

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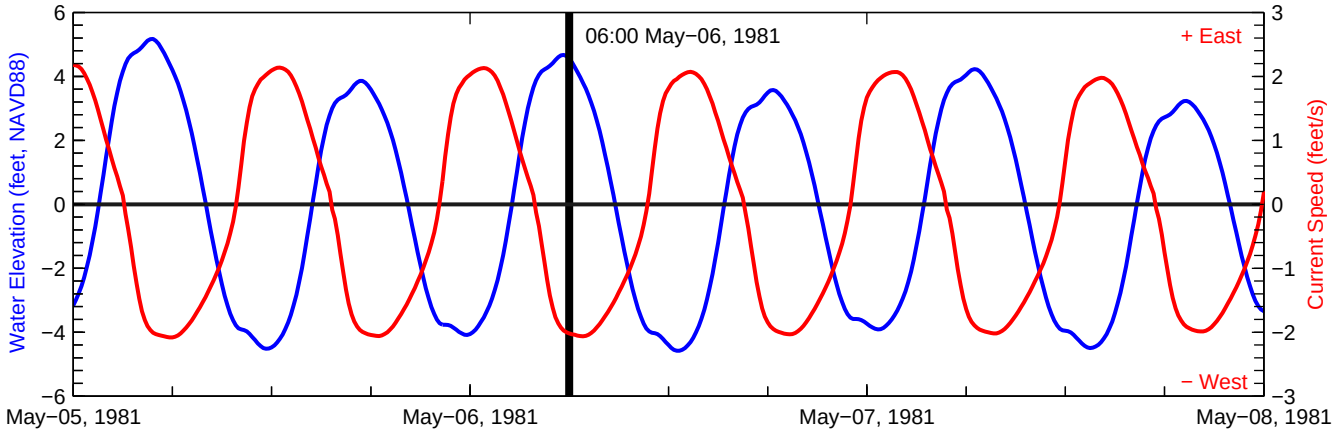

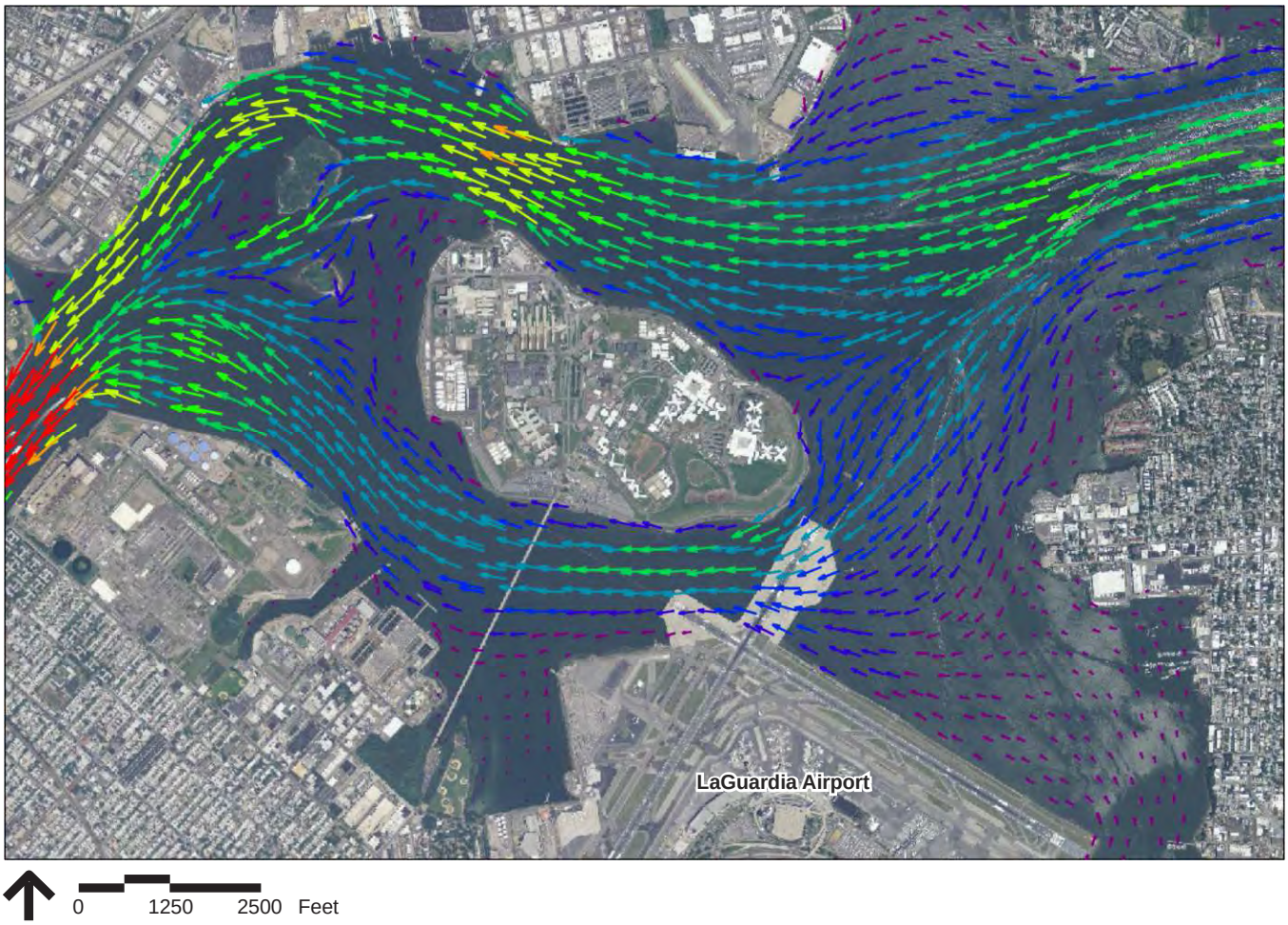

Source: Delft3D Hydrodynamic Model

Legend

Current Speeds (feet/s)

- Above 4
- 3.5 to 4
- 3 to 3.5
- 2.5 to 3
- 2 to 2.5
- 1.5 to 2
- 1 to 1.5
- 0.5 to 1
- Below 0.5

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Figure 4-10

Modeled Currents During Spring Tidal Ebbing

4.3 Resources Not Present

Due to its urban setting, several resources identified in FAA Order 5050.4B and 1050.1A are not present in the Project Area. These resources are not described further in this chapter or in Chapter 5, *Environmental Consequences,* and include:

- Farmland Soils;
- Section 4(f) Resources; and
- Wild and Scenic Rivers.

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5 Environmental Consequences

This chapter describes the environmental consequences of the LaGuardia Airport (LGA) Runway Safety Area Enhancements project with respect to the environmental resource categories characterized in Chapter 4, *Affected Environment* as specified in Federal Aviation Administration (FAA) Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1E, Change 1). The information in this chapter compares the Proposed Action to the No-Action Alternative in the same analysis year (2016, the year the project construction would be complete) for each environmental resource category to determine the long-term effect (beneficial or adverse) of the Proposed Action. The temporary (construction period) impacts are also evaluated for each relevant resource. Section 5.15, *Cumulative Impacts*, describes the cumulative effects of the Proposed Action. Measures proposed to avoid, reduce, and/or mitigate the potential impacts summarized in this chapter are presented for each environmental resource category in Chapter 6, *Mitigation*, of this Environmental Assessment (EA).

Environmental resources that are not present at LGA, as determined in Chapter 4, *Affected Environment,* or not affected by the Proposed Action, are not addressed in this EA. These include:

- Compatible Land Use
- Section 4(f) Resources
- Farmland Soils
- Secondary (Induced) Impacts
- Wild and Scenic Rivers

Refer to Section 3.4, *Proposed Action,* in the Alternatives Chapter for a description of the Proposed Action.

5.1 Air Quality

Aircraft operations and/or motor vehicle traffic volumes are not expected to change as the result of the Proposed Action. Neither the number of aircraft operations nor the aircraft fleet mix serving LGA would change as a result of the Proposed Action and therefore, in accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* (FAA Order 5050.4B), an operational emissions inventory was not prepared and is not required under FAA guidelines for preparing NEPA documents. The project-related construction activities would not substantially alter the aircraft operational areas along the runways or taxiways nor result in changes to the number of aircraft operations, aircraft fleet mix, aircraft taxi/delay periods or the movement of motor vehicles. Construction of the deck extensions would require runway closures to accommodate construction activities. The Port Authority has standard operational procedures for when one runway is not in use due to repair, upgrade or other activities. This happens at LGA on a daily basis for various reasons, in which case, the Airport operates using a one-runway configuration. Therefore, no long-term changes to air quality would be associated with the Proposed Action. As there are no changes to emissions associated with the operation of the Airport as a result of the Proposed Action, greenhouse gases (GHGs) and hazardous air pollutants (HAPs) are not air quality issues or concerns. Temporary air emissions impacts due to construction are discussed in Section 5.14, *Construction Impacts*.

5.2 Coastal Resources

As stated in Section 4.2.2, *Coastal Resources*, coastal resources include coastal barriers and coastal zones. The NEPA regulations that address these coastal resources are in FAA Order 5050.4B, and FAA Order 1050.1E, Change 1, Appendix A.3. The Coastal Zone Management Act of 1972, as amended (CZMA) established the federal Coastal Zone Management (CZM) Program. Pursuant to the CZMA, New York State adopted the Waterfront Revitalization and Coastal Resources Act (WRCRA) in 1981, which created the New York Coastal Management Program (CMP) under direction of the New York State Department of the State (NYSDOS), Division of Coastal Resources. New York City participates in the CMP through the New York City New Waterfront Revitalization Program (WRP), which is administered by the New York City Department of City Planning (NYCDCP).

As noted in Chapter 4, *Affected Environment*, 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 in the vicinity of LGA. Therefore, no impacts to coastal barrier resources are expected to occur as a result of any of the components of the Proposed Action or of the No-Action Alternative. According to FAA Order 1050.E,

Change 1, no specific significant thresholds have been established for coastal resources. However, it states that when analyzing potentially significant impacts, consistency with the local approved CZM be considered. Therefore, the discussion below focuses only on work within the coastal zone and consistency with CZM (WRP) policies. As discussed in Section 5.2.4, *Coastal Resources Impact Summary*, the Port Authority of New York and New Jersey (Port Authority) has coordinated with NYSDOS and NYCDCP and the NYSDOS, on behalf of both agencies, issued concurrence on the Proposed Action's CZM consistency.

5.2.1 No-Action Alternative

Under the No-Action Alternative, no impacts on coastal zone resources would be expected as there would be no activities within the coastal zone. The No-Action Alternative would be consistent with applicable coastal zone policies.

5.2.2 Proposed Action

All components of the Proposed Action would occur within the coastal zone boundary. However, only the Runway Safety Area (RSA) deck extensions (for both the Runway 4 and Runway 31 Ends) and construction staging areas would result in impacts to coastal resources (fish, wildlife, plants, floodplains, water quality, surface waters, and wetlands). These impacts are discussed in further detail in their respective sections in this Chapter. The Proposed Action was also evaluated for its consistency with New York City's CZM Program – the 2002 WRP and its 10 policies. Most of the 10 policies are not applicable to the Proposed Action (see Section 5.2.3, *Coastal Zone Management Consistency Evaluation*). As described below, the components of the Proposed Action are consistent with the applicable policies.

5.2.2.1 RSA Enhancements and Construction Staging Areas

As shown in Figure 5-1, the coastal zone boundary encompasses all of LGA and therefore all project components fall within the coastal zone. As the Project Area is located within the coastal zone, there are foreseeable impacts to the following coastal resources of concern that would result from the RSA deck extensions:

- Fish, wildlife and plants (Section 5.4),
- Floodplains (discussion in Section 5.5),
- Water quality (Section 5.12), and
- Surface waters and wetlands (Section 5.13).

The Ingraham's Mountain Construction Staging Area could affect upland wildlife and plants within the coastal zone (see discussion in Section 5.4, *Fish, Wildlife and Plants*). The Ingraham's Mountain Construction Staging Area was reviewed for its consistency with the WRP. The Proposed Action is

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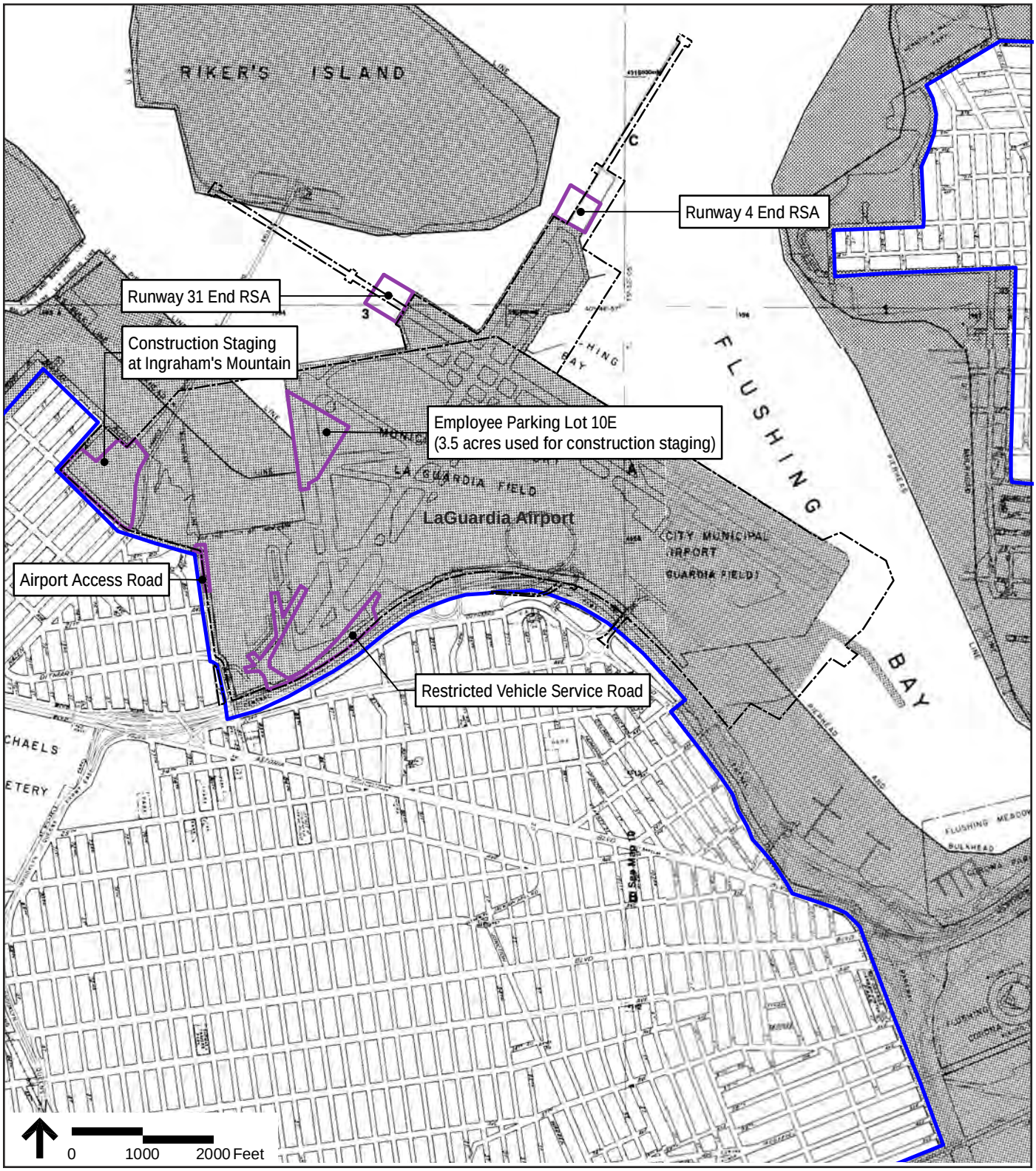

Sources: ArcGIS Bing Aerial Service; NYC DCP, Coastal Zone Boundary of New York

Legend

LaGuardia Airport

Project Areas

Coastal Zone Boundary

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-1
Actions within the Coastal Zone

consistent with Policies 4.3 and 4.4, which address wildlife and plants. Therefore, there would be no substantive adverse impacts to coastal resources of concern resulting from creating the Ingraham's Mountain Construction Staging Area.

Although located within the coastal zone, there would be no impacts to any coastal resources of concern that would result from the use of a portion of Employee Parking Lot 10E as a construction staging area as there would be no changes to the parking lot. There would be no permanent impacts to coastal resources associated with any use of barges to transport construction materials or drive piles.

5.2.2.2 RVSR

Although the proposed Restricted Vehicle Service Road (RVSR) is located within the coastal zone, the RVSR is located in a developed upland and there would be no impacts to any coastal resources of concern as a result of the RVSR.

5.2.3 Coastal Zone Management Consistency Evaluation

The 2002 WRP is currently in the process of being revised, based upon coordination with NYCDCP, Waterfront and Open Space Division. Given the long timetable for those revisions, the Proposed Action as a whole was evaluated for its consistency with each of the 10 policies of the current 2002 WRP (Table 5-1). This section of the EA provides a consistency review for the project as a whole, rather than each component.

Table 5-1 New York City Waterfront Revitalization Program Consistency Review

Policy #	Policy Description	Policy	Is Proposed Action Consistent?
1	Residential and Commercial Development	Support and facilitate commercial and residential redevelopment in areas well-suited to such development	Not Applicable
2	Marine and Industrial Development	Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation	Yes
2.1	--	Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas (SMIAs).	Not Applicable
2.2	--	Encourage working waterfront uses at appropriate sites outside the SMIAs	Yes
2.3	--	Provide infrastructure improvements necessary to support working waterfront uses.	Not Applicable
3	Waterways Usage	Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation centers	See below

Table 5-1 New York City Waterfront Revitalization Program Consistency Review (cont.)

Policy #	Policy Description	Policy	Is Proposed Action Consistent?
3.1	--	Support and encourage recreational and commercial boating in New York City's maritime centers.	Yes
3.2	--	Minimize conflicts between recreational, commercial, and ocean-going freight vessels.	Not Applicable
3.3	--	Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.	Not Applicable
4	Ecological Resources Protection	Protect and restore the quality and function of ecological systems within the New York City coastal area.	See below
4.1	--	Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas, Recognized Ecological Complexes, and Significant Coastal Fish and Wildlife Habitats.	Not Applicable
4.2	--	Protect and restore tidal and freshwater wetlands.	Yes
4.3	--	Protect vulnerable plant, fish and wildlife species, and rare ecological communities.	Yes
4.4	--	Maintain and protect living aquatic resources.	Yes
5	Water Quality	Protect and improve water quality in the New York City coastal area.	Yes
5.1	--	Manage direct or indirect discharges to water bodies.	Not Applicable
5.2	--	Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.	Yes
5.3	--	Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands	Yes
5.4	--	Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.	Not Applicable
6	Flooding and Erosion	Minimize loss of life, structures and natural resources caused by flooding and erosion.	Yes
6.1	--	Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the condition and use of the property to be protected and the surrounding area.	Yes
6.2	--	Direct public funding for flood prevention or erosion control measures to those locations where the investment would yield significant public benefit.	Not Applicable
6.3	--	Protect and preserve non-renewable sources of sand for beach nourishment.	Not Applicable
7	Solid and Hazardous Wastes	Minimize environmental degradation from solid waste and hazardous substances.	Not Applicable
8	Public Access	Provide public access to and along New York City's coastal waters	Not Applicable

Table 5-1 New York City Waterfront Revitalization Program Consistency Review (cont.)

Policy #	Policy Description	Policy	Is Proposed Action Consistent?
9	Visual Quality	Protect scenic resources that contribute to the visual quality of the New York City coastal area	Not Applicable
10	Historic, Archaeological, & Cultural Resources	Protect, preserve and enhance resources significant to the historical, archaeological, and cultural legacy of the New York City coastal area	Not Applicable

Source: New York Department of City Planning. 2002. *The New Waterfront Revitalization Program*, September 2002. Consistency analysis conducted by VHB, 2013. Not Applicable are those policies that do not apply to the Proposed Action.

As noted in Table 5-1, Policies 2.2, 3.1, 4.2, 4.3., 4.4, 5.2, 5.3, and 6.1 are applicable to the Proposed Action. The remaining policies are not applicable to the Proposed Action because the property is dedicated to aviation use. The following is a summary of each applicable policy and a determination of the Proposed Action's consistency.

Policy 2: Maritime and Industrial Development—Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.

Policy 2 states, "The city's two major airports [J.F. Kennedy Airport and LGA], by virtue of their location and significance to the local and regional economy, are important waterfront facilities that merit special attention. They are treated as water-dependent uses within the Zoning Resolution. Public actions should ensure that the safety and operational needs of the airports are met while protecting the environmental resources in Jamaica and Flushing Bays to the maximum extent feasible."

Policy 2.2: Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas.

Among the goals, standards, and criteria for consistency with Policy 2.2 are:

- "C. Permit heliports and other aviation facilities in areas well-situated to serve demand and where impacts on surrounding uses can be minimized."
- "D. Support improvements to airport operations, passenger and freight access, and cargo handling facilities."

The Proposed Action would result in an improvement to airport operations/aviation facilities, specifically by making operations safer, and therefore would be consistent with Policy 2.2.

Policy 3: Waterways Usage—Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation centers.

Policy 3.1: Support and encourage recreational and commercial boating in New York City's maritime centers.

Among the goals, standards, and criteria for consistency with Policy 3.1 are:

- "E. Reduce potential navigation hazards by minimizing obstruction in coastal waters, limiting congestion in harbors and channels, and mediating conflicts among water users. When determining rights to navigable waters, priority should be given to commercial vessels."

Since the runway thresholds will remain the same, there will be no intrusion upon navigation and Federal Navigation Channels by aircraft vertical or horizontal take-off and loading zones. The RSA deck extensions would intrude into navigable recreational waters. However, there would not be any additional navigation hazards, because the waters adjacent to the ends of the existing runways are not available to water navigation because of the light piers, and because the U.S. Department of Homeland Security has established an exclusion zone that prohibits public access within 200 yards from the shoreline. This exclusion zone is marked with buoys in the water. The Proposed Action would not increase the extent of the exclusion zone. Therefore, the Proposed Action would be consistent with Policy 3.1.

Policy 4: Ecological Resources Protection—Protect and restore the quality and function of ecological systems within the New York City coastal area.

Policy 4.2: Protect and restore tidal and freshwater wetlands.

Among the goals, standards, and criteria for being consistent with Policy 4.2 are:

- "A. Prevent the net loss of wetlands by: (1) avoiding the draining of, placement of fill in or excavation of wetlands; (2) minimizing adverse impacts resulting from unavoidable draining, fill, excavation or other activities; or (3) providing mitigation for any adverse impacts which may remain after all appropriate and practicable minimization measures have been taken. These are presented in order of descending preference with (1) being the most effective and preferred option."

As described in Section 5.13, *Surface Waters and Wetlands*, the existing tidal wetlands along the western shoreline of Bowery Bay are open subtidal waters and mudflats to a depth of 6 feet at Mean Low Water (MLW). No work associated with the RSA Enhancements would affect the existing tidal wetlands or their adjacent areas along the western shoreline of Bowery Bay. In addition, there would be no indirect effects on these tidal wetland habitats as a result of scour or sedimentation. Therefore, the Proposed Action would be consistent with Policy 4.2.

Policy 4.3: Protect vulnerable plant, fish and wildlife species, and rare ecological communities.

Among the goals, standards, and criteria for consistency with Policy 4.3 are:

- "A. Avoid harming vulnerable fish and wildlife species, which are those listed in regulation 6 NYCRR [New York Codes, Rules, and Regulations] Part 182.5 as Endangered Species, Threatened and Special Concern Species, and the habitat of listed species during all stages of their life cycles."

As indicated in Section 5.4, *Fish, Wildlife and Plants*, the Proposed Action is unlikely to result in any permanent significant adverse impacts to threatened or endangered species. Potential temporary impacts caused by pile-driving noise would be mitigated as described in Section 5.14.2, *Fish, Wildlife and Plants*, and Chapter 6, *Mitigation*. Therefore, it would be consistent with Policy 4.3.

Policy 4.4: Maintain and protect living aquatic resources.

Among the goals, standards, and criteria for consistency with Policy 4.4 are:

- "B. Protect native stocks and maintain sustainable populations of indigenous fish and wildlife species and other aquatic living resources, including shellfish. Protect spawning grounds, habitats and water quality to preserve aquatic resources."

As indicated in Section 5.4, *Fish, Wildlife and Plants*, the Proposed Action would result in minor effects to the ability of aquatic habitat to support fish due to shading under the deck extensions, but would not alter spawning grounds, critical habitat, or water quality and is unlikely to result in any temporary or permanent significant adverse impacts to living aquatic resources. Mitigation for impacts to aquatic resources, as described in Chapter 6, *Mitigation,* would enhance aquatic resources in the watershed. Therefore, it would be consistent with Policy 4.4.

Policy 5: Water Quality—Protect and improve water quality in the New York City coastal area.

Policy 5.2: Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.

Among the goals, standards, and criteria for consistency with Policy 5.2 are:

- "B. Minimize nonpoint source pollution of coastal waters using the following approaches listed in order of priority: (1) avoid pollution by limiting sources; or (2) reduce pollutant loads to recipient waters by managing unavoidable sources."

The Proposed Action would not result in the discharge of additional pollutants. Therefore, it would be consistent with Policy 5.2. Construction water quality impacts and mitigation measures are described in Section 5.14.8, *Water Quality,* and Chapter 6, *Mitigation*, respectively.

Policy 5.3: Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.

Among the goals, standards, and criteria for consistency with Policy 5.3 are:

- "C. Minimize potential adverse impacts on aquatic life during excavation or placement of fill by using clean fill material and appropriate scheduling of operation."

The Proposed Action would not excavate or place fill in any coastal wetland. The driven piles, which would occupy 23,562 cubic feet, or 873 cubic yards of subtidal water column would consist of steel piles and would therefore be considered clean fill. As described in Chapter 6, *Mitigation*, mitigation measures would be taken to minimize impacts to fish during construction. Therefore, it would be consistent with Policy 5.3.

Policy 6: Flooding and Erosion—Minimize loss of life, structures and natural resources caused by flooding and erosion.

Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the condition and use of the property to be protected and the surrounding area.

Among the goals, standards, and criteria consistency with Policy 6.1 is:

- "E. Design projects so that they do not adversely affect adjacent shorelines or properties by exacerbating flooding or erosion. Unavoidable impacts that result from a project should be mitigated to the extent practicable."

The RSA deck extensions have been designed to not exacerbate flooding and/or erosion. As indicated in Section 5.13, *Surface Waters and Wetlands*, of this EA, hydrodynamic modeling shows that the proposed in-water structures associated with the RSA deck extension would not cause scour or sedimentation that could change water flow and depth. In addition, the area occupied by the piles is less than 0.03 acres and would not displace a volume of water sufficient to result in flooding in adjacent land areas. Based on this, the Proposed Action would be consistent with Policy 6.1.

5.2.4 Coastal Resources Impact Summary

The components of the Proposed Action are consistent with the applicable policies from the WRP. The Port Authority has completed a Federal Consistency Assessment Form and submitted it to NYSDOS for its concurrence (Appendix A, *Agency Coordination*). In addition, the Port Authority has completed and submitted a New York City WRP Consistency Assessment Form to the NYCDCP for its concurrence (Appendix A, *Agency Coordination*). The NYSDOS has concurred, following coordination with the NYCDCP, that the federal agency action (funding and modification of the ALP) meets the Department's general consistency concurrence criteria (Appendix A, *Agency Coordination*).

Based upon the analysis provided above and elsewhere in this EA, the components of the Proposed Action include activities within the coastal zone, which would result in minor impacts to some coastal resources, including aquatic biota. Mitigation measures to minimize impacts to water quality and aquatic habitats are discussed in Chapter 6, *Mitigation*.

5.3 Natural Resources, Energy Supply and Sustainable Design

The NEPA regulations that address the use of energy and natural resources are discussed in FAA Order 5050.4B and FAA Order 1050.1E, Change 1. The Council on Environmental Quality (CEQ) Regulations (Code of Federal Regulations [CFR] Title 40, Section 1502.16[e] and [f]) specify that the environmental effects of a Proposed Action and its reasonable alternatives should include an assessment of each alternative's energy requirements, energy conservation, and the use of natural or consumable resources.

The Proposed Action would not result in a significant impact to energy supply. FAA Order 5050.4B defines significant impact as occurring when "an action's construction, operation, or maintenance would cause demands that would exceed available or future (project year) natural resource or energy supplies."[1] Neither the Proposed Action nor the No-Action Alternative would cause demands that would exceed available natural resource or energy supplies.

Airport operations require energy in the form of electricity, natural gas, aviation fuel, diesel fuel and gasoline in order to power, cool, heat, and provide lighting. Energy requirements associated with airport development generally fall into two categories: those for stationary facilities (terminal and other buildings) and those for aircraft operations. The Proposed Action does not include development of new stationary facilities, nor would it affect aircraft operations, but it would enhance the efficiency of on-Airport ground transportation. The RSA Enhancements and RVSR construction would require only minimal utility relocation, such as roadway and runway edge lighting, and would generally match the energy requirements of the existing systems.

Natural resources such as sand, gravel, water, wood, concrete, asphalt, and steel are typically consumed during airport construction projects. The Proposed Action would not deplete natural resources in the area. Construction of the RSA decks, Ingraham's Mountain Construction Staging Area, and the new section of RVSR would, to the extent possible, reuse raw construction materials (soil, gravel, boulders etc.), source materials locally, and use durable materials to prolong the lifecycle of pavement, as specified in the Port Authority's Sustainable Infrastructure Guidelines (described below).[2]

With regard to sustainable design, Executive Order (EO) 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. As per Port Authority policy and guidelines, construction would be done in compliance with the Port Authority's Sustainable Infrastructure Guidelines, which specify methods to minimize impacts on project sites, maintain water quality, minimize use of energy, and preserve raw materials. The Sustainable Infrastructure Guidelines also specify activities to minimize construction impacts, which include:

- Water quality conservation (e.g., preparing a construction Stormwater Pollution Prevention Plan);
- Air emissions reduction (e.g., use of "green" construction equipment, which requires use of ultra low-sulfur diesel fuel, prohibits Tier 0 diesel engines, and limits vehicle idling to three minutes);

1 FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions.* 28 April 2006, Table 7.1-4.
2 Port Authority of New York and New Jersey. Sustainable Infrastructure Guidelines. Last updated March 23, 2011. http://www.panynj.gov/about/pdf/Sustainable-infrastructure-guidelines.pdf

- Noise and vibration minimization during construction (e.g., impact devices would be equipped with acoustically attenuating shields or shrouds, where feasible); and
- Waste management (e.g., landfill diversion targets of 75 percent for construction and demolition waste).

The Proposed Action would therefore meet the Port Authority and FAA goals for promoting sustainable design.

5.4 Fish, Wildlife and Plants

The potential impacts of the Proposed Action on fish, wildlife and plants would result from changes in the aquatic habitat within the footprints of the RSA deck extensions and in the terrestrial habitat within the footprint of the Ingraham's Mountain Construction Staging Area. Indirect effects may also occur to surrounding aquatic habitats due to changes in tidal currents and sedimentation. This section addresses permanent effects of the Proposed Action. Temporary, construction-related effects are addressed in Section 5.14, *Construction Impacts*.

Identified effects of the Proposed Action are compared against significant thresholds of impacts to fish, wildlife, and plants specified in FAA Order 1050.1E, Change 1 Appendix A to determine whether they constitute significant impacts on these resources. The evaluation of impacts also addresses the detailed requirements of the *Endangered Species Act*, the *Marine Mammal Protection Act*, and the *Essential Fish Habitat Requirements of the Magnuson-Stevens Act*, the CEQ guidance document *Incorporating Biodiversity Considerations under the National Environmental Policy Act,*[3] among others. FAA Order 1050.1E, Change 1 requires that impacts be addressed in the context of the population dynamics, sustainability, reproduction rates and mortality factors for the common species in the Project Area. The assessments consider direct effects on common species, as well as effects on their habitat. For species listed as endangered, threatened and special concern, the assessments address such species individually for both direct effects and indirect effects (for example, those on critical habitats).

5.4.1 No-Action Alternative

The No-Action Alternative would not result in changes in fish, wildlife or plants compared to existing conditions. The existing natural resources in the vicinity of LGA have stabilized in the decades since the Airport was built. Water quality improvement programs, such as the New York City Department of Environmental Protection (NYCDEP) Combined Sewer Outfall (CSO) Abatement Program, and

3 Council on Environmental Quality. 1993. *Incorporating Biodiversity Considerations into Environmental impact Analysis under the National Environmental Policy Act.*

upgrades to the NYCDEP's Bowery Bay Wastewater Treatment Plant have resulted in improvements to water quality throughout the region, which in turn have resulted in improvements to the aquatic community of the Upper East River. Additional water quality benefits in the future would continue to occur as a consequence of that program. Habitat enhancement programs also continue to be implemented in the region. Habitat enhancements related to dredging in the vicinity of CSO outfalls in Flushing Bay (by the NYCDEP), oyster restoration in the lower Bronx River, and other shoreline habitat enhancements are expected to improve conditions for aquatic life in the Upper East River. All of these improvements would continue under the No-Action Alternative.

5.4.2 RSA Enhancements and Construction Staging Areas

Constructing RSAs on extended decks at the Runway 4 End and Runway 31 End would each have similar effects on the fish, wildlife, and plants. The effects on the aquatic environment would result from filling in a portion of the benthic substrate to install support piles, shading a portion of the water column, and changes to local hydrodynamic and sedimentation regimes. The following sections describe the potential impacts to fish, wildlife and plants that would occur as a consequence of these activities.

5.4.2.1 Habitat Effects from Support Piles

Based on the conceptual design, each deck extension would be supported on 30-inch diameter steel pipe piles spaced on a grid of 30x35 feet. There would be 120 piles supporting each deck. Each pile would occupy 4.9 square feet of bottom for a total of 589 square feet per deck.[4] The piles would eliminate existing benthic habitat in each pile footprint. The total benthic habitat lost for both RSA deck extensions combined would be approximately 1,178 square feet (0.03 acres).

Benthic species, such as polychaete worms, bivalves and other mollusks (as described in Section 4.2.3, *Fish, Wildlife, and Plants)*, may experience some initial mortality during pile driving activities. However, the new piles would create additional surface area for the attachment of benthic organisms beneath the RSA deck extensions. Based on an average water depth of 20 feet, a total of 37,680 square feet of surface area on piles would be available for benthic organisms for the two RSA deck extensions combined.

Hydrodynamic modeling of the changes in current regimes with the RSA deck extensions shows that the new in-water structures would have a minimal effect on current tidal patterns and would not induce scour or sedimentation (see Section 5.13, *Surface Waters and Wetlands*). This indicates that, over time, sedimentation would not fill in around the piles, and their surfaces would remain available for the attachment of benthic organisms.

4 The net, permanent impact of pilings would be less, because approximately 65-70 square feet of existing piles that support runway lights would be removed.

5.4.2.2 Changes in Currents

Currents directly influence the behavior of aquatic animals and the substrate type that may be affected indirectly by scour and sedimentation caused by a reduction or increase in current velocity. The analysis of hydrodynamic changes is provided in Section 5.13, *Surface Waters and Wetlands*. The small changes in currents under and near the new RSA deck extensions predicted by the hydrodynamic modeling would cause only minor, localized changes to substrates that may influence the distribution of benthic invertebrates in the Project Area. As documented in Section 5.13, *Surface Waters and Wetlands*, scour around the piles would create small depressions. The fish and invertebrates in the Upper East River are exposed to a wide range of current types and substrate types; thus the minor, localized effects that would occur with the Proposed Action would not result in a significant impact on these groups of organisms.

5.4.2.3 Shading Effects on Fish and Benthic Communities

The most influential change in physical habitat would be the effects of shading created by the extended RSA decks. Shading could influence the feeding behavior of predatory species and the defense behavior of forage species. Certain forage species are dependent on light for behavior including schooling and could be adversely impacted by the increase in shaded area under the deck extension.[5] Given the decreased light levels that would occur under the RSA decks, it is not likely that obligate schooling species, such as bay anchovy and Atlantic silverside, would use the area under the proposed RSA deck extensions for permanent habitat, but rather be transient, moving to other, more illuminated areas to feed. These species would be more likely found at pier edges and in the open water surrounding the RSA decks.

The proposed deck extensions are assumed to shade the underlying water throughout the day, which would affect the function of the fisheries for the entire area under the new deck. A shading study was conducted (see Appendix C, *Shading Analysis*) to identify the additional peripheral areas that would be shaded during a portion of each day (the area of partial shading). The shadow from each deck extension would intersect the water column as a slanted plane, and shadow would extend laterally somewhat beyond the modeled MLW surface. Although the water column is approximately 20 feet deep, sunlight only penetrates through a portion of the water column due to existing turbidity levels.

As shown in Figure 5-2, Runway 4-22 is oriented in a northeast-southwest direction. Shade from the deck falls primarily on the northwest and northeast sides of the deck, with little shading on the southeast side,

5 Shaw, E. 1961. *Minimal light intensity and the dispersal of schooling fish*. Contribution No. 211, Woods Hole Oceanographic Institution.
Ryer, C. H., and B. L. Olla. 1998. *Effect of light on juvenile walleye Pollock shoaling and their interaction with predators*. Marine Ecology Progress Series 167:215-226.

except in the late afternoon. The total area of partial shading from the new deck area would be approximately 33,500 square feet (0.8 acres). However, the existing deck casts a shadow on the northeast side equivalent to the new shadow, so that the net new shading outside of the deck footprint would be approximately 9,500 square feet (0.22 acres). Shading would be less in March and June, with approximately only 2,800 square feet (0.06 acre) of new shading outside of the deck footprint in June.

As shown in Figure 5-3, Runway 13-31 is oriented in a northwest-southeast direction. Shade from the deck primarily falls on the northwest and northeast sides, with little shading on the southwest side. The total area of partial shading from the new deck would be approximately 30,000 square feet (0.7 acres). However, the existing deck already casts a shadow on the northwest side equivalent to the new shadow, so that the net new shading outside of the deck footprint would be approximately 11,000 square feet (0.25 acres). Shading would be less in March and June, with approximately only 2,000 square feet (0.05 acre) of new shading outside of the deck footprint.

The total area of new shading for both decks would be the area of the proposed deck extension (always shaded) plus the area of new shading (partially shaded), as shown in Figure 5-4. For the Runway 4 End, this is approximately 100,500 square feet (2.31 acres). For the Runway 31 End, this is approximately 102,000 square feet (2.34 acres). Thus, the Proposed Action would result in approximately 4.65 acres of net new shadow associated with the extended decks. Table 5-2 shows the extent of water column shading associated with the proposed deck extensions.

Table 5-2 Water Column Shading

RSA	Always Shaded (Under Deck Footprint)	Partially Shaded (Adjacent to Deck)	Total New Shaded Area
Runway 4	91,000 sf	9,500 sf	100,500 sf (2.31 ac)
Runway 31	91,000 sf	11,000 sf	102,000 sf (2.34 ac)
Total	182,000 sf	20,500 sf	202,500 sf (4.65 ac)

Source: VHB, 2013.
sf square feet.
ac acres.

Predatory fish, such as striped bass, that feed on these schooling species are not typically found under piers where prey potential is reduced or absent. Visual predators (fish that hunt prey by sight) would have reduced ability to forage in areas far underneath the extended decks due to reduced levels of illumination. However, it is possible that under the decks in pier-edge habitat where intermittent

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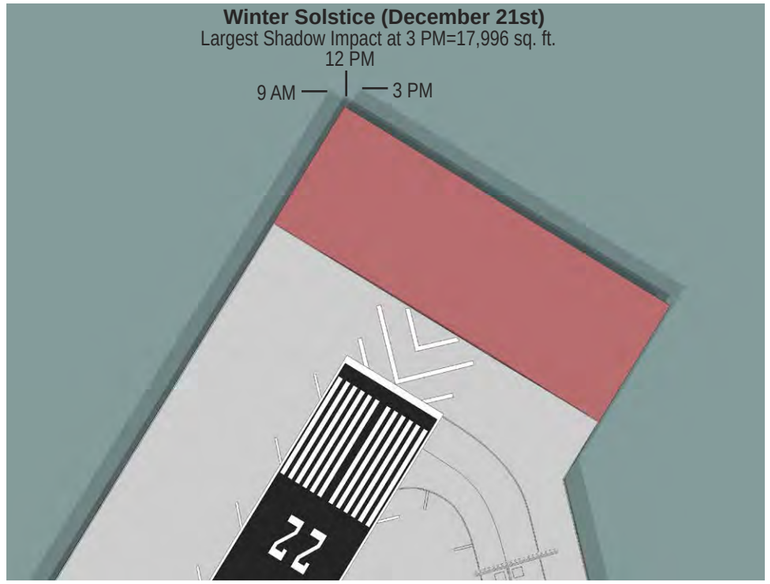
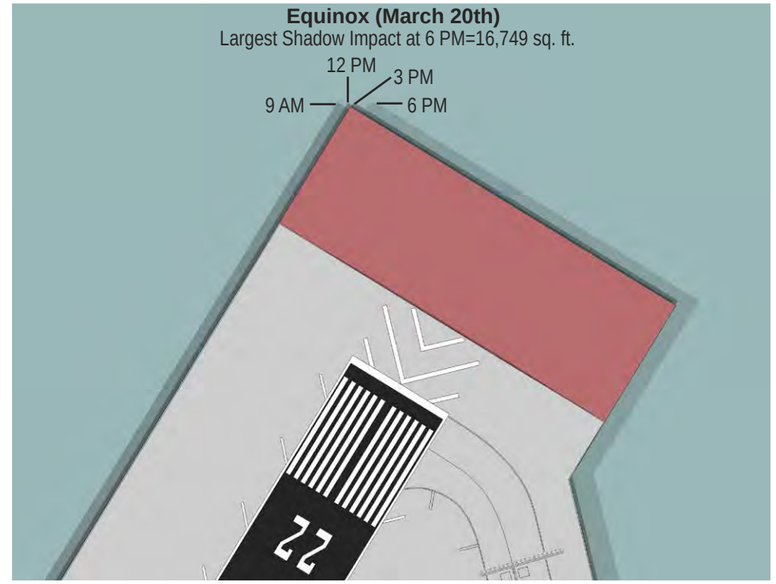
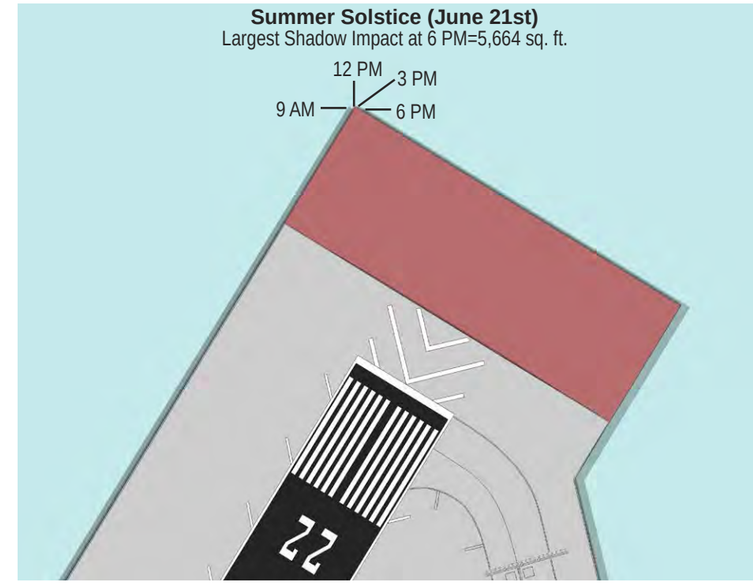
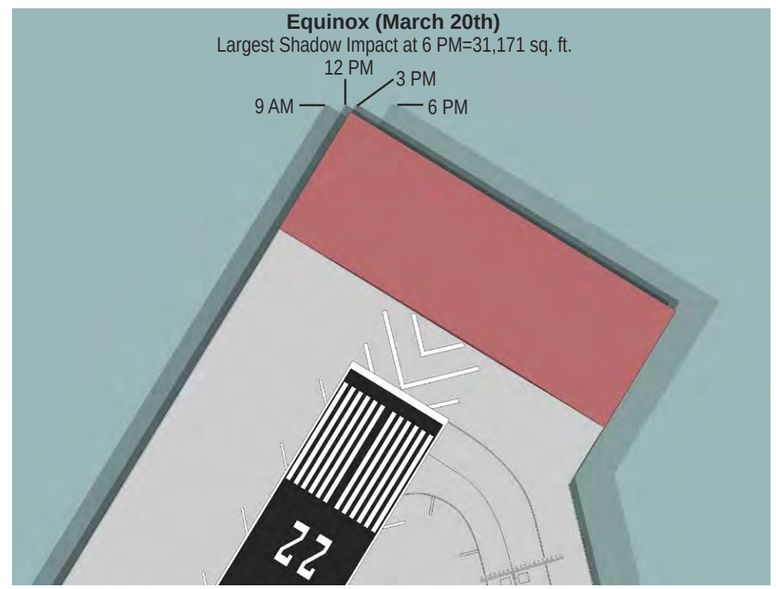
High Tide

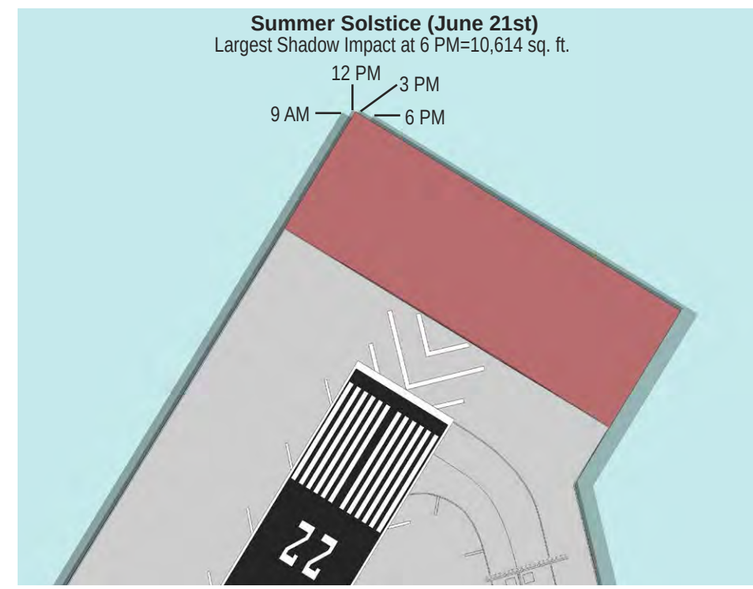






Low Tide





0 100 200 Feet

Source: VHB, Inc. (Using SketchUp)

Legend

Proposed RSA Deck

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Figure 5-2
Runway 4 End RSA
Shadow Study

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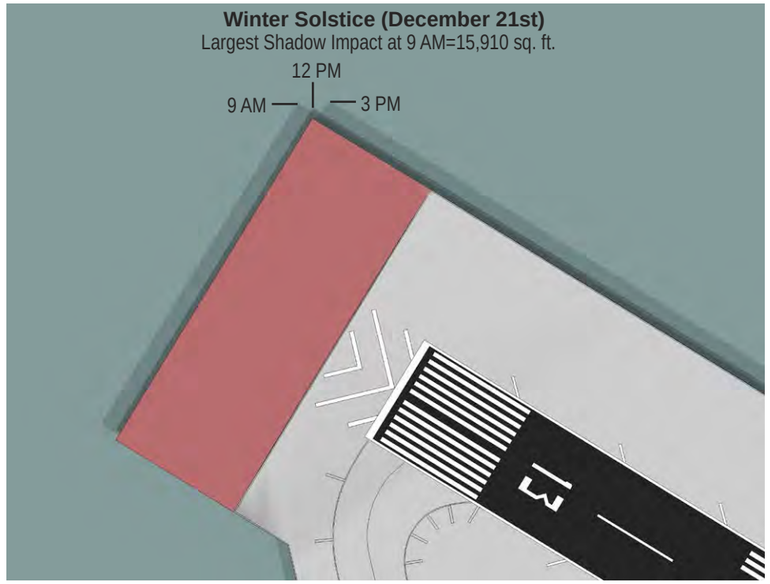
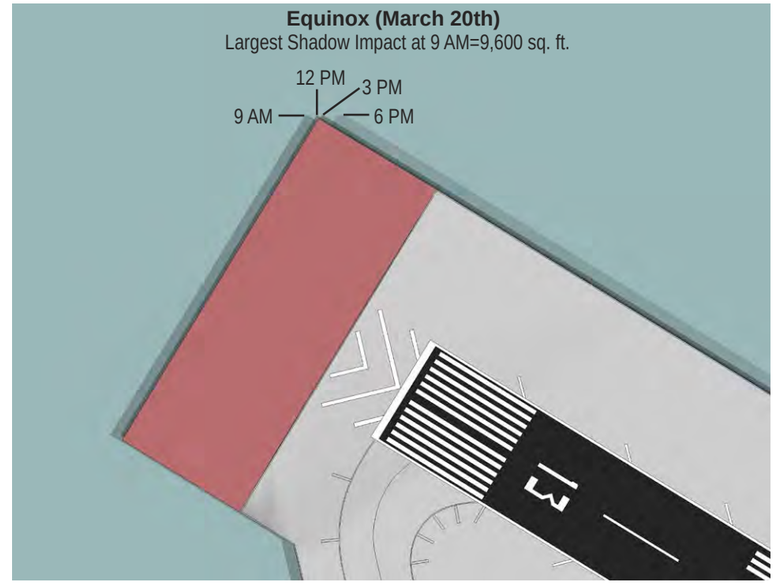
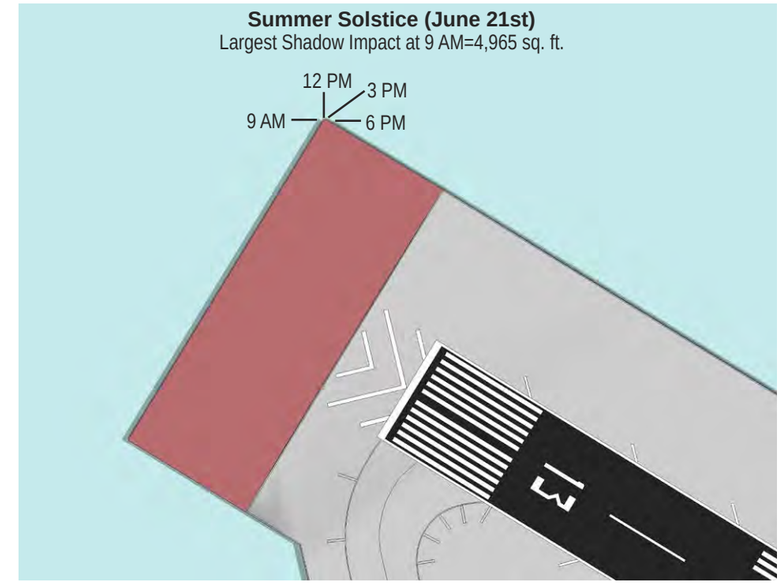
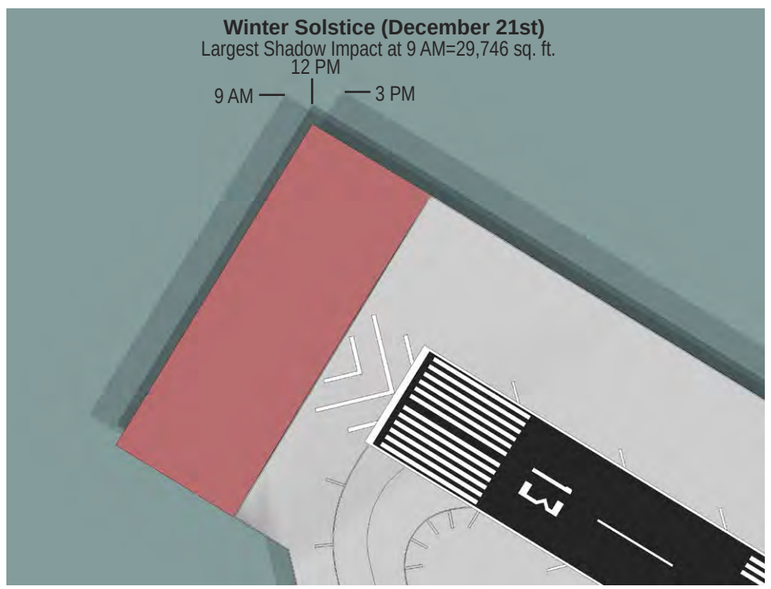
High Tide

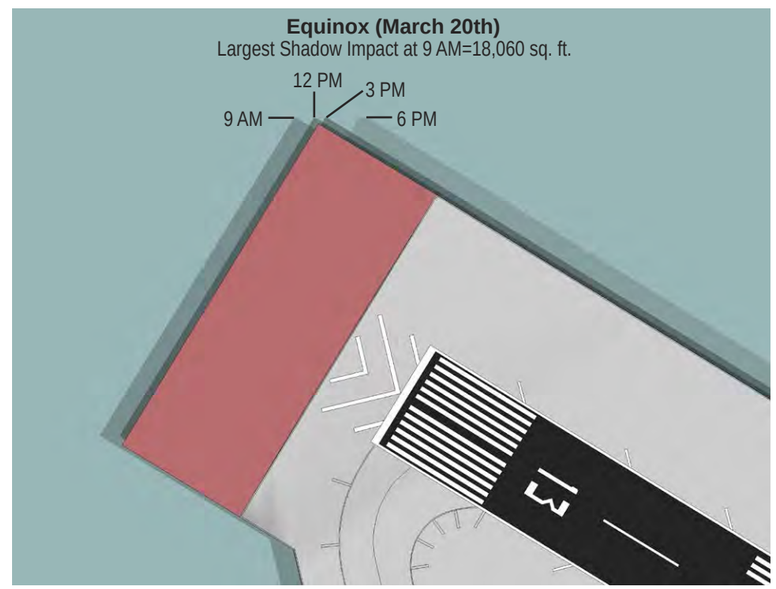


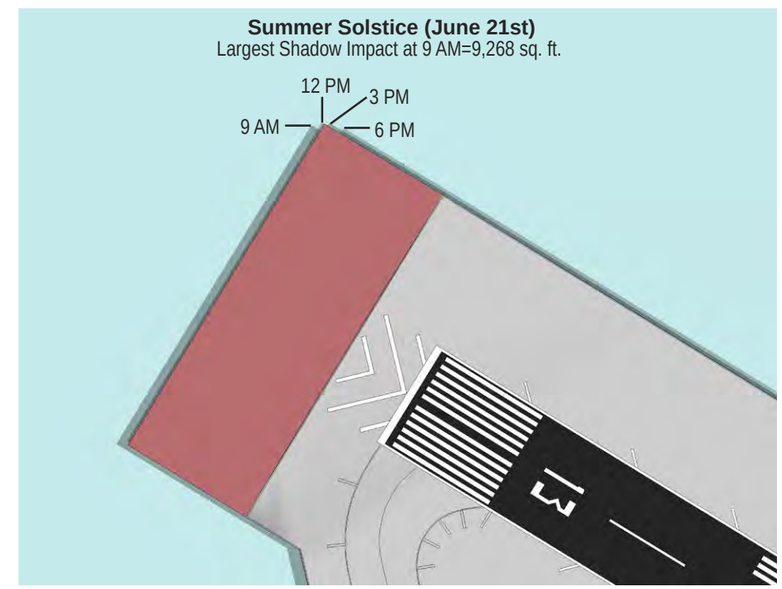




Low Tide







0 100 200 Feet

Source: VHB, Inc. (Using SketchUp)

Legend

Proposed RSA Deck

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Figure 5-3
Runway 31 End RSA
Shadow Study

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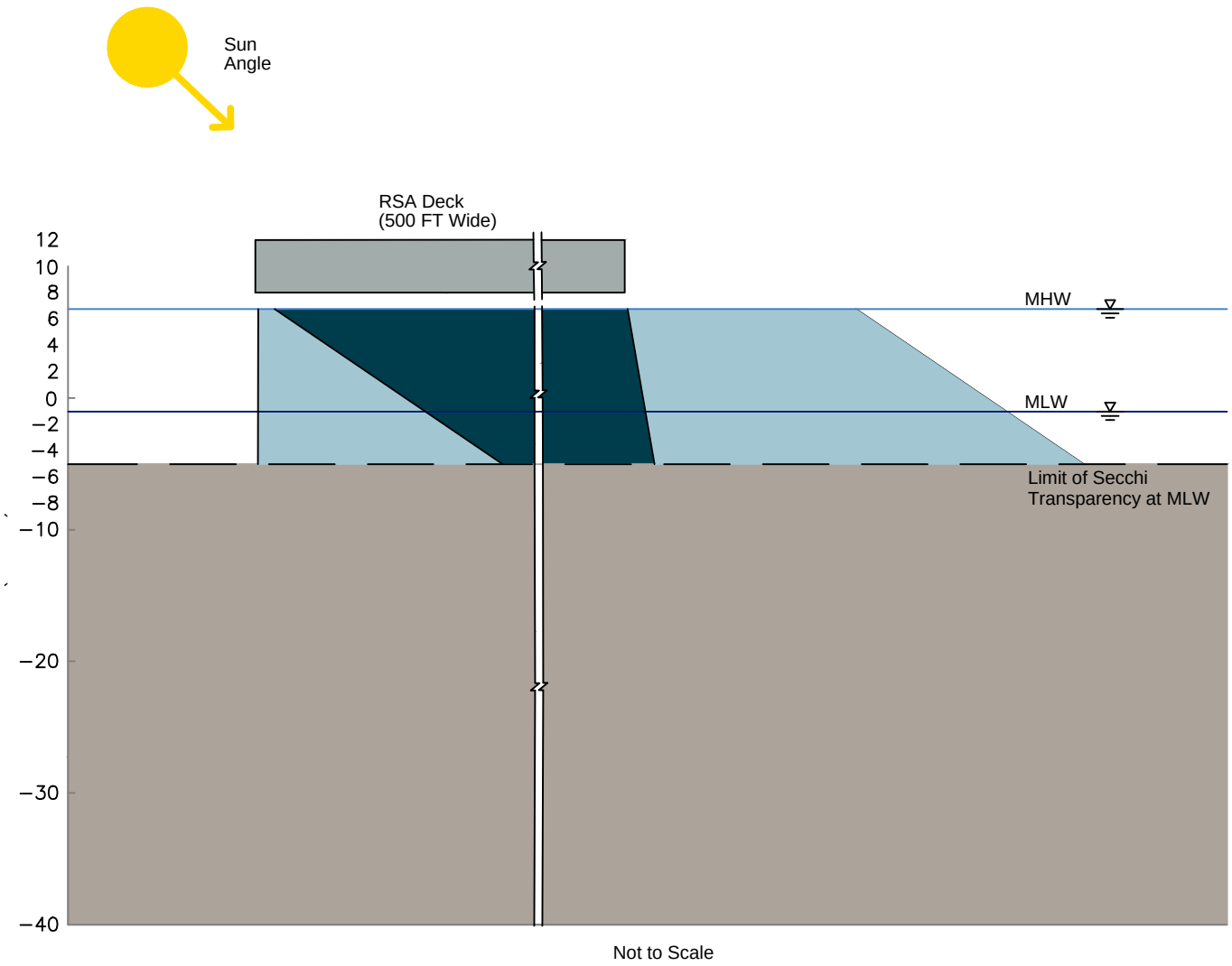

Source: VHB, Inc.

Legend

- Partially Shaded Water Column
- Water Column Always in Shade
- Water Column Below Secchi Depth
- Mean High Water (MHW)
- Mean Low Water (MLW)

Note: Looking at Deck from End

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Runway Safety Area Enhancements
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Figure 5-4

Maximum Deck Shading Profile (Schematic)

light can penetrate different areas based on tides and time of day, these species could use shadows to hide before ambushing prey.[6] Visual conditions at these pier-edge habitats may be optimal during daylight, dawn, and dusk hours. However, nighttime darkness would prevent these predators from feeding.

Indirect effects of shading on feeding habits of certain fish species impact the habitat selection and growth of species using pier areas. According to a 1999 study winter flounder and tautog do not voluntarily select habitat far under piers because of less than optimal foraging ability due to lack of light.[7] It found that fish in low light conditions exhibited negative growth rates, and concluded that the negative growth rate was not due to low prey abundance, but rather reduced feeding efficiency. Other supporting studies have documented the fact that benthic species abundance and richness is more than sufficient to support these two fish species under piers, that benthic prey species were not impacted by shading and that there was no difference between prey abundance under piers or in open water.[8] One study reported higher abundance of benthic prey species under piers than in open water areas.[9]

Consequences of shading on fish may vary depending on life stage. Species that are able to use sensory systems other than vision (fish that use chemical cues or sense movement) for feeding may be able to use the shaded areas under the RSA decks for greater portions of their life cycles than those that are vision-dependent and do not use the shaded areas. However, even larvae require threshold light intensities for feeding, and need adequate photoperiods for normal development and pigmentation.[10] Therefore, although prey consumption among larvae may be less affected by shading than juveniles or adults, prolonged near-darkness conditions may still have consequences.[11] Based on the tidal current velocities in the vicinity of LGA, shading impacts on fish larvae would be minor. Current velocities in the area are routinely in the range of 2 to 3 feet/second. These currents would carry any larval stage fish through the deck area quickly, and only expose them to very short-term shading effects with negligible impacts.

6 Helfman, G. S. 1981. The advantage to fishes of hovering in the shade. *Copeia.* 1981: 392-400.
7 Duffy-Anderson, J. T., and K.W. Able. 1999. Effects of municipal piers on the growth of juvenile fish in the Hudson River estuary: a study across a pier edge. *Marine Biology.* 133:409-418.
8 Stoecker, R. R., J. Collura, and P. J. Fallon, Jr. 1992. *Aquatic studies at the Hudson River Center Site*. Pp. 407-427. C. L. Smith, (ed.) Estuarine Research in the 1980s. The Hudson River Environmental Society Seventh Symposium on Hudson River Ecology. State University of New York Press, Albany, NY.
9 Duffy-Anderson, J.T., and K.W. Able. 2001. An assessment of the feeding success of young-of-the-year winter flounder (Pseudopleuronectes americanus) near a municipal pier in the Hudson River estuary. *U.S.A. Estuaries.* 24(3):430-440.
10 Connaughton, V. P., C. E. Epifanio, and R. Thomas. 1994. *Effects of varying irradiance and feeding in larval weakfish* (Cynoscion regalis). *J. Exp. Mar. Biol. Ecol.* 180:151-163.
Boeuf, G., and Le Bail, P Y. 1999. Does light have an influence on fish growth? *Aquaculture*. 177(1-4).129-52.
11 Able, K. W, and J.T. Duffy-Anderson. 2005. *A Synthesis of Impacts of Piers on Juvenile Fishes and Selected Invertebrates in the Lower Hudson River*. Rutgers University, Institute of Marine and Coastal Sciences Technical Report #2005-13, New Brunswick, NJ.

The RSA deck extensions would result around 4.65 acres of shading of existing open water. The water depth in the Project Area is approximately 20 feet, but sunlight only penetrates through a portion of the water column due to existing turbidity levels. This area would represent diminished habitat value in the upper 3 to 6 feet of the water column, primarily as foraging habitat for fish. The new surface area of the piles would provide some benthic habitat, but it represents a change from the existing mud substrate that would be occupied by the piles.

5.4.2.4 Impacts to Essential Fish Habitat

As indicated in Section 4.2.3.4, *Essential Fish Habitat*, seventeen Essential Fish Habitat (EFH) species are present in the waters surrounding the runways at LGA (Table 4-6). FAA Order 1050.1E, Change 1 requires that impacts be considered on population dynamics, sustainability, reproduction and natural mortality rates. Based on these factors, there would be no population-level impact to EFH species as the affected area (0.03 acres of direct alteration, less than 4.65 acres of shade) would be small relative to the Upper East River, Flushing Bay, Bowery Bay, and the Western Long Island Sound area as a whole. Fish populations are widely distributed throughout the area and fish would be able to relocate to other areas of the Upper East River. The listed EFH species would be able to avoid the area during the construction phase of the project and predatory species would be able to use the areas around the platform edges for foraging habitat.

5.4.2.5 Impacts to Upland Habitats

The proposed Ingraham's Mountain Construction Staging Area and its access road would eliminate approximately 9 acres of existing upland habitat. As summarized in Affected Environment Section 4.2.3, *Fish, Wildlife and Plants*, the Ingraham's Mountain site supports successional woodland plant community and early successional habitat patches. These are considered to be demonstrably secure and distributed throughout New York State, and are vegetated by non-native and invasive plants as well as common early successional native and non-native species typically associated with disturbed habitats in southeastern New York State. The overall habitat quality of that area has been degraded due to historic and recent anthropogenic disturbance and subsequent colonization by non-native /invasive plant species. Although approximately 9 acres (approximately 50 percent) of the existing habitat would be cleared, the remaining habitat in perimeter areas of the property would be left undisturbed. Accordingly, the existing successional communities and associated vegetation would persist and continue to be present at Ingraham's Mountain, both during and after implementation of the Proposed Action. Based upon these considerations, loss of existing habitat is not likely to adversely affect the overall abundance and habitat distribution in the region or in New York State as a whole.

During the clearing and construction phases of the Proposed Action, it is expected that individuals of some wildlife species (i.e., smaller, less-mobile animals or juveniles of certain species) at the site would be adversely impacted. Nevertheless, the majority of wildlife present within or expected to use the site are considered to be generally mobile (e.g., songbirds, small mammals, etc.), and would be displaced. It is anticipated that individuals of some of these species would be displaced to the undisturbed areas of successional habitat at perimeter areas of the site, while others would be displaced to locations in the general surrounding area that could accommodate them.

Overall, due to the proposed reduction in available habitat area, it is anticipated that overall wildlife population numbers for most resident species would decline as compared to existing conditions. The site would continue to support similar species as compared to existing conditions, though at reduced population numbers. The existing and expected fauna is comprised of common species adapted to disturbed habitats and individuals of most species are expected to relocate to other nearby habitat areas. Therefore, the Proposed Action is not likely to adversely affect local and regional wildlife populations or biodiversity.

5.4.3 RVSR

The RVSR would alter an area of maintained lawn and existing pavement, and would not result in changes in fish, wildlife or plants compared to the No-Action Alternative.

5.4.4 Impacts on Listed Threatened and Endangered Species

Based on consultation with responsible state and federal agencies, the permanent impacts of the deck extensions, RVSR and construction staging areas on threatened and endangered species, including minor effects on the population dynamics, sustainability, reproduction, and natural mortality rates of the protected species would be negligible. As indicated in correspondence dated February 25, 2013 (see Appendix A, *Agency Coordination*), the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) identifies the New York Bight Distinct Population Segments (DPS) of Atlantic sturgeon, as well as four other DPS of Atlantic sturgeon, and lists Kemp's ridley, green and leatherback sea turtle as endangered and potentially occurring in the waters around LGA. In addition to these endangered species, the northwest Atlantic Ocean DPS of the loggerhead sea turtle is listed as a threatened species for this area. These species would not be affected by the Proposed Action because they are transient species that would only be found migrating through the area and do not use this area on a permanent basis. If these species were present during construction they would likely avoid the disturbance and move away from the construction area. Section 5.14.2, *Fish, Wildlife, and Plants*, discusses potential temporary effects to listed species during construction.

The Project Area does not include any designated Critical Habitat for sea turtles or Atlantic sturgeon. The proposed RSA Enhancements with extended decks would result in the loss of a small area (1,178 square feet) of subtidal marine habitat potentially used by these species. The Project Area may also provide suitable habitat/food (e.g., jellyfish, invertebrates, mollusks, and crabs) for listed species. There would be no impacts to water quality or habitat quality other than shading. For these reasons, the proposed RSA Enhancements at Runways 4 and Runway 31 would not affect Critical Habitat or jeopardize the continued existence of these species (see Appendix A, *Agency Coordination*). Section 5.14.2, *Fish, Wildlife, and Plants*, discusses potential temporary effects to listed species during construction.

The U.S. Fish and Wildlife Service (USFWS), in correspondence dated February 18, 2013 (see Appendix A, *Agency Coordination*) identified three listed species as potentially occuring within the vicinity of the Proposed Action: the bird species roseate tern (endangered) and piping plover (threatened), and the plant species seabeach amaranth (threatened). There would be no effect on these species as a result of the Proposed Action because their supporting habitat (sandy/beaches and dunes) is not found on or near LGA. The shorelines around the Airport are riprap with tidal mudflats and do not provide beach and dune habitat needed by these species; therefore, these species would not be expected to occur in the area.

In correspondence dated February 19, 2013 (see Appendix A, *Agency Coordination*), the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program does not list any species as threatened, endangered, or species of special concern within or near the Project Area. The Ingraham's Mountain area, a forested upland, does not contain suitable habitat for any of the protected species identified by USFWS or NMFS. The RVSR would alter an area of maintained lawn and existing pavement that does not contain suitable habitat for any of these protected species.

5.4.5 Summary of Impacts – Regulatory Compliance

The Endangered Species Act (ESA) establishes the federal program to protect threatened and endangered species. Once an animal or plant is added to the list of threatened or endangered species, protective measures apply to the species and its designated critical habitat. These measures include protection from adverse effects of Federal activities. Section 7(a)(2) of the ESA requires that Federal agencies, in consultation with USFWS and/or NMFS, ensure that any action they authorize, fund or cary out is not likely to jeoparize the continued existince of a listed species or result in the destruction or adverse modification of any designated critical habitat. It is the responsibility of the Federal agency taking the action to assess the effects of their action and to consult with the USFWS or NMFS if it is determined that the action "may affect" listed species or critical habitat.

In a letter dated February 25, 2013 (Appendix A, *Agency Coordination*), the NMFS indicated that ESA-listed sea turtles and atlantic sturgeon may occur in Flushing Bay, and that any proposed in-water work has the potential to affect these species. The FAA subsequently entered into an informal Section 7 consultation with NMFS concerning potential temporary construction-period effects to listed species, as discussed in Section 5.14.2 *Fish, Wildlife, and Plants*. On August 15, 2013, the NMFS concurred that the proposed project would have an insignificant or discountable effect on sea turtles or Atlantic sturgeon (Appendix A, *Agency Coordination*).

The RSA deck extensions would impact the aquatic habitat in the Upper East River such that there would be diminished habitat value compared to the No-Action Alternative. These impacts would consist of the loss of 0.03 acres of benthic substrate due to the piles that would support the RSA deck extensions. The piles would also displace a small volume of water column habitat. The surface of the piles would provide areas where select invertebrates could attach, thus creating habitat for some species. The new deck extensions over water would shade approximately 4.65 acres of water column. The partial shading of the edges of the RSA deck extensions would likely enhance these small areas for selected fish and invertebrates. As the water depth in the area occupied by the new RSA deck extensions exceeds the depth of light penetration in the Upper East River, the existing bottom would not experience a reduction in light values. Hydrodynamic modeling showed that changes in current regimes and sedimentation would be negligible, thus any effects on benthic substrates would be very small and localized.

The unavoidable impacts to aquatic life would affect local populations of fish and invertebrates but would not substantially change the distribution, abundance or reproductive capacity of these populations as a whole. The presence of the new RSA deck extensions would not inhibit the movement and migrations of species passing through the Upper East River. There are no threatened, endangered or special concern aquatic species that depend on the Project Area for critical habitat. Although EFH-designated species occur in the Project Area, they do not depend on the area for important life history functions that cannot be met at other parts of their coastal distributions.[12] The RSA deck extensions would not have a long-term adverse effect on ESA-listed species (sea turtles or atlantic sturgeon).

The RVSR and Ingraham's Mountain Construction Staging Area would have no adverse impacts on aquatic habitat or protected species.

12 NOAA EFH designations and distributions. 10X10 minute squares. http://www.nero.noaa.gov/hcd/STATES4/conn_li_ny/40407350.html

5.5 Floodplains

EO 11988 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 placement of structures in a floodplain requires that an assessment be completed of its effects on flooding in adjacent areas and whether it would be a "significant floodplain encroachment" as defined under Section 9.2f. of 1050.1.E, EO 11988. FAA Order 1050.1E, Change 1, Appendix A-9 also establishes the criteria for FAA floodplain impacts evaluation.

5.5.1 No-Action Alternative

Conditions in the future without the Proposed Action (the No-Action Alternative) would be the same as under existing conditions. As LGA is within the 100-year floodplain, airport operations take into account the potential for flooding and appropriate safety measures are implemented when needed. To the extent that sea level rise is influencing airport operations and natural resources associated with the Airport, it is anticipated that proper measures to safeguard airport operations would continue to be implemented without the Proposed Action.

5.5.2 RSA Enhancements and Construction Staging Areas

The existing LGA airfield, including the existing decks that support much of Runways 4-22 and 13-31, was constructed in the unconstrained tidal floodplain of the Upper East River. The Proposed Action would require installing an Engineered Material Arresting System (EMAS) bed on new pile-supported deck extensions at the Runways 4 and Runway 31 Ends, within the regulatory 100-year floodplain of the tidally-influenced Upper East River. These piles would occupy a very small area and would displace a very small volume of water that would not have any impact on the storage capacity of the river. Hydrodynamic modeling shows that these structures would have minimal effect on current regimes and would not cause scour or sedimentation that could change water flow and depth (Section 5.13, *Surface Waters and Wetlands*).

Like the existing runways, the proposed extensions to the existing RSA decks would be below the flood elevation, meaning that the structures would be subject to flooding in the 100-year flood (a 1-percent-annual-chance flood event).

Constructing the RSAs would not be a significant encroachment in the floodplain because it would not pose a risk to human safety, increase the risks of repairing flood damage or service disruptions or disrupt the natural and beneficial flooding process. Floodplains within LGA are mostly paved for industrial uses and transportation and the natural flooding process is altered under existing conditions.

Excavation or filling for the Ingraham's Mountain Construction Staging Area would not encroach on the 100- or 500-year floodplains due to its higher elevation.

5.5.3 RVSR

A small portion of the proposed new section of the RVSR roadway system would be within the 500-year and 100-year floodplains (Figure 4-3). The majority of the work would occur on existing paved surfaces and would not increase the flooding risk at downstream properties.

Constructing the RVSR would not be a significant encroachment in the floodplain because it would not pose a risk to human safety, increase the risks of repairing flood damage or service disruptions, or disrupt the natural and beneficial flooding process.

5.5.4 Summary of Impacts – Regulatory Compliance

The Proposed Action would have no adverse impact on the 100-year floodplain in the vicinity of LGA. The floodplains within the LGA facility have been modified for industrial use, and the Proposed Action would not represent a substantive change in floodplain function. The Proposed Action would comply with EO 11988 and would not be considered a significant encroachment under FAA Order 1050.1E, Change 1. The action would not pose a risk to human safety because it would not change downstream flooding. The RSA Enhancements and RVSR construction would not result in substantial additional costs as a consequence of damages or service disruptions due to flooding because no inhabitable structures are proposed within the 100- year or 500-year floodplain. Enhancements to the RSAs and constructing the new section of RVSR would not substantially alter the floodplain's natural and beneficial values by disrupting agricultural or aquicultural uses, changing the rate of groundwater recharge, substantially impacting water quality, controlling flooding, or impacting organisms that inhabit floodplain ecosystems. Floodplains within the LGA facility do not currently provide these functions.

The alternatives analysis provided in Chapter 3, *Alternatives*, demonstrates that there are no feasible alternatives to the Proposed Action. Of the alternatives evaluated, only two options would not require extending the existing decks into the Upper East River: shifting the runways (RSA Conceptual Alternative C), and providing a non-standard EMAS to the existing decks at Runways 4 and 31 (RSA Refined Alternative 4). Conceptual Alternative C was considered not feasible because it would result in changed runway threshold locations that would affect the airspace of the Airport and would cause substantial impacts to the surrounding community. RSA Refined Alternative 4 was dismissed because it would not meet the minimum FAA-required aircraft arrestment because there is not enough available space on the end of each of the existing decks to place an adequately-sized EMAS bed, and would not satisfy the Purpose and Need.

The Proposed Action would not be a significant encroachment, because:

- The Proposed Action would not cause an increased risk to human life;
- It would not be associated with substantial costs as a consequence of damages or service disruptions due to flooding. Although the runways would flood during a 100-year flooding event, this does not represent a change from the existing conditions as compared to the No-Action alternative and would not cause an increase in service disruption; and
- Constructing the RSA Enhancements as proposed and over the surface waters would not disrupt or control the natural and beneficial flooding processes, and would have a negligble effect on existing floodplains. The natural flooding cycle would be the same with the Proposed Action as with existing conditions or under the No-Action alternative.

5.6 Hazardous Materials, Pollution Prevention, and Solid Waste

This section provides an overview of the impact analysis for hazardous materials, solid waste, and pollution prevention. The analysis considers impacts as defined by the FAA's thresholds of significance, and also other supplemental analyses to gain a full understanding of the potential pollution impacts on the environment. FAA Order 1050.1E, Change 1 defines a significant impact for hazardous materials, pollution prevention, and solid waste as one where an action involves a property on or eligible for the Environmental Protection Agency's (EPA) National Priority List (NPL). Uncontaminated properties within a NPL site's boundary do not always trigger this significant threshold. As documented in Section 4.2.5, *Hazardous Materials*, there are no sites in the Project Area that are listed on the EPA's NPL. Therefore, no substantive impacts in the category of Hazardous Materials, Pollution Prevention, and Solid Waste would occur.

In accordance with FAA Order 1050.1E, Change 1, additional analyses included an assessment of the potential hazardous nature of any materials or wastes to be used, generated, or disturbed by the Proposed Action. FAA Order 1050.1E, Change 1 incorporates the following three terms in the assessment of hazardous materials:

- Hazardous Materials: As set forth by the U.S. Department of Transportation (USDOT) in 49 CFR Part 172, and Table 172.101. These materials are considered to pose an unreasonable risk to health, safety and property when transported in commerce and include hazardous substances and hazardous wastes;

- Hazardous Waste: As set forth by the U.S. EPA in 40 CFR Part 261 and includes specific listings of hazardous wastes, in addition to characteristics which make a waste hazardous including corrosivity, ignitability, reactivity, and toxicity; and
- Hazardous Substances: Any element, compound, mixture, solution, or substance defined as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1992 (CERCLA) and listed in 40 CFR Part 302. If released into the environment, hazardous substances may pose substantial harm to human health or the environment.

A direct impact is an immediate consequence to the environment or construction program as a result of the Proposed Action. Direct impacts would include encountering existing contamination, acquiring a contaminated property, or generating regulated materials during building demolition, storage tank removals, or site preparation.

An indirect impact related to subsurface contamination or waste materials management would occur when an alternative has the potential to affect the ongoing remediation of existing contamination or would produce additional sources of contamination or waste materials. This type of impact would exist if a proposed alternative has the potential to cause an impact at another time or a location outside of the Project Area. Beneficial impacts and ongoing release monitoring and remediation are also considered indirect impacts. Beneficial impacts would include addressing contamination encountered during the constructing any alternatives in accordance with state or federal regulations.

Construction activities may encounter contaminated soils or groundwater, or may generate regulated and hazardous materials, substances, and/or wastes. This section summarizes the potential impacts for hazardous materials, solid waste and pollution prevention for the Proposed Action and the No-Action Alternative.

5.6.1 No-Action Alternative

With the No-Action Alternative, the existing risk associated with fuel spills from vehicles (including fuel carrying vehicles) entering and exiting between LGA and public roadways would continue. The potential for releases from vehicle fuel spills and/or accidents would continue to occur on public roadways. Any contaminated soil and solid waste that may be present at the Ingraham's Mountain site would not be remediated because the staging area would not be constructed.

5.6.2 Proposed Action

The Proposed Action would not generate any hazardous materials, hazardous waste, hazardous substances, or solid waste after construction. There would be no long-term or permanent direct or indirect effects on hazardous materials or solid waste as a result of the Proposed Action.

The Proposed Action would generate solid waste associated with the removal of an estimated 150,000 cubic yards of fill associated with creating the Ingraham's Mountain Construction Staging Area. Ingraham's Mountain was originally created by using material from construction of the third tube of the Lincoln Tunnel. Ultimately, the Proposed Action would result in an overall net benefit because the Port Authority would remove and properly dispose of solid waste and debris on the surface of Ingraham's Mountain, as well as any contaminated shallow soil and debris at the site. Construction-period impacts are addressed in Section 5.14, *Construction Impacts*.

5.6.3 Summary

There are no sites in the Project Area that are listed on the EPA's NPL. The Proposed Action, once constructed, would not generate hazardous materials or solid waste, and would not interfere with the remediation of any listed site. There would be no long-term effects of the Proposed Action on hazardous materials. Construction-period impacts are described in Section 5.14.3, *Hazardous Materials and Solid Waste*.

5.7 Historical, Architectural, Archaeological and Cultural Resources

FAA Order 1050.1E, Change 1 (501e (1))[13] states that the threshold for further consideration of cultural resources during the development of an EA is a "significant adverse effect on cultural resources pursuant to the National Historic Preservation Act of 1966, as amended." As documented in Section 4.2.6, *Historic, Architectural and Cultural Resources*, no previously inventoried terrestrial or underwater archaeological sites or terrestrial buildings, structures, or objects are recorded within the Proposed Action's Area of Potential Effect (APE). Although eligible and listed resources are present at LGA (Hangars 1 through 5, and Marine Air Terminal, respectively), no listed or eligible historic properties, including districts, are adjacent to any direct impact area. The Proposed Action would not affect any eligible or listed properties to the National Register of Historic Places. In a letter dated June 28, 2013, the NYS SHPO concurred that the Proposed Action would not have an adverse effect on any eligible or listed properties (Appendix A, *Agency Coordination*). The Proposed Action would not be located within 90 feet of any eligible or listed property, and would therefore not require a construction protection plan.

13 FAA Order 1050.1E, Change 1, 06/08/04, page 5-5.

5.8 Light Emissions and Visual Impacts

This section provides an overview of the analysis of impacts from light emissions and visual effects from the components of the Proposed Action. NEPA regulations that address light emissions and the visual setting are discussed in FAA Order 5050.4B and FAA Order 1050.1E, Change 1.

FAA Order 1050.1E, Change 1 at Appendix A, Section 12.3, defines a significant impact for light emissions as one where an action's light emissions create annoyance to interfere with normal activities, and defines a significant impact for visual impacts as one when consultation with federal, state, or local agencies, tribes, or the public shows the visual effects contrast with existing environments and the effect is objectionable.

Impacts to the existing visual environment of the Project Area, as well as views of these areas from potentially affected nearby residential properties in Ditmars/Steinway and East Elmhurst were evaluated through creating photo-simulations, based upon a photographic survey of important viewsheds in January 2013.

5.8.1 No-Action Alternative

Under the No-Action Alternative, no impacts from light emissions or changes to the visual setting would be expected because there would be no changes in navigation aids, airport lights, or structures.

5.8.2 RSA Enhancements and Construction Staging Areas

The impacts on light emissions of the proposed RSA Enhancements were determined based on a review of the proposed lighting systems. Potential impacts to the Airport's neighbors were evaluated on a qualitative basis. Impacts to the visual setting were determined through photographic documentation taken from the nearby neighborhoods (College Point, Ditmars/Steinway, and Rikers Island). The sketches of the proposed RSA Enhancements were then superimposed on the photographs to evaluate changes to the visual setting.

5.8.2.1 Runway 4 End

The following is a discussion of the environmental consequences of the proposed Action related to the Runway 4 End enhancements.

Light Emissions

Outside of minimal alterations to the lighting systems, such as modifying the obstruction lighting systems to delineate the new edges of the concrete deck extensions, there would be no change in light

emissions resulting from the Runway 4 RSA Enhancements. No new lighting is proposed at this location and the new edge lights would not constitute a perceptible change in light emissions.

Visual Environment

The proposed Runway 4 RSA Enhancements would have a negligible change on the view of LGA from the nearest residential areas of Rikers Island and College Point. As noted in Section 4.2.6.1, *Visual Environment*, the view from Rikers Island is of the entire runway and adjacent piers, with open water in the foreground. Due to the distance between the Runway 4 End and College Point (i.e., from Macneil Park, approximately 1 mile), the view from College Point is primarily of open water, the distant light pier, and the distant runway end (Figures 5-5, 5-6 and 5-7). The existing decks would be extended, but would appear similar from a distance to the existing decks and light piers because they would be at the same elevation as the existing deck and would be constructed of similar materials, as depicted in Figure 5-6. Further, the deck extension would be small (approximately 182 feet in length) and would likely not be perceptible from public viewpoints. Although the proposed extended deck would result in a negligible permanent alteration of the visual setting, this impact is not adverse or significant according to FAA Order 1050.1E, Change 1.

5.8.2.2 Runway 31 End

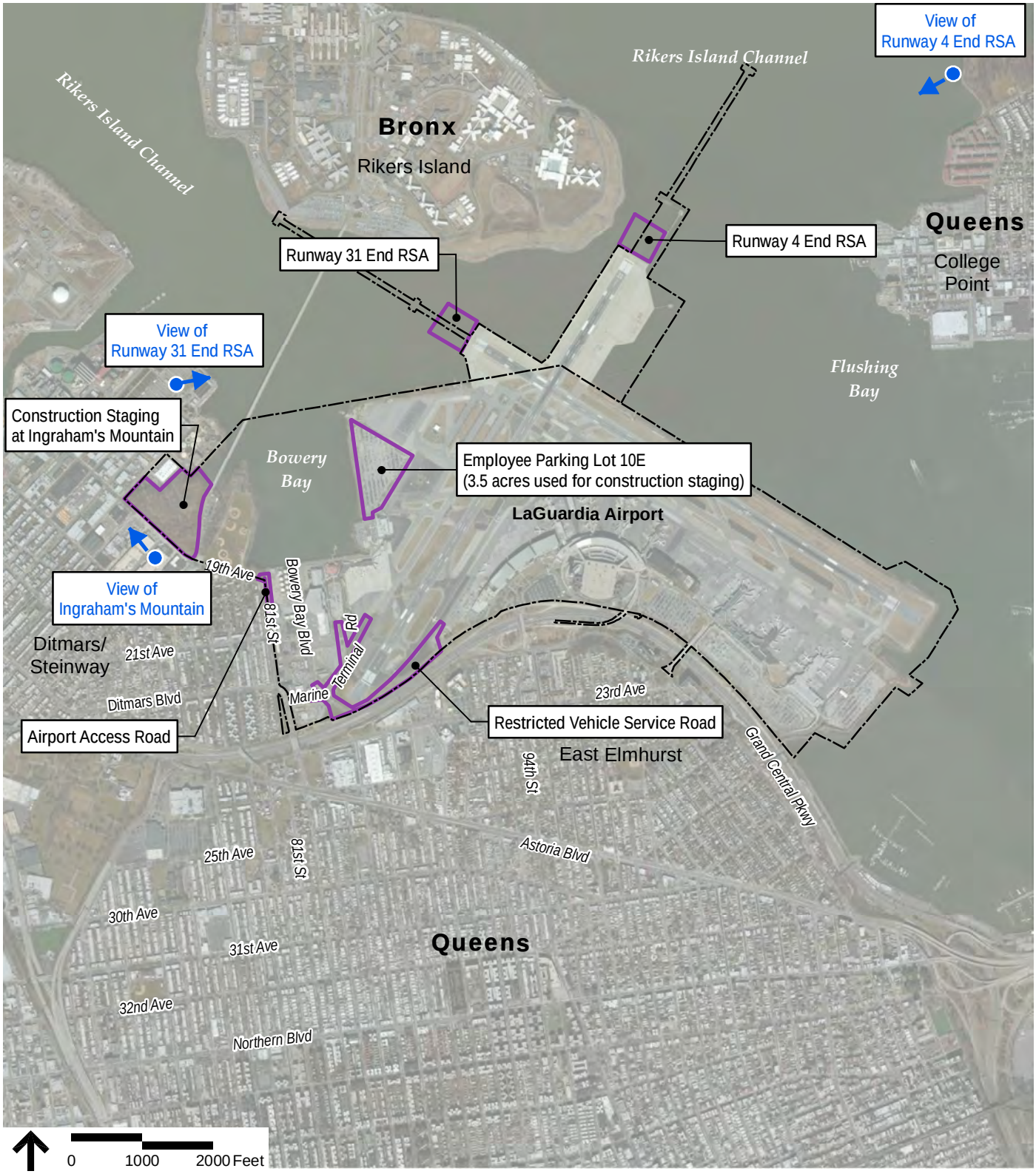
The following is a discussion of the environmental consequences of the Proposed Action related to the Runway 31 enhancements.

Light Emissions

Outside of minimal alterations to the lighting systems, such as modifying the obstruction lighting systems to delineate the new edges of the concrete deck extensions, there would be no change in light emissions resulting from the Runway 31 RSA Enhancements. No new lighting is proposed at this location and the new edge lights would not constitute a perceptible change in light emissions.

Visual Environment

The proposed Runway 31 RSA Enhancements would have a negligible change on the view of LGA from the nearest neighborhood of Rikers Island. As noted in Section 4.2.6.1, *Visual Environment*, the Runway 31 End can be seen from Rikers Island and the Rikers Island Bridge. The view from Rikers Island is of the entire runway and any adjacent piers, with open water in the foreground. As described above for Runway 4 End, these enhancements would be viewed from a distance and would appear similar to the existing deck and light pier, as shown in Figure 5-7. Although the proposed extended deck would permanently alter the visual setting, this impact is not adverse or significant according to FAA Order 1050.1E, Change 1.



Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

Photo Simulation Viewpoints

College Point — Neighborhood

Queens — Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-5

Photo Simulation Viewpoints

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-6
Photo Simulation
Runway 4 End RSA

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LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-7
Photo Simulation
Runway 31 End RSA

5.8.2.3 Construction Staging Areas

The following is a discussion of the permanent environmental consequences of the proposed Ingraham's Mountain Construction Staging Area and a portion of Employee Parking Lot 10E on light emissions and visual impacts. Lighting and visual changes associated with construction activities are discussed in Section 5.14, *Construction Impacts*.

Light Emissions

Creating the Ingraham's Mountain Construction Staging Area would not create a permanent change in light emissions, as there would be no new permanent lighting. Impacts associated with construction activities are discussed in Section 5.14, *Construction Impacts*. The Construction Staging Area at Employee Parking Lot 10E would not include additional permanent lighting and, therefore, would not change existing light emissions.

Visual Environment

Creating the Ingraham's Mountain Construction Staging Area would create a minor change in the visual environment in the Ditmars/Steinway neighborhood. The undeveloped top of the existing hill would be replaced with a construction staging area. These improvements would lower the top of the hill from the current 86 feet (equivalent of a five-story building) to 67 feet (equivalent of a four-story building). This approximately 18-foot change in elevation would have a negligible impact on the visual quality of the neighborhood. Ingraham's Mountain would remain substantially taller than most of the industrial/distribution buildings in the area, which are one- and two-stories in height, and the lower side-slope vegetation that currently blocks views of the top from adjacent streets would remain. Ingraham's Mountain can be seen throughout the Ditmars/Steinway neighborhood-along 19th Avenue, 45th Street, Berrian Boulevard, and further away along the viewsheds down 45th Street through Hazen Street (Figure 5-8). A static view or vehicular view from 19th Avenue would not be noticeably different due to the height and slope that would remain and the vegetation on the side slopes that would continue to block views.

Ingraham's Mountain can also be seen from the Rikers Island Bridge and Rikers Island. The Ingraham's Mountain Construction Staging Area would change the visual setting from Rikers Island Bridge and Rikers Island. In particular, inmates and employees on higher floors within buildings on Rikers Island would have their views changed by the conversion of the vegetated hilltop to a construction staging area.

Although the closest residence is less than ¼-mile south of Ingraham's Mountain and residential uses are, in general, blocked by the intervening industrial/distribution buildings, the visual environment

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Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-8
Photo Simulation
Ingraham's Mountain

for taller residential buildings would change. This visual change would be considered beneficial, as it could open views to Bowery Bay for residents in some parts of the Ditmars neighborhood.

Although creating the Ingraham's Mountain Construction Staging Area would permanently alter the visual setting, this impact is not considered adverse or significant according to FAA Order 1050.1E, Change 1. No changes to the visual environment are expected from the partial use of Employee Parking Lot 10E for construction staging.

5.8.3 RVSR

The following is a discussion of the environmental consequences of the Proposed Action related to the RVSR.

5.8.3.1 Light Emissions

Although roadway lighting would be relocated along Runway Drive and Marine Terminal Road as a result of constructing a new section of the RVSR, there would be no change in light emissions resulting from this improvement as these roadways already have street lighting. In addition, they are adjacent to the Grand Central Parkway, which is a larger light-generator and closer to the residential areas of the East Elmhurst neighborhood. As described in Section 4.2.6.1, *Visual Environment*, the RVSR is separated from residential receptors by the Grand Central Parkway and existing topography and buffer landscaping. Therefore, the additional lighting resulting from the RVSR would not be adverse or significant according to FAA Order 1050.1E, Change 1.

5.8.3.2 Visual Environment

The proposed new section of RVSR would have a negligible change on the view of LGA from the nearest neighborhood of East Elmhurst. As noted in Section 4.2.6.1, *Visual Environment*, the area proposed for the new section of the RVSR is on Airport property, adjacent to the existing Runway Drive, landscaped areas, and rental car facilities; it is separated from any residential areas (East Elmhurst) by topography and buffer landscaping, as well as by the Grand Central Parkway. The RVSR and reconfigured Runway Drive would not differ visually from the existing visual landscape of roads and airport infrastructure, including the perimeter safety fence, Runway Drive, and Marine Terminal Road. Further, given the distance and buffering to any residential areas, any visual impacts resulting from the RVSR would not be adverse or significant according to FAA Order 1050.1E, Change 1.

5.8.4 Summary

As documented in this section, neither the proposed Runway 4 End nor the proposed Runway 31 End RSA Enhancements would have a significant effect on light emissions or the visual environment. The proposed RSA Enhancements would not change existing light emissions and would not create

annoyance. Although the visual environment would be permanently altered, these changes would be consistent with the existing environment. The Construction Staging Areas at Employee Parking Lot 10E and on Ingraham's Mountain would not include additional permanent lighting and, therefore, would not change existing light emissions. The Ingraham's Mountain Construction Staging Area would change the visual environment in the Ditmars/Steinway neighborhood. However, it would have a negligible impact upon the visual quality of the neighborhood, especially as the Construction Staging Area would be at an elevation of 67 feet and would remain substantially taller than most of the industrial/distribution buildings in the area, which are one- and two-stories in height. Vegetation on the side slopes that currently blocks views of the top of the mountain would remain.

The RVSR would include reconfiguring Runway Drive and street lighting (and would not include any new lighting). This would not result in a change in light emissions, because the areas where these improvements would be located already have lighting and are adjacent to the Grand Central Parkway. The proposed RVSR would have a negligible change on the view of LGA from the nearest neighborhood of East Elmhurst because it would not differ visually from the existing access roadways, Runway Drive and Marine Terminal Road, and area of construction would be quite a distance to any residential areas. None of the components of the Proposed Action would create significant or adverse light emissions or visual impacts according to FAA Order 1050.1E, Change 1.

5.9 Noise

The FAA's *Environmental Desk Reference for Airport Actions*, Chapter 17 outlines noise analysis procedures for FAA NEPA evaluations. As indicated in FAA's guidance document, typical airport development actions that have the potential to cause aviation-related noise impacts include new or extended runways and taxiways and substantial changes in aircraft operations (e.g., number of aircrafts, aircraft types, new or revised approach or departure tracks). Surface transportation elements of an off-Airport development action may also generate noise impacts and may include new, expanded or re-aligned airport access roads, increased airport automobile or truck activity, and increased vehicle speeds. When surface transportation-related noise assessments are warranted, impacts are typically evaluated in accordance with the Federal Highway Administration's (FHWA) *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (23 CFR 772). Substantial airport construction or demolition activities related to the elements that are part of the Airport development may generate temporary noise impacts, which are addressed in Section 5.14, *Construction Impacts*. The project elements associated with RSA Enhancements and the new section of RVSR were evaluated based on FAA's guidance to identify the potential for permanent noise impacts at the closest noise sensitive sites relative to the Proposed Action. Noise sensitive sites include residential

dwellings and hotels along Ditmars Boulevard, south and west of LGA (East Elmhurst), as well as residential dwellings to the east. A noise wall separates residential dwellings along 81st Street from LGA.

5.9.1 No-Action Alternative

The No-Action Alternative assumes that the RSAs at the Runway 4 and 31 Ends would remain in their current condition and, therefore, would not result in a change in aircraft operations or noise levels. Further, the No-Action Alternative assumes that a new portion of the RVSR would not be constructed, and therefore restricted and public vehicles would continue to use Runway Drive. While there may be an increase in traffic due to background growth utilizing these roadways, changes to the noise environment under the No-Action Alternative are expected to be negligible.

5.9.2 RSA Enhancements and Construction Staging Areas

The Proposed Action would include RSA upgrades including deck extensions at the Runway 4 and 31 Ends, However, these deck extensions would not alter the aircraft operational areas along the runways or taxiways, change departure thresholds, or result in changes to approach/departure tracks.

Construction of the deck extensions would require runway closures to accommodate construction activities. The Port Authority currently closes Runways on a regular basis on weekends for various reasons, at which time the Airport operates on a one-runway configuration and the Port Authority has standard operational procedures to address these closures due to repairs, upgrades, or other activities. These standard operating procedures include issuing notices to airmen (NOTAM) to all air carriers and pilots regarding the temporary runway closures. In addition, the Aviation Development Council posts notice of runway closures at http://aviationdevelopmentcouncil.org/AirportUpdates.html. Constructing the deck extensions for the RSAs would be included along with other repairs or upgrades in the current ongoing schedule of weekend closures.

Noise exposure from aircraft operating at LGA would change temporarily due in part to the construction activities associated with the Proposed Action. Over the estimated three-year construction period, 18 months of weekend runway closures as part of the Port Authority's ongoing maintenance and construction schedule would occur. (Figure 3-14). Only one runway would be closed at any one time during a given weekend. During the closure of one runway, all traffic would operate on the other runway.. Since the individual runway closures will change throughout the construction schedule (to be determined each weekend by operational and weather considerations) and the total amount of time that each runway individually will be closed throughout the construction period is similar, runway utilization would not change on an annual average day basis. The annual average day basis is the metric used to determine noise impacts. Since there would be no change to the annual average runway utilization on a given day, there would be no corresponding change to the annual average noise experienced on a given day. The proposed

project would not change aircraft fleet mix or flight paths. Therefore, no noise modeling of DNL conditions during construction would be required per FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, and the *Desk Reference for Airports Actions*.

Since there are no changes in existing air traffic ground tracks or flight profiles; no increases in numbers of daily operations; no changes in fleet mix; and no changes in operation times associated with the Proposed Action, no changes in aircraft operational noise are expected and no permanent noise impacts to the surrounding noise sensitive sites would result from the RSA Enhancements. As the Proposed Action would not generate new vehicular traffic or new noise sources, no permanent noise impacts would occur. RSA Enhancements would also include construction staging areas in an underutilized portion of Employee Parking Lot 10E as well as at Ingraham's Mountain. No permanent noise impacts to the surrounding residential community would result from the construction staging area at Employee Parking Lot 10E. Temporary mobile and stationary source noise impacts associated with construction and use of both construction staging areas for the Proposed Action are addressed in Section 5.14.5, *Noise*. The Ingraham's Mountain Construction Staging Area (Contractor Mobilization and Laydown Area) could be used by future construction projects at LGA. Future potential impacts related to use of the Ingraham's Mountain area and airport access point would be evaluated in environmental documents for future projects.

5.9.3 RVSR

Currently, vehicles traveling along Runway Drive consist of both restricted and public vehicles. RVSR improvements would include constructing a new portion of the RVSR south of the Runway 22 End to create a separate parallel roadway only for restricted vehicles, which would be fully contained within the boundaries of the Airport Operations Area (AOA). The new section of the RVSR would require realigning Runway Drive closer to the Grand Central Parkway. Existing traffic using Runway Drive would be re-distributed such that restricted vehicles would use the new RVSR while public vehicles would continue to use the parallel, realigned Runway Drive. The Proposed Action would not generate new traffic.

The new section of the RVSR would become an airside restricted use roadway, and therefore the potential for off-Airport noise impact is not expected. Currently, Runway Drive includes a 3-lane section, while under the Proposed Action, the relocated public Runway Drive would be reduced to a 2-lane section. The reconfigured Runway Drive improvements meet the criteria for a Type III roadway project established in 23 CFR 772.[14] Type III projects do not require an analysis for highway traffic noise impacts as these project types are not expected to increase noise levels. The new section

14 Code of Federal Regulations. 2010. 23 CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise, 07/13/2010.

of RVSR is not expected to generate any new traffic. Therefore, permanent noise impacts from the RVSR element of the Proposed Action are not expected.

5.10 Socioeconomic Impacts and Environmental Justice

According to FAA Order 5050.4B and FAA Order 1050.1E, Change 1, the FAA must evaluate proposed airport development actions to determine if they would cause social impacts. To that end, social impacts have been assessed to determine the effect, if any, that implementation of the Proposed Action would have on the social fabric of the surrounding communities.

The types of social impacts that potentially arise from airport development and the thresholds that make them significant are:

- Extensive resident relocation (and whether sufficient replacement housing is available);
- Extensive community business relocation (and whether that would create severe economic hardship for the affected communities);
- Disruptions of local traffic patterns (that would substantially reduce the levels of service of the roads serving the airport and its surrounding communities); and
- Substantial loss in the community tax base.

In addition to evaluating the potential socioeconomic impacts to the general population, FAA is required to look closely at two sets of particularly sensitive groups:

- **Environmental Justice Communities—**As described in Section 4.2.9.2, *Environmental Justice Communities*, EO 12898, *Federal Actions to Address Environmental Justice in Minority 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. USDOT Order 5610.2, *Environmental Justice in Minority Populations and Low-Income Populations,* was issued to implement EO 12898, as referenced specifically for the FAA in FAA Order 5050.4B and FAA Order 1050.1E, Change 1. This environmental justice analysis is consistent with the intent of CP-29, *Environmental Justice and Permitting*, which is the NYSDEC's policy on environmental justice.

  In determining whether a Proposed Action or activity is in compliance with EO 12898, two factors must be considered. The first is whether the proposal is likely to have adverse effects on minority or low-income populations. The second is to determine whether the adverse impacts are significant and disproportionately high on minority or low-income populations. The USDOT Order defines adverse

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

- **Children's Environmental Health and Safety Risks**—Pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children.

5.10.1 No-Action Alternative

The No-Action Alternative would not require resident or business relocation, would not result in a loss to the community tax base, and would not substantially reduce levels of service on local roadways. Therefore, under the No-Action Alternative, no socioeconomic impacts are expected, including impacts to environmental justice populations or increasing health and safety risks to children.

5.10.2 Proposed Action

The Proposed Action would not result in permanent social impacts because it would not require resident or business relocation, and would not result in a loss to the community tax base. Further, as discussed in Section 5.11.2, *Surface Transportation*, the Proposed Action would not generate additional traffic after construction and therefore, would not permanently disrupt traffic patterns. Temporary social and traffic impacts during the construction period are discussed in Section 5.14, *Construction Impacts*. As no permanent socioeconomic impacts are expected, there would be no specific impacts to environmental justice populations or an increased health and safety risk to children.

- **Environmental Justice**—As noted in Section 4.2.9.2, *Environmental Justice Communities*, some of the census tracts within the Study Area contain minority concentrations, notably the East Elmhurst neighborhood, which contains a higher percentage of Asian-American and Hispanic/Latino populations compared to other demographic groups. However, none of the census tracts contain low-income concentrations and therefore no further income analysis was necessary. The components of the Proposed Action, including the RSA Enhancements were, therefore, evaluated for their potential impact on these minority populations, specifically with regards to permanent changes in traffic and noise.

- As noted in Section 5.9, *Noise*, the Proposed Action would not alter aircraft operations and is, therefore, not expected to change the noise environment. There would be no permanent noise impacts to environmental justice populations in the vicinity of LGA.
- As noted in Section 5.14, *Construction Impacts*, the noise environment in the southern portion of LGA where Runway Drive currently exists is dominated by vehicular traffic noise from the Grand Central Parkway. This is the same noise environment of the East Elmhurst neighborhood, which, as described in Chapter 4, *Affected Environment*, contains environmental justice populations. Any changes in noise resulting from shifting Runway Drive closer to the Grand Central Parkway would be negligible and would not cause disproportionately high and adverse effects that are "predominately borne by a minority population and/or a low-income population, or would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population." Note that temporary construction-period noise impacts are discussed in Section 5.14.5, *Noise*.

- **Children's Environmental Health and Safety Risks**—The Proposed Action would not create environmental health risks or safety risks for any persons, regardless of age. Therefore, there would be no potential significant impact to children's environmental health and safety.

5.11 Surface Transportation

FAA Order 1050.1E, Change 1, requires that surface transportation be addressed in the context of socioeconomic impacts, and considers a significant impact when a Proposed Action would disrupt local traffic patterns in such a way that would substantially reduce the levels of service of the roads serving the Airport and its surrounding communities [Appendix A, section 16.3c(3)]. FAA Order 5050.4B Table 7-1: *Significance Thresholds*, also states "For Socioeconomic issues: when an action would cause… disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the Airport and its surrounding communities." This section describes the effects of the Proposed Action on local traffic conditions, to determine if the Proposed Action would result in a significant impact.

5.11.1 No-Action Alternative

The No-Action Alternative would not affect transportation conditions.

5.11.2 Proposed Action

There would be no permanent off-Airport changes in surface transportation after the RSA Enhancements and new RVSR section construction is complete, as the projects would provide runway safety and service road improvements on-Airport. There would be minimal changes in surface transportation on-Airport due to the RVSR improvements. Traffic analyses are not required to be performed for the Proposed Action operational condition because there would not be additional traffic generated by the project and there would only be modest changes in the on-Airport roadways associated with the RVSR project under the Proposed Action condition. The new temporary airport Controlled Airport Access Point for construction vehicles at 81st Street and 19th Avenue would be used only during the construction of the RSA Enhancements and RVSR. Future use of the Controlled Airport Access Point for construction of other projects at LGA would be assessed in the environmental evaluations of those future projects.

RVSR construction would permanently shift Runway Drive south and Marine Terminal Road west and reconstruct the intersections of Marine Terminal Road at Runway Drive and Fiorello Lane. The construction of the new section of RVSR would remove a modest amount of traffic from Runway Drive / Marine Terminal Road (approximately 10 to 20 vehicles per hour). The replacement configurations of the two intersections on Marine Terminal Road would provide the same or greater lane widths and the same lane configurations, except at the Runway Drive approach at Marine Terminal Road, which would no longer have a channelized right turn lane. In the future operational period, right turns would be made from the shared through/right-turn lane and are not anticipated to adversely affect operations.

The Proposed Action would not have an adverse effect on local traffic conditions, and would not affect the level of service on local roads. Traffic conditions during the construction of the project elements have been analyzed and are presented in Section 5.14.7, *Surface Transportation*.

5.12 Water Quality

Evaluating water quality is a necessary component of the federal review as required by the FAA and NEPA regulations. NEPA regulations that address water quality are discussed in FAA Order 5050.4B and FAA Order 1050.1E, Change 1. FAA Order 1050.1E, Change 1 Appendix A, Section 17.3, identifies the significant impact thresholds related to water quality. Impacts to water quality result from the changes to hydrology and any new pollutant loading that may occur as a result of the Proposed Action. Water quality impact evaluation must consider increases in storm water runoff, decreases in infiltration, and changes in the constituent concentrations of the runoff.

5.12.1 No-Action Alternative

Under the No-Action Alternative, no changes would be made to the existing RSA decks, RVSR, or Ingraham's Mountain. Existing drainage areas would not be altered and no new stormwater management features would be constructed. Therefore, water quality would not be altered under the No-Action Alternative, and the Upper East River, Bowery Bay, and Flushing Bay impairments would not be affected. The Port Authority would continue to manage stormwater as required by its State Pollutant Discharge Elimination System (SPDES) permit.

5.12.2 RSA Enhancements and Construction Staging Areas

The Proposed Action could have the potential to change hydrology, erosion or sedimentation patterns, and pollutant loading concentrations of adjacent water bodies, but these are either not likely to occur or are expected to be negligible. The following section includes a discussion of stormwater management and pollutant loading concentrations as a result of the Proposed Action for the RSA Enhancements and associated construction staging areas at Ingraham's Mountain and Employee Parking Lot 10E.

5.12.2.1 Stormwater

The Airport's existing drainage areas and associated stormwater outfalls would not be affected by the Proposed Action construction. Rates of atmospheric deposition of pollutants would not be altered by constructing the RSA Enhancements. Although the deck extensions would increase impervious surfaces, under existing conditions this area is open water and currently receives direct deposition of air-borne pollutants. Following the deck construction, the same quantity of air-borne pollutants would be deposited and temporarily captured by the deck. These pollutants would be washed off the deck by rain events, rather than falling directly into the water as under existing conditions.

According to the NYSDEC's Final 2012 Section 303(d) list, the Upper East River and Bowery Bay are impaired due to polychlorinated biphenyl. Flushing Bay is impaired due to organic enrichment/oxygen depletion. The water quality of these surface waters would not be impacted by the RSA Enhancements. RSAs generate negligible amounts of contaminants or suspended solids because these areas convey limited vehicular traffic that consists only of safety and maintenance equipment. Due to its composition, the proposed EMAS bed cannot be used by vehicles other than during an emergency. Therefore, the Proposed Action would not result in the additional loading of pollutants due to vehicular activity or have an effect on the current water body impairments.

Management of snow and ice within the airfield is a critical component of airport operations. The Port Authority is prohibited from disposing snow into Flushing Bay and Bowery Bay, except under very limited emergency situations and with prior approval from NYSDEC. Snow is removed from

runways and perimeter roads as soon as possible after it has fallen. Airfield anti-icing and de-icing are performed with potassium acetate (taxiways) and sodium acetate (runways and airfield roadways). As sodium acetate dissolves completely once applied, this practice does not generate sediment and reduces the volume of waste material that must be managed by the stormwater collection system. Aviation-grade sand is sometimes used on the runways during storm events to increase friction. Snow management operations result in negligible impacts to water quality and are performed in accordance with the Airport's SPDES permit and Stormwater Pollution Prevention Plan. Snow removal from the EMAS bed, if needed, would be performed with a snow blower because heavy equipment is prohibited from accessing the EMAS bed. The extension of the existing decks would not change existing snow removal operations or associated water quality.

There would be no increase in impervious cover associated with the Ingraham's Mountain Construction Staging Area, because it would be an installation on a gravel and pervious surface. No permanent stormwater impacts are anticipated at this location. Section 5.14, *Construction Impacts* describes temporary construction impacts associated with the Ingraham's Mountain Construction Staging Area. No changes in impervious cover are anticipated at Employee Parking Lot 10E as the surface would not be altered under the Proposed Action.

5.12.3 RVSR

There would be a slight increase in impervious cover associated with constructing a new section of the RVSR because the RVSR would be constructed partially within a grassed landscaped area between the existing Runway Drive and RSA. However, there would be no expected change in the present rate and volume of stormwater runoff from this project element, because the increase in impervious cover would be minimal. Similar to the RSA Enhancements, the RVSR would generate negligible amounts of contaminants or suspended solids, because this area would convey limited vehicular traffic.

5.12.4 Summary of Impacts – Regulatory Compliance

FAA Order 1050.1E, Change 1 defines a significant impact for water quality as one where an action would not meet water quality standards or where potential difficulty in obtaining a permit or authorization may indicate a significant impact. As stated in Section 4.2.11, *Water Quality,* LGA has a current SPDES Permit (Permit No. NY 0008133) for the discharge of stormwater runoff. The Proposed Action would be consistent with the requirements of the SPDES Permit.

As documented in this section, the proposed RSA and RVSR enhancements would be designed to meet all relevant state water quality standards and would not have a significant impact on water quality.

5.13 Surface Waters and Wetlands

LGA is surrounded by the surface waters of the Upper East River that are regulated under Sections 401 and 404 of the Clean Water Act (CWA), Sections 9 and 10 of the Rivers and Harbors Act (RHA), and Article 15 of the New York State Environmental Conservation Law (NYSECL). Effects on these surface waters are evaluated against the requirements of these regulations, as required by FAA Order 5050.4B and FAA Order 1050.1E, Change 1, Appendix A.18, and EO 11990. In conformance with these orders, this section provides descriptions and evaluations relevant to the impact of the Proposed Action on functional values of surface waters and wetlands, including habitat quality and quantity.

5.13.1 No-Action Alternative

Tidal wetlands along the shoreline or the open waters that surround LGA would be the same as existing conditions in the future without the Proposed Action. While there are some on-going habitat restoration activities being conducted by others in the Upper East River and surrounding bays, no habitat restoration activities are planned for the resources at LGA.

5.13.2 Proposed Action

Under the Proposed Action, the two RSA deck extensions would impact aquatic resources. The RVSR and Ingraham's Mountain Construction Staging Area, however, would not affect any wetlands, state-regulated wetland buffers, or regulated surface waters around the Airport, as all work associated with these actions would occur outside of these regulated areas. Therefore, this section only addresses the impacts of the two RSA deck extensions.

5.13.2.1 Aquatic Resources

The existing tidal wetlands along the western shoreline of Bowery Bay are open intertidal, subtidal waters and mudflats to a depth of -6 feet at MLW. Work associated with the RSA Enhancements would not affect these wetlands or their adjacent areas because they are not in the immediate vicinity of the runways and existing decks. Based on the results of the hydrodynamic modeling (futher described in the following section), there would be no indirect effects on these tidal wetland habitats as a result of scour or sedimentation. Therefore, the Proposed Action would be in compliance with EO 11990.

As noted the area to be occupied by the RSA deck extensions is not regulated as tidal wetlands under Article 25 of the NYSECL. Rather, these areas would be regulated as navigable waters under Article 15 of the NYSECL, Sections 401 and 404 of the CWA and Sections 9 and 10 of the RHA. This area is not considered a Special Aquatic Site as specified under EPA Part 230 – Section 404 (B)(1)

Guidelines because the area does not consist of sanctuaries/refuges, mudflats, vegetated shallows, coral reefs, or riffle and pool complexes. The waters of Bowery Bay are classified as estuarine, subtidal, unconsolidated bottom.[15]

The proposed 240 pilings needed to construct the two deck extensions would result in the loss of 1,178 square feet (0.03 acres) of subtidal benthic substrate. The total volume of the water column (navigable waters of the United States) that would be displaced by piles is approximately 23,562 cubic feet (873 cubic yards) at Mean High Water (MHW) for the two RSA deck extensions combined. Indirect impacts include shading approximately 4.65 acres of the water column under and adjacent to the two RSA deck extensions.

Functional values that would be affected as a result of the Proposed Action would be limited to the decrease in habitat quality for fish and some invertebrates that rely on light for their survival, as a result of shading under and adjacent to the deck. No impacts on photosynthetic production of phytoplankton, a food source for some fish and invertebrates, are anticipated because of the swift currents that move through the area. These functional losses would not impact the overall reproduction, mortality rates, and population dynamics of the pelagic and benthic species that use the entire Upper East River. A complete discussion related to the direct and indirect impacts to aquatic biota, including a more detailed analysis of the extent of shading, is included in Section 5.4, *Fish, Wildlife and Plants*.

5.13.2.2 Hydrodynamics

Hydrodynamic modeling was conducted to evaluate potential indirect effects from the new piles required to support the two RSA deck extensions, including changes to flow and local scour. Appendix G, *Hydrodynamic Modeling Report,* provides detail on the model developed to analyze the hydrodynamics associated with this project. This model evaluated changes to the hydrodynamics (currents and flushing) within the Study Area using a two-dimensional depth-averaged hydrodynamic model of the East River developed on the Delft3D modeling platform.[16] The model was calibrated to measured water levels and currents throughout the East River and western Long Island Sound including two stations adjacent to LGA. An equivalent roughness coefficient was applied in the model to represent the resistance to flow caused by the piles beneath the existing and proposed RSA decks. The scour depth at a given pile is proportional to the size of the pile, sediment

15 Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm (Version 04DEC1998).

16 WL | Delft Hydraulics. 2008. *Delft3D-FLOW: Simulation of Multi-Dimensional Hydrodynamic Flows and Transport Phenomena, Including Sediments.*

composition, and current speed.[17] Local scour around a pile is a very rapid process which typically only takes a few days to approach an equilibrium scour depth.[18]

Runway 31

The bottom panel in Figure 5-9 shows the modeled change in currents during spring tidal flooding. The top panel of Figure 5-9 shows a time series of the typical water levels (blue line) and currents (red line) in Rikers Island Channel as well as the time of spring tidal flooding (black vertical bar) shown in the bottom panel. Spring tidal flooding current speeds downdrift of the Runway 31 End would be reduced by up to 0.12 feet/second and an increase in current speeds up to 0.08 feet/second is estimated north and south of the Runway 31 End.

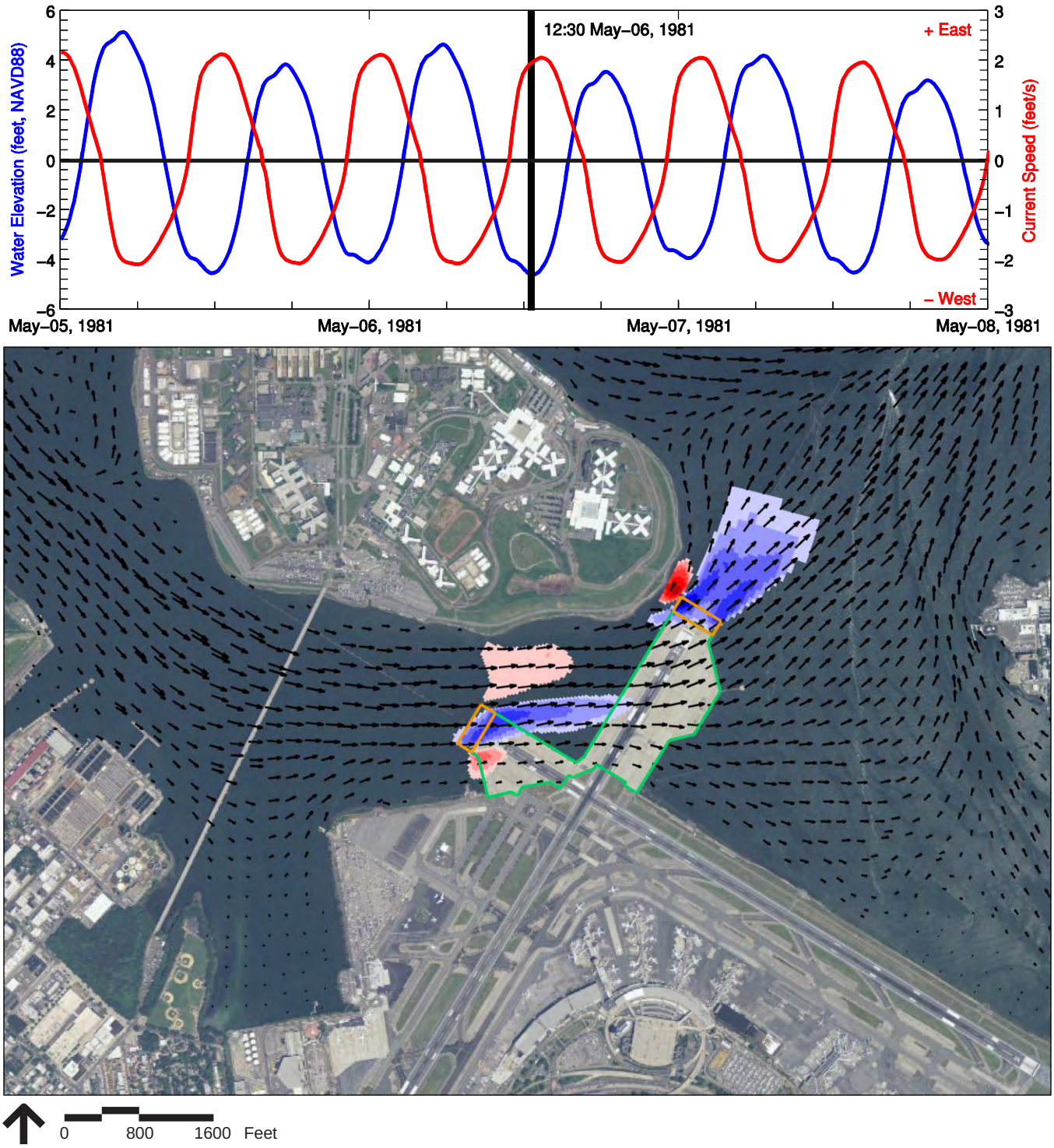
The bottom panel in Figure 5-10 shows the modeled change in currents during spring tidal ebbing. The top panel of Figure 5-10 shows a time series of the typical water levels (blue line) and currents (red line) in Rikers Island Channel as well as the time of spring tidal ebbing (black vertical bar) shown in the bottom panel. Spring tidal ebbing current speeds downdrift of the Runway 31 End would be reduced by up to 0.12 feet/second and an increase in current speeds up to 0.12 feet/second is estimated south of the Runway 31 End. Changes to the modeled current speeds are limited to Rikers Island Channel and extend approximately 4,000 feet west and 2,000 feet northeast of the Runway 31 End. As current speeds in Rikers Island Channel are estimated to reach up to 2.0 feet/second, the greatest estimated changes represent a six percent increase or decrease in current speeds. Based on the modeled change in current speeds, the Runway 31 deck extension is anticipated to result in negligible effects on erosion or sedimentation patterns.

Model results indicate that the tidal flux through Rikers Island Channel would be reduced by 0.1 percent under the Proposed Action. No detectable impacts to the tidal flux through Flushing Bay are estimated by the model. Based on these model results, the Runway 31 deck extension would have small, localized impacts to flushing.

As with the existing deck, there would be minor scour effects in the immediate vicinity of each piling. Based on the modeled current speeds, pile configuration, and sediment composition a maximum scour depth of 1.5 feet is estimated with a maximum diameter of approximately 8 feet. In general, the local pile scour at the Runway 31 End deck extension is expected to be similar to the runway end's existing pile scour.

17 Richardson, E.V. and S.R. Davis. 2012. *Evaluating Scour at Bridges, Fifth Edition*. Publication No. FHWA-HIF-12-003-HEC-18, April 2012. Federal Highway Administration, U.S. Department of Transportation.
18 Hoffmans G.J.C.M., Verheij, H.J. 1997. *Scour Manual*. A. A. Balkema, Rotterdam, Netherlands.

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\graphics\FIGURES\Modeled Change in Currents.indd



Source: Delft3D Hydrodynamic Model

Legend

Existing RSA Decks

Proposed RSA Decks

Change in Current Speed (feet/s)

Above 0.2	0.04 to 0.06	-0.08 to -0.06
0.16 to 0.2	0.03 to 0.04	-0.12 to -0.08
0.12 to 0.16	-0.03 to 0.03	-0.16 to -0.12
0.08 to 0.12	-0.04 to -0.03	-0.2 to -0.16
0.06 to 0.08	-0.06 to -0.04	Below -0.2

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Figure 5-9

Modeled Change in Currents During Spring Tidal Flooding

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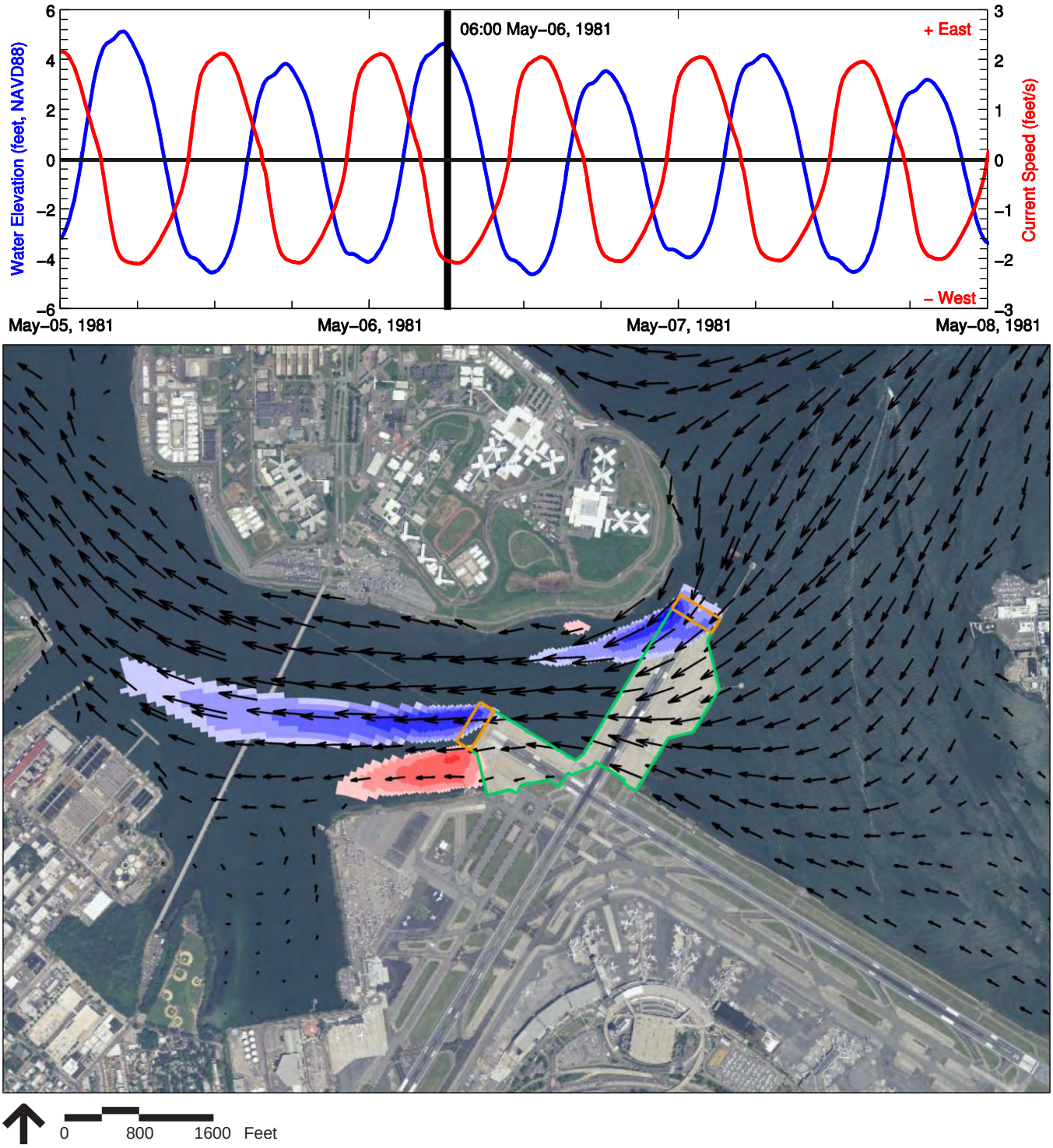

Source: Delft3D Hydrodynamic Model

Legend

Existing RSA Decks

Proposed RSA Decks

Change in Current Speed (feet/s)

Above 0.2	0.04 to 0.06	-0.08 to -0.06
0.16 to 0.2	0.03 to 0.04	-0.12 to -0.08
0.12 to 0.16	-0.03 to 0.03	-0.16 to -0.12
0.08 to 0.12	-0.04 to -0.03	-0.2 to -0.16
0.06 to 0.08	-0.06 to -0.04	Below -0.2

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Figure 5-10

Modeled Change in Currents During Spring Tidal Ebbing

Runway 4

The bottom panel in Figure 5-9 shows the modeled change in currents during spring tidal flooding. The top panel of Figure 5-9 shows a time series of the typical water levels (blue line) and currents (red line) in Rikers Island Channel as well as the time of spring tidal flooding (black vertical bar) shown in the bottom panel. Spring tidal flooding current speeds downdrift of the Runway 4 End would be reduced by up to 0.20 feet/second and an increase in current speeds up to 0.20 feet/second is estimated between the Runway 4 End and Rikers Island.

The bottom panel in Figure 5-10 shows the modeled change in currents during spring tidal ebbing. The top panel of Figure 5-10 shows a time series of the typical water levels (blue line) and currents (red line) in Rikers Island Channel as well as the time of spring tidal ebbing (black vertical bar) shown in the bottom panel. Spring tidal ebbing current speeds downdrift of the Runway 4 End are reduced by up to 0.20 feet/second. Changes to the modeled current speeds are limited to Rikers Island Channel and extend approximately 2,000 feet west and 2,000 feet northeast of Runway 4 End. As current speeds in Rikers Island Channel are estimated to reach up to 2.0 feet/second, the greatest estimated changes represent a 10-percent increase or decrease in current speeds. Based on the modeled change in current speeds, the Runway 4 End is anticipated to result in negligible effects on erosion or sedimentation patterns in the Study Area. However, the increase of 0.2 feet/second in the spring tidal flooding current speeds occurs between Runway 4 End and Rikers Island, where the maximum current speeds are actually controlled by tidal ebbing conditions. As shown in Figure 5-10, tidal ebbing flows between Runway 4 End and Rikers Island would not be affected. Based on the modeled change in current speeds, the Runway 4 End deck piles are anticipated to result in negligible effects on erosion or sedimentation patterns in the Study Area..

Model results indicate that the tidal flux through Rikers Island Channel would be reduced by 0.1 percent under the Proposed Action. No detectable impacts to the tidal flux through Flushing Bay are estimated by the model. Based on these model results, the Runway 4 deck extension would have negligible impacts to Flushing Bay.

As with the existing deck, there would be minor scour effects in the immediate vicinity of each piling. Based on the modeled current speeds, pile configuration, and sediment composition a maximum scour depth of 1.5 feet is estimated with a maximum diameter of approximately 8 feet. In general, the local pile scour at the Runway 4 End is expected to be similar to the runway end's existing pile scour.

5.13.3 Summary of Impacts – Regulatory Compliance

No impacts to regulated vegetated wetlands or adjacent areas would result from the proposed RSA Enhancements at LGA. Permanent unavoidable impacts from constructing the RSA on extended

decks would be limited to benthic substrates and navigable tidal surface waters that are regulated under Sections 401 and 404 of the CWA, Sections 9 and 10 of the RHA, and Article 15 of NYSECL. The Proposed Action would not impact vegetated wetlands protected under EO 11990.

As discussed in Section 3.3, *Alternatives Analysis*, several design alternatives were evaluated, including two alternatives that would not require the placement of fill in regulated waters. Of the alternatives evaluated however, only those that included extending the decks for RSA Enhancements over the Upper East River would not adversely affect the functioning of the Airport while satisfying FAA's requirements for minimum aircraft arrestment.

The Proposed Action would comply with CFR 40 Part 230 Section 404(b)(1) Guidelines. The Proposed Action has minimized the impacts to the aquatic environment to the greatest extent practicable by including EMAS and using the most optimal length of the EMAS bed and deck while satisfying the FAA requirements.

The Proposed Action would require an Individual Section 10/Section 404 permit from the U.S. Army Corps of Engineers. Although the 0.03 acres of impact does not exceed the threshold for a Nationwide Permit (NWP) #25 (Structural Discharge), constructing the RSAs over navigable waters would likely require a separate Individual Section 10 RHA permit. The Proposed Action would also require a Protection of Waters Permit and Section 401 Water Quality Certification from the NYSDEC. Consistency Concurrence with the CZMP and WRP are also required before the Section 10/404 permit can be issued. Construction of the Proposed Action would not commence until all regulatory permits have been obtained.

5.14 Construction Impacts

The following sections describe the temporary effects of construction activities from each of the project elements. Section 3.4, *Proposed Action,* describes the construction phasing and elements of the Proposed Action. This section addresses those resources which are anticipated to experience temporary, short-term effects during construction: air quality, fish, solid waste, light and visual, noise, traffic, and water quality. Construction period-related mitigation (if required) is described in Chapter 6, *Mitigation*.

5.14.1 Air Quality

FAA Order 5050.4B[19] provides the basis for delineating the scope of the FAA's assessment of air quality impacts under NEPA and the Federal Clean Air Act (CAA) (42 USC § 7401-7671, as amended), and contains guiding criteria for determining the extent of the air quality analysis. Additionally, FAA Order 1050.1E, Change 1,[20] directs agency personnel to ensure that an air quality assessment prepared under NEPA includes an analysis and summary of conclusions of the proposed activities' impacts on air quality. Under Section 176(c) of the CAA, federal agencies (such as the FAA) must make a determination of conformity with the applicable State Implementation Plan (SIP) before taking any action on a Proposed Action (e.g., setting aside money, granting a permit, etc.). The EPA published a rule (referred to as the General Conformity Rule) that indicates how most federal agencies are to make such a determination. Per FAA Order 1050.1E,[21] a final rule for determining conformity of federal actions (40 CFR Part 93, Subpart B) was published in the Federal Register on November 30, 1993, and became effective January 31, 1994.

Called a Conformity Applicability test, a formal conformity determination must be performed when the emissions resulting from a federal action (the net emissions when Proposed Action emissions are compared to No-Action Alternative emissions) equal or exceed what are known as de minimis levels. If emissions are below the de minimis levels, it can be presumed that the Proposed Action conforms to the CAA and the applicable SIP. If emissions are above the de minimis levels, a formal conformity determination must be prepared. The applicable de minimis thresholds are 50 tons per year of volatile organic compounds (VOC) and 100 tons per year for carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter 2.5 micrometers ($PM_{2.5}$). Emissions calculations were performed to determine whether the maximum annual construction-related emissions would equal or exceed the applicable de minimis thresholds during any year of construction.

5.14.1.1 Construction Emissions

Air emissions due to construction activity vary based on the project's duration and level of activity. The equipment activity levels (i.e., horsepower, fuel type, expected hours of use) associated with the proposed RSA Enhancements and constructing a new section of RVSR were estimated based on the expected construction equipment usage schedule. Construction activities would include pavement removal, site preparation, grading, material handling, pile driving, and paving. These construction activities would require the use of barges/tug boats, cranes, excavating and grading equipment, material loaders, dozers, and paving equipment, as well as haul trucks, delivery trucks, and

19 Federal Aviation Administration. Order 5050.4B, *National Environmental Policy Implementing Instructions for Airport Actions*. April 26, 2006.
20 Federal Aviation Administration. Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, March 20, 2006.
21 Federal Aviation Administration. Order 1050.1E, *Environmental Impacts: Policies and Procedures*, June 8, 2004.

construction worker vehicles. These emissions would be temporary in nature and generally confined to the construction site and the access/egress roadways.

Equipment exhaust would be generated from construction worker vehicle trips, employee shuttle buses, material truck trips, and construction equipment operations. Fugitive dust emissions during construction would be generated during ground-disturbing activities, materials handling, and mobile equipment use on unpaved/unimproved surfaces. Fugitive VOC emissions would be generated during asphalt paving operations associated with the RVSR.[22] There would be no on-site asphalt plant.

Construction emissions were estimated using the EPA Motor Vehicle Emissions Simulator (MOVES version 2010b)[23] motor vehicle emission factor model, NONROAD (Version 2008a)[24] emission factor model, and other appropriate guidelines. Emissions from construction activities were estimated based on the projected construction activity schedule, the number of vehicles/pieces of equipment, the types of equipment/type of fuel used, vehicle/equipment utilization rates (including load factor[25] or usage factor[26]), the equipment size (horsepower), and the year in which construction occurs. Emission factors for each equipment type were applied to the anticipated equipment work output (horsepower-hours of expected equipment use). A total of nearly 40 different types of standard construction equipment/vehicles were used as a basis of the construction activities required. Appendix B, *Air Quality,* provides additional information on the construction emissions inventory assumptions and supporting information.

Table 5-3 presents the construction emissions inventory for the RSAs (including deck extension and EMAS installation), the Ingraham's Mountain Construction Staging Area, and the RVSR.

- For the RSA Enhancements, emissions would be greatest during construction year 2014 (the first full year of construction when the greatest amount of activity occurs). The maximum annual emissions are estimated to be 14 tons of CO, 13 tons of NO_x, 2 tons of particulate matter with diameter of 10 micrometers or less (PM_{10}), 1 ton of particulate matter with diameter of 2.5 micrometers or less ($PM_{2.5}$), less than 1 ton of sulfur dioxide (SO_2), and 1 ton of VOC.

22 Contractors would use existing asphalt plants near, but off the airport site. The Port Authority does not specify which plants contractors must use.
23 United States Environmental Protection Agency. June 2012. *Motor Vehicle Emissions Simulator (MOVES) User Guide for MOVES2010b*.
24 United States Environmental Protection Agency. 2005, 2009. *User's Guide for the Final NONROAD2005 Model*, December 2005 and *EPA NONROAD Model Updates for 2008*, April 2009.
25 Average throttle setting relative to full throttle rating.
26 Percent of time equipment is running during a typical day.

- For the Ingraham's Mountain Construction Staging Area, emissions would be greatest during construction year 2014. The maximum annual emissions are estimated to be 8 tons of CO, 9 tons of NOx, 5 tons of PM_{10}, 1 ton of $PM_{2.5}$, less than 1 ton of SO_2, and 1 ton of VOC.
- For the RVSR, emissions would be greatest during construction year 2015. The maximum annual emissions would be estimated to be 12 tons of CO, 12 tons of NOx, 9 tons of PM_{10}, 2 tons of PM2.5, less than 1 ton of SO_2, and 2 tons of VOC.

Table 5-3 Construction Emissions Inventory by Project Element (tons per year)

Pollutant	2013	2014	2015	2016	Maximum	Total
Runway Safety Area Enhancements						
Carbon Monoxide (CO)	0.37	13.7	10.8	-	13.7	24.9
Nitrogen Oxides (NO_x)	0.29	12.9	10.0	-	12.9	23.2
Particulate Matter 10 micrometers (PM_{10})	1.06	1.93	1.72	-	1.93	4.71
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.12	0.83	0.64	-	0.83	1.59
Sulfur Dioxide (SO_2)	<0.01	0.05	0.03	-	0.05	0.08
Volatile Organic Compounds (VOC)	0.03	1.21	0.97	-	1.21	2.21
Ingraham's Mountain Construction Staging Area						
Carbon Monoxide (CO)	-	7.46	-	-	7.46	7.46
Nitrogen Oxides (NO_x)	-	8.78	-	-	8.78	8.78
Particulate Matter 10 micrometers (PM_{10})	-	5.17	-	-	5.17	5.17
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	-	1.08	-	-	1.08	1.08
Sulfur Dioxide (SO_2)	-	0.02	-	-	0.02	0.02
Volatile Organic Compounds (VOC)	-	0.80	-	-	0.80	0.80
Restricted Vehicle Service Road						
Carbon Monoxide (CO)	-	8.74	11.6	9.87	11.6	30.2
Nitrogen Oxides (NO_x)	-	9.83	12.3	9.94	12.3	32.1
Particulate Matter 10 micrometers (PM_{10})	-	8.45	8.65	8.46	8.65	25.6
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	-	1.43	1.57	1.39	1.57	4.39
Sulfur Dioxide (SO_2)	-	0.03	0.03	0.03	0.03	0.10
Volatile Organic Compounds (VOC)	-	1.15	1.46	1.33	1.46	3.94

Source: United States Environmental Protection Agency NONROAD2008a, 2009 and United States Environmental Protection Agency MOVES2010b, 2012.

Table 5-4 presents the total project-related construction emissions. The maximum annual construction emissions would occur during 2014, which are estimated to be 30 tons of CO, 32 tons of NOx, 24 tons of PM_{10}, 4 tons of $PM_{2.5}$, less than 1 ton of SO_2, and 3 tons of VOC. A General Conformity

Applicability Test was performed to determine if project-related construction emissions exceed the applicable *de minimis* levels. As noted previously in Section 5.14.1, Air Quality, the applicable *de minimis* thresholds are 50 tons per year of VOC and 100 tons per year of CO, NO_x, and $PM_{2.5}$. The construction emissions are well within below the *de minimis* thresholds and therefore, would conform to the SIP. According to FAA guidance, agency consultation is therefore not necessary, no mitigation is necessary, and no further analysis is required for the CAA or NEPA purposes.[27]

Table 5-4 Project-related Construction Emissions Inventory (tons per year)

Pollutant	2013	2014	2015	2016	Maximum	*De minimis*	Conforms?
Carbon Monoxide (CO)	0.37	29.9	22.4	9.87	29.9	100	Yes
Nitrogen Oxides (NO_x)	0.29	31.5	22.3	9.94	31.5	100	Yes
Particulate Matter 10 micrometers (PM_{10})	1.06	24.3	10.4	8.46	24.3	-	Exempt
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.12	4.21	2.21	1.39	4.21	100	Yes
Sulfur Dioxide (SO_2)	<0.01	0.10	0.06	0.03	0.10	-	Exempt
Volatile Organic Compounds (VOC)	0.03	3.16	2.43	1.33	3.16	50	Yes

Source: United States Environmental Protection Agency NONROAD2008a, 2009 and United States Environmental Protection Agency MOVES2010b, 2012.

5.14.1.2 Intersection Evaluation

An intersection air quality evaluation is typically conducted in accordance with the criteria established by the EPA's *Project-Level Conformity and Hot-Spot Analyses*.[28] A hot-spot analysis is required only for locations that are non-attainment or maintenance for CO, PM_{10}, and/or $PM_{2.5}$. As previously stated, the area surrounding LGA is in maintenance for CO and non-attainment for $PM_{2.5}$.

Air quality analysis is typically performed for CO at roadway intersections that are at a Level-of-Service (LOS) D, E, or F or that would deteriorate to LOS D, E, or F during the Proposed Action's construction. For PM_{10} and $PM_{2.5}$, intersections that are typically evaluated are those at LOS D, E, or F with a substantial number of diesel vehicles, or intersections that would deteriorate to LOS D, E, or F with a substantial number of diesel vehicles due to the Proposed Action.

The traffic analysis determined that with the Proposed Action, no intersections would be LOS D, E, or F (see Section 5.14.7, *Surface Transportation*) and thus, a detailed air quality analysis of intersections

27 The action is in a non-attainment area, but it has been determined that project emissions would be below *de minimis* thresholds under General Conformity requirements. Therefore, for NEPA purposes a NAAQS assessment (i.e., emissions dispersion modeling) is not required for this Proposed Action because it is highly unlikely that the action's pollutant concentrations would exceed NAAQS.

28 United States Environmental Protection Agency. March 2006. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Non-attainment and Maintenance Areas*; Using MOVES in Project-Level Carbon Monoxide Analyses, December 2010; and Guideline for Modeling Carbon Monoxide from Roadway Intersections, November 1992.

was not warranted. The number of diesel construction vehicles associated with the Proposed Action is not expected to exceed the screening criteria established by the New York City Mayor's Office of Environmental Coordination's *City Environmental Quality Review (CEQR) Technical Manual*.[29] Appendix B, *Air Quality*, provides additional information on the intersection hotspot evaluation.

5.14.2 Fish, Wildlife and Plants

Construction activities have the potential to impact aquatic and terrestrial communities near LGA. In particular, noise and vibration generated during pile driving activities would have the potential to impact aquatic biota as described below. Although pile-driving could result in minor, localized disturbance of the sediment adjacent to each piling, these benthic areas do not contain important benthic resources and any effects would be minor and temporary.

5.14.2.1 Hydroacoustic Effects of Pile-Driving Activities on Finfish

Fish response to sound has been a topic of many studies. However, fish behavior in response to pile-driving and the sounds associated with pile driving has not been well-documented. Like most animals, fish tend to respond to sounds only when they are above the detectable limit. Sounds that are below this limit or sounds that are weak, are thought to be unimportant or too distant to be of immediate relevance to most animals.[30] An experiment documenting the response of a fish (American shad) to sounds made by their predators (dolphins) found that as the sound gets louder, shad exhibit more of a flight or defense behavior.[31] Other studies show that fish only respond to sounds that may be of relevance to them. One study found that predator sounds elicited a flight response in herring while sounds made by naval vessels at the same decibel (dB) level, yielded no response.[32]

Sound is most commonly measured in two parameters; frequency and amplitude. Frequency is the number of cycles per unit of time, measured in hertz (Hz), while amplitude is the loudness of sound, measured in dB. Sound travels approximately 4.5 times faster in water than in air due to water's higher density. As a result of the greater speed, the sound frequency wavelength is about 4.5 times longer in water than in air.[33]

29 New York City Mayor's Office of Environmental Coordination. City Environmental Quality Review (CEQR) Technical Manual, January 2012 Edition (revised June 18, 2012).
30 Dooling, R. J., E.W. West, and M.R. Leek. 2009. *Conceptual and computation models of the effects of anthropogenic sound on birds*. Proceedings of the Institute of Acoustics, 31 (pt 1).
31 Plachta, D.T.T. and A.N. Popper. 2003. *Evasive responses of American shad (*Alosa sapidissima*) to ultrasonic stimuli*. Acoustical Research Letters Online 4: 25-30. doi:10.1121/1.1558376.
32 Doksaeter, L, O.R. Godø, N.O. Handegard, P.H. Kvadsheim, F-P.A. Lam, C. Donovan, and P.J. Miller. 2009. Behavioral responses of herring (Clupea harengus) to 1–2 and 6–7 kHz sonar signals and killer whale feeding sounds. *Journal of the Acoustical Society of America*. 125: 554-564
33 Rogers, P.H. and M. Cox. 1988. *Underwater Sound as a Biological Stimulus*. In: J. Atema, R.R. Fay, A.N. Popper, and W.N. Tavolga (eds.) Sensory Biology of Aquatic Animals, pp. 131-149. Springer-Verlag: New York.
Bass, A.H. and C.W. Clarke. 2003. *The physical acoustics of underwater sound*. In: A.M. Simmons, A.N. Popper, and R.R. Fay (eds.) Acoustic Communication, pp. 15-64. New York: Springer Science and Business Media, LLC.

The hearing range of fish to be considered may extend from between 20 Hz for most species to between 800 and 1,000 Hz. The hearing of most fish in the Upper East River fit into this range, while specific species such as catfish (3,000 – 4,000 Hz) and herring species can hear well above this range (for example, the American shad can hear over 10,000 Hz).[34]

An acoustic field consists of a propagating pressure wave, generated from particle motions in the medium that causes compression and rarefaction. This wave consists of both pressure and particle motion components that propagate from the source. All fish are capable of detecting the particle motion component, while fish with a swim bladder can also detect the pressure.[35]

The current standards for the onset of adverse physiological effects on fish from hydroacoustic disturbance were established in June of 2008 in a memorandum of agreement between FHWA, USFWS, NMFS, and the Departments of Transportation from the states of Washington, Oregon and California. These agencies, along with national experts on sound propagation activities that affect fish, came to an agreement on the minimum sound pressure level (SPL) that fish can tolerate before the onset of adverse physiological effects. This standard is known as the peak SPL. The criterion for peak SPL was established as 206 dB for all fish greater than 2 grams in weight.

The size of piles being driven can contribute to the intensity of sound effects on the fish community. Peak SPL for piles driving decreases with smaller diameter piles.[36] Piles that would be installed for the LGA RSA Enhancements would be 2.5 feet (30 inches) in diameter. For 30-inch pilings, the literature[37] indicates that the SPL would be 208 dB, and the single-strike SEL would be 180 dB. The piles would be driven with a compression block, which typically reduces sound levels by 7 to 8 dB. With this mitigation measure, sound levels would be decreased below the stated injury thresholds and, the surrounding underwater area exposed to SPLs exceeding the established criteria would be minimal, and thus its impacts to finfish would be negligible. Based on the size of the piles and mitigation measures that would be used during the LGA RSA construction effort, there would not be a significant impact on fish that may frequent the area. Fish that are present in the area around the runways would avoid the pile-driving activities because of the physical disturbance and impacts would be minimized by the implementation of the mitigation measures described in Chapter 6, *Mitigation*.

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34 Popper, A.N., R.R. Fay, C. Platt, and O. Sand. 2003. *Sound detection mechanisms and capabilities of teleost fishes*. In: S.P. Collin and N.J. Marshall (eds.) Sensory Processing in Aquatic Environments, pp. 3-38. Springer-Verlag, New York.
Popper, A.N. and C.R. Schilt. 2008. *Hearing and acoustic behavior (basic and applied)*. In: J.F. Webb, R.R. Fay, and A.N. Popper (eds.) Fish Bioacoustics, pp. 17-48. New York: Springer Science+Business Media, LLC.
Bass, A. H., and F. Ladich. 2008. *Vocal-acoustic communication: From neurons to brain*. In: J.F. Webb, R.R. Fay, and A.N. Popper (eds.) Fish Bioacoustics, pp. 253-278. New York: Springer Science+Business Media, LLC.
35 Popper A.N., and R.R. Fay. 2010. Rethinking sound detection by fishes. Hear Research. *Comparative Studies of the Ear.* 273 (1-2): 25-36.
36 JASCO Applied Sciences (JASCO). 2011. *Final Report: Tappan Zee Bridge Construction Hydroacoustic Noise Modeling*. March 2011.
37 IFC Jones & Stokes and Illingworth and Rodkin, Inc. 2009. *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, February 2009*. Prepared for California Department of Transportation.

5.14.2.2 Hydroacoustic Effects of Pile-Driving Activities on Benthos

The information available on whether sounds from construction would have any impact on invertebrate behavior is very limited. There is also no substantive evidence on whether the high sound levels from pile driving or any anthropogenic sound would have physiological effects on benthic invertebrates. Potentially relevant data comes from a study on the effects of seismic exploration on snow crabs on the east coast of Canada.[38] The evidence from this study showed no short- or long-term effects of seismic exposure in adult or juvenile animals, or on eggs.

The lack of any internal air bubbles (equivalent to the fish swim bladder) that would be set in motion by high intensity sounds would suggest that there would be little impact on benthic invertebrates. However, like fish, if the benthic invertebrates are very close to the source, the shock wave from the source might have an impact on survival. Impacts to benthic invertebrates due to increased water column suspended sediments from hydroacoustic effects associated with pile driving activities are expected to be minimal and would not result in adverse impacts to benthic communities.

5.14.2.3 Hydroacoustic Effects of Pile-Driving Activities on Threatened and Endangered Species

The Endangered Species Act (ESA) establishes the federal program to protect threatened and endangered species. Once an animal or plant is added to the list of threatened or endangered species, protective measures apply to the species and its designated critical habitat. These measures include protection from adverse effectis of Federal activities. Section 7(a)(2) of the ESA requires that Federal agencies, in consultation with USFWS and/or NMFS, ensure that any action they authorize, fund or cary out is not likely to jeoparize the continued existince of a listed species or result in the destruction or adverse modification of any designated critical habitat. It is the responsibility of the Federal agency taking the action to assess the effects of their action and to consult with the USFWS or NMFS if it is determined that the action "may affect" listed species or critical habitat.

In a letter dated February 25, 2013 the NMFS indicated that ESA-listed sea turtles and atlantic sturgeon may occur in Flushing Bay, and that any proposed in-water work has the potential to affect these species. The FAA subsequently entered into an informal Section 7 consultation with NMFS concerning potential temporary construction-period effects to listed species, NOAA, NMFS has determined that, based on correspondence regarding the construction methods for implementing the Proposed Action, Atlantic sturgeon may be injured by noise levels greater than 206 dB (peak) or 187 dBcSEL (cumulative sound exposure).[39] During the period of impact pile driving, sound levels

38 Boudreau, M., S. C. Courtenay, and K. Lee (Eds). 2009. *Potential Impacts of Seismic Energy on Snow Crab: An Update to the September 2004 Review*. Proceedings of a workshop held January 3, 2007 at the Gulf Fisheries Center. Canadian Technical Report of Fisheries and Aquatic Sciences 2836. 31pp.
39 Palmer, Danielle, NOAA, e-mail message to Marie Jenet, FAA, April 29, 2013.

could result in injury to any individuals of this species that were close to the pile. NMFS has determined that, if turbidity curtains or similar mitigation measures were deployed, the short-term noise impacts of the Proposed Action would not affect Atlantic sturgeon (see Chapter 6, *Mitigation*, for a discussion of mitigation measures to minimize noise effects of pile-driving activities).

As part of the informal consultation process, on March 28, 2013 FAA submitted its finding to NOAA/NMFS for concurrence. FAA stated that the proposed Runway Safety Area Enhancement Project at LGA "could impact habitat potentially used by Atlantic sturgeon or sea turtles, but would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitat." NOAA responded (April 15, 2013) with concerns that the noise levels from pile-driving may result in an adverse effect to listed species, particularly Atlantic sturgeon, and requested more information on the pile-driving process. FAA and the Port Authority provided additional information on April 25, 2013. In subsequent consultation, NOAA concluded that noise levels from pile driving were likely to have an adverse effect on Atlantic sturgeon and recommended that the Port Authority implement measures to reduce the noise from pile driving. See Appendix A, *Agency Coordination*, for copies of correspondence.

Proposed pile driving at LGA would consist of two steps. Piles are anticipated to drop through the upper 50 to 65 feet of soft silt under their own weight, although a vibratory hammer would be used if needed. A diesel impact hammer would be used to drive the piles through the 10 feet of dense sand, silt and clay until reaching hard bedrock, at an average rate of 10 blows per inch. NOAA has suggested three means of reducing sound levels to avoid injury to any Atlantic or short-nosed sturgeon potentially within the vicinity of the proposed deck extensions, although the likelihood of sturgeon being within these areas is minimal: Sound levels could be reduced by a combination of sound-dampening measures (cushion blocks, drapes, bubble curtains); fish could be excluded from the area within 10 meters (30 feet) of a piling by silt curtain or bubble curtain; or a "soft start" to impact hammer use would cause animals to leave the impact area.

The size of the proposed pilings, and number of pilings required for the Proposed Action, would result in considerably lower noise levels than the Tappan Zee Bridge construction, recently approved by NOAA. The Port Authority therefore believes that sound mitigation measures similar to those approved for the Tappan Zee Bridge would be sufficient for the LGA deck extensions. NOAA recently issued a Biological Opinion for the Tappan Zee Bridge construction, a project which would install 48-inch steel pilings in the Hudson River in habitat used by Atlantic sturgeon, during movement between foraging and breeding areas. In its Biological Opinion for the Tappan Zee Bridge,

NMFS suggested only one potential type of cost-effective mitigation during construction.[40] In the Tappan Zee Biological Opinion, NOAA stated that "it is reasonable to assume that sturgeon, on hearing the pile driving sound, would either not approach the source or move around it. Sturgeon in the area were expected to leave the area when pile driving begins. This would be facilitated by the use of a "soft start" or system of "warning strikes" where the pile driving would begin at only 40 percent of its total energy. These "warning strikes" are designed to cause fish to leave the area before the pile driving begins at full energy. As the pile driving sounds are very loud, it is very likely that any sturgeon in the action area would hear the sound, and respond behaviorally, well before they reach a point at which the sound levels exceed the potential for physiological effects, including injury or mortality.

Two mitigation measures are proposed for the RSA deck extensions, which would reduce noise levels from impact hammers, and would encourage animals to leave the work area before sound reaches the potential injury level:

- The Contractor would be required to use cushioning material, consisting of alternating layers of aluminum and micarta (a plastic) to drive piles with an impact hammer. Use of this type of cushioning block would result in a 7 to 8 –dB reduction in SPLs.
- The Contractor would also be required to do a "soft start" in driving each pile. These "warning strikes" would be at 40 percent or less of the total energy of the impact hammer, for the first five (5) minutes of impact hammer use. This procedure, which was approved for the Tappan Zee Bridge, alerts fish to the start of a noise-producing activity and is presumed to result in fish leaving the vicinity of the work area.

Silt curtains to exclude animals were considered, but the two deck extensions are in areas of high current velocity and it would be impracticable to install or maintain silt curtains at this location.

As previously documented, based on recent studies, the Project Area does not provide suitable foraging habitat for Atlantic or short-nosed sturgeon, and that these fish are unlikely to be within the vicinity of the proposed deck extensions due to the poor water quality, unsuitable substrate, and lack of food items. In a letter dated August 15, 2013 (see Appendix A, *Agency Coordination*) NMFS concurred with these measures and found that any construction impacts would be insignificant or discountable.

40 http://www.nero.noaa.gov/protected/section7/bo/actbiops/tappan_zee_bridge_replacement_2013_reinitiation.pdf

5.14.3 Hazardous Materials and Solid Waste

Elements of the Proposed Action could result in the short-term generation or transport of hazardous materials or solid waste, if contaminated soils are encountered during construction.

Approximately 246,000 cubic yards of fill would be excavated from Ingraham's Mountain to construct the Construction Staging Area. Approximately 96,000 cubic yards of this material is anticipated to be retained on-site, while the remaining estimated 150,000 cubic yards, not needed for re-grading the site, is proposed to be removed off-site. To dispose of this remaining material, a disposal facility would be identified that is properly permitted to receive the excess soils and/or construction debris. The transporter would be properly permitted as well. The contractor retained for the project would ultimately select the disposal site. Possible locations for material disposal, depending on its characterization, could be at appropriately-licensed facilities in Bellmawr, Carteret, Secaucus, Teterboro or South Kearny, New Jersey. See Section 5.14.1, *Air Quality*, for a discussion of construction vehicles and emissions associated with the Proposed Action.

The results of the preliminary analytical data revealed some contaminants present above NYSDEC regulatory levels for both restricted and unrestricted use. Preliminary sampling and analysis of samples collected during test pit excavations in the fill at Ingraham's Mountain identified the presence of regulated hazardous materials, and/or hazardous substances. Boring logs from September 2012 have also identified fill as being present to depths of between 35 and 45 feet below the ground surface. Unexpected or additional material that may be encountered could constitute solid waste, hazardous materials, hazardous substances, or hazardous waste including hazardous building materials such as asbestos containing materials, lead-based painted materials, asphalt, concrete, scrap metal, wood, brick, and other similar items. For this reason, the Port Authority would establish procedures to ensure the safe handling, management, and disposal of fill disturbed during the Construction Staging Area development at Ingraham's Mountain.

There is also a potential for petroleum and hazardous materials, as well as contaminated soil and groundwater, to be encountered in construction for the RVSR due to the presence of release sites in the vicinity. If any stained soils are observed or if soils are found contaminated with petroleum products, the Port Authority would comply with all pertinent local, state and federal regulations regarding its proper disposal. Small amounts of construction debris and solid waste, including building materials and asphalt, would be generated during construction and may be disposed of as solid waste. Soil and construction debris would be reused or recycled to the greatest extent possible.

If construction-related activities, such as excavation, result in the discovery of previously-unknown hazardous substances, the Port Authority would be responsible for removing and disposing of contaminated media in accordance with state laws and regulations for hazardous waste management.

There is a risk of minor spills or leaks of petroleum products during maintenance and equipment refueling. If a spill or leak of fuel or other hazardous substance occurs, it would be addressed according to NYSDEC containment and remedial action procedures. Potential risks to human health and the environment attributable to an accidental release would be reduced by implementing a Spill Prevention, Control, and Countermeasure (SPCC) Plan during construction.

To dispose of this remaining material, a disposal facility would be identified that is properly permitted to receive the excess soils and/or construction debris. The transporter would be properly permitted as well. The contractor retained for the project would ultimately select the disposal site. Possible locations for material disposal, depending on its characterization, could be at appropriately-licensed facilities in Bellmawr, Carteret, Secaucus, Teterboro or South Kearny, New Jersey. See Section 5.14.1, *Air Quality*, for a discussion of construction vehicles and emissions associated with the Proposed Action.

5.14.4 Light Emissions and Visual

The hours and days of the Proposed Action construction varies by component and would have differing potential construction impacts of these components on light emissions and visual resources.

5.14.4.1 RSA Construction and Construction Staging Areas

This section addresses construction-period effects of the RSA construction, including constructing and operating the Ingraham's Mountain Construction Staging Area.

Runways 4 and 31 Ends Construction

Construction of the RSA deck extensions would occur on weeknights and weekends, with peak activity on the weekends. Weeknight construction would occur between 12 AM and 6 AM from May 2015 through September 2015. Night-time lighting would consist of movable, pole-mounted floodlights and/or spotlights. The location of the RSAs are away from sensitive light receptors (for example, residential and recreational uses, the closest of which is approximately one mile away). Therefore, the addition of night-time lighting due to temporary construction activities would not create significant or adverse impacts. Weekend, daytime construction would not require lighting and, therefore, would not result in significant or adverse light emissions impacts.

Construction vehicles (including barges, cranes, trucks, etc.) involved in construction activities would be visible from Rikers Island (both the Runways 4 and 31 Ends) and College Point (the Runway 4 End), particularly cranes that could be at least 135 feet to the top of the boom/jib. The presence of these vehicles would temporarily alter the visual setting from Rikers Island and College Point. Due to the temporary nature of the visual alteration, the impacts would not be adverse or significant, according to FAA Order 1050.1E, Change 1.

Construction Staging Areas

The excavation and construction necessary to create a level Ingraham's Mountain Construction Staging Area would occur during weekday, daytime hours only (7 AM to 3 PM). As no construction would take place overnight, there would be no construction-related light emissions. However, the use of Ingraham's Mountain as a construction staging area would include activities during weeknights and weekends, as previously described, that would result in a temporary, construction-related increase in light emissions. The Construction Staging Area at Employee Parking Lot 10E would supplement the existing parking lot lights with additional lighting to support construction activities associated with the RSA Enhancements.

Construction vehicles (including barges, cranes, trucks, etc.) would be involved in construction activities and would be visible from Rikers Island and the Ditmars/Steinway neighborhoods, thereby altering the visual setting for the duration of the RSA Enhancement construction. However, the height of the construction staging area and constant activity at LGA contribute to these impacts as not being adverse or significant according to FAA Order 1050.1E, Change 1.

5.14.4.2 RVSR

Constructing the new section of the RVSR would occur on weekdays, week nights, and weekends (daytime and nighttime). Night-time lighting would consist of movable, pole-mounted floodlights and/or spotlights. Given the location of the RVSR adjacent to the Grand Central Parkway and buffered from any sensitive light receptors in East Elmhurst, temporary light emissions would not create significant or adverse impacts. Weekday and weekend construction occurring during the daytime would not involve additional lighting. Therefore, the construction of the RVSR would not result in significant or adverse light emissions impacts.

Construction vehicles (including cranes, trucks, etc.) would be involved in construction activities and would be visible from East Elmhurst, temporarily altering the visual setting, however due to the distance of the RVSR location from residential receptors and the existing buffering to these receptors, these impacts would not be adverse or significant according to FAA Order 1050.1E, Change 1.

5.14.5 Noise

Substantial airport construction or demolition activities may generate temporary noise impacts, particularly from activities such as clearing, grading, paving, excavation and pile driving. A combination of factors contribute to the level of construction-related noise impact at sensitive sites including the number of pieces of equipment operating simultaneously and equipment usage, the distance between the construction equipment and noise sensitive receivers, background noise levels, construction duration, and construction work hours. This section specifically addresses noise level impact at sensitive sites based on peak construction activities occurring simultaneously during the most sensitive time periods.

A construction noise analysis was performed to quantify potential increases in noise levels, relative to ambient, during worst-case construction activities for each element of the Proposed Action. Construction noise analyses were calculated utilizing the FHWA's Roadway Construction Noise Model (RCNM).[41] Construction-related vehicular traffic including trucks traveling along temporary haul routes and construction-worker vehicles traveling to and from the work-site would also contribute to temporary noise level increases during construction. Therefore, a Passenger Car Equivalent (PCE) methodology outlined within the *CEQR Technical Manual* was used to evaluate potential increases in noise levels from construction-related vehicular traffic.

5.14.5.1 Noise Fundamentals

Certain critical factors affect noise and the way it is perceived by the human ear. Such factors include the acoustical level (noise), frequency and the length of the exposure period. Sound or noise level is measured in units of dB. Due to the complex manner in which the human ear functions, measurement of different noise sources does not always correspond to relative loudness or annoyances. Therefore, different scales have been developed to furnish guidance in evaluating the importance of different noise sources. The A-weighted scale (unit expressed as dBA) is used almost exclusively in mobile-source vehicular noise measurement and prediction as it reflects the frequency range to which the human ear is most sensitive (200-10,000 H). Typical community noise levels are shown in Table 5-5.

The dBA descriptor is applicable for noise levels at one single moment. As very few noise sources are constant, an alternative way of describing noise over a period of time is needed. One way of describing fluctuating sound is to address it as if the noise occurred at a steady, unchanging level over a specific time period. For this condition, the widely used descriptor accepted to express noise levels is the dBA (L_{eq}) or an A-weighted equivalent noise level. The dBA (L_{eq}) is the equivalent

41 Federal Highway Administration. January 2006. Roadway Construction Noise Model User's Guide. Final Report.

steady state sound level, which in a specific period of time, contains the same acoustic energy as the time-varying sound level during that same period.

Noise is described using a logarithmic scale where doubling a noise source results in a 3-dB increase in the SPL. Studies have shown a decrease in 10 dB is perceived by the average listener as a reduction of noise by one-half, while an increase in 10 dB is discerned as a doubling of noise levels. Under normal circumstances, a 3-dB change is required for the average person to detect a difference without the use of instruments. A change of 5 dB is considered to be a noticeable difference in the noise environment. NYSDEC *Assessing and Mitigating Noise Impacts*[42] states an increase of 10 dBA deserves consideration of avoidance and mitigation measures. For purposes of this project, unreasonable noise was defined as an increase of 10 dBA (L_{eq}) or greater in construction-related noise levels over background, based on the NYSDEC criterion.

Table 5-5 Noise Levels of Common Sources

Sound Source	Sound Pressure Level (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Source: CEQR Technical Manual, 2012.

5.14.5.2 Methodologies and Assumptions

For purposes of impact analysis, it is assumed that heavy construction activities associated with the RSAs and RVSR would occur on weekends during single runway closures beginning at 12:01 AM (midnight) on Saturday and ending at 11:59 AM (noon) on Sunday. Within contract specifications, impact pile driving activities in water associated with the RSA upgrades would only be permitted

42 Program policy document dated February 2, 2001

between 8:00 AM and 7:00 PM Saturday and between 8:00 AM and 11:59 AM Sunday during these weekend single runway closures. All pile driving would be done in water, at the proposed deck extensions. However, use of a vibratory hammer to install piles associated with the RSA upgrades would not be restricted and could, therefore, occur at any time during the weekend single runway closure. Some single runway closures would also occur on weeknights between 12:01 AM and 6:00 AM when the Airport is closed; however, based on a community commitment to limit noise impact, weeknight construction work would be minimal, mainly involving acceptance of material deliveries.

Earthwork associated with the development of the Ingraham's Mountain Construction Staging Area would occur during weekdays (Monday through Friday) from 7:00 AM to 3:00 PM. RVSR construction would be permitted on weekdays, weeknights, and weekends. However, heavy construction for the RVSR would occur primarily during weekends as well as weekdays from 7:00 AM to 3:00 PM. Therefore, noise impact from these weekday daytime construction activities was assessed separately from impacts assessed related to the RSA decks and RVSR construction on weekends. Periods of heavy construction work hours are summarized below in Table 5-6.

Table 5-6 Construction Elements and Heavy Work Hours

Project Element	Heavy[1] Work Hours
RSA Deck Construction	
Runway 4 and 31 Ends Deck Extension – impact pile driving	Sat. 8:00 AM – 7:00 PM; Sun. 8:00 AM – 11:59 AM
Runway 4 and 31 Ends Deck Extension – all other work[2]	Sat. 12:01 AM – Sun. 11:59 AM
Ingraham's Mountain Construction Staging Area Development	Mon. – Fri. 7:00 AM – 3:00 PM
RVSR Construction	Sat. 12:01 AM – Sun. 11:59 AM; Mon – Fri. 7:00 AM – 3:00 PM

Source: Port Authority of New York and New Jersey.
1 Some single runway closures would also occur on weeknights between 12:01 AM and 6:00 AM when the Airport is closed; however, construction work during these times would be minimal, mainly involving acceptance of material deliveries. RVSR construction would also be permitted on weekdays and weeknights, though heavy construction would primarily occur on weekdays between 7:00 AM and 3:00 PM and weekends, as indicated in the table.
2 All other work includes concrete work as well as use of a vibratory hammer to install piles. This methodology of pile installation is not restricted within contract specifications.

Background noise levels were identified at four sites, which represent the closest noise sensitive receivers to each construction area (i.e., Runways 4 and 31 Ends, Ingraham's Mountain, and the RVSR area south of the Runway 22 End) during sensitive time periods (Figure 5-11). Background noise levels were documented at Site 1 (Ditmars/Steinway [Bowery Bay]) and Site 2 (College Point) during long-term (approximately two weeks) monitoring sessions in February and March 2013. Ambient background levels at Site 3 (Ditmars/Steinway) were conservatively assumed to be similar to Site 1 due to the proximity of the two sites. Background noise levels related to Site 4 (East Elmhurst) were

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Source: ArcGIS Bing Aerial service

Legend

- ● Construction Noise Analysis Location
- #1 Ditmars/Steinway (Bowery Bay)
- #2 College Point
- #3 Ditmars/Steinway
- #4 East Elmhurst
- #5 Rikers Island
- —·—·— LaGuardia Airport
- College Point Neighborhood
- **Queens** Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

Figure 5-11

Construction Noise Analysis Locations

characterized through traffic noise modeling utilizing the FHWA Traffic Noise Model version 2.5 for residences in close proximity to the work elements as well as the Grand Central Parkway.

Although Rikers Island is located within close proximity to the Runways 4 and 31 Ends, site access and security issues associated with the correctional facilities precluded background data collection at this location, represented by Site 5 (Rikers Island) on Figure 5-11. Instead, absolute construction noise levels during pile driving at the Runways 4 and 31 Ends were predicted at the two nearest buildings where inmates are assumed to sleep and reside (Site 5A and Site 5B) and at the nearest recreational area (Site 5C).

To identify potential adverse noise impacts during sensitive time periods, four worst-case (maximum) construction scenarios were developed. These scenarios were determined based on the type of work that could be performed during these critical time periods, the projected peak equipment usage periods, as well as construction phasing in order to account for any periods of overlapping activities. For the RSA construction, pile driving was identified to be the maximum noise-producing activity; therefore, impact pile driving and use of a vibratory hammer to install piles were both considered, as these activities could occur during different critical time periods based on the restrictions in the contract specifications. For the RVSR construction, the months with the highest projected equipment usage were analyzed, as well as any months in which RVSR construction would occur simultaneously with the Runway 31 End pile driving, based on the proximity of these two construction work areas to the same sensitive site. The month with the highest projected equipment usage when RVSR construction would occur simultaneously with Ingraham's Mountain construction was also analyzed. Table 5–7 illustrates the four construction scenarios analyzed, the specific noise sensitive site(s) at which construction-related noise impacts were evaluated for those scenarios, the applicable construction analysis period (month and hours), and the average background noise levels during those periods.

The methodologies and algorithms of the FHWA RCNM were used to determine construction noise levels associated with each scenario. The RCNM model contains a comprehensive list of construction equipment and associated noise levels as well as typical acoustic usage factors developed from previous studies. The model accounts for the distance between the source (i.e., the equipment) and the receiver and assumes a point source noise level drop-off rate of 6 dB per doubling of distance. However, the model does not account for differences in noise propagation over water versus land.

For this analysis, source-receiver distances were identified based on the distance between the closest noise sensitive site identified in Figure 5-11 and the closest point of the construction activity to that site. The model also accounts for shielding when the line of sight from source to receiver is blocked. A

shielding factor of 10 dBA was used to account for the noise wall along 81st Street and 82nd Street in Scenario 2 and Scenario 3 for the RVSR construction near the Marine Terminal Road/82nd Street intersection in the western portion of LGA. Appendix E, *Noise,* lists the construction equipment used for each scenario as well as the number of pieces of each type of equipment, and includes the detailed construction noise analysis worksheets for each construction scenario.

Table 5-7 Construction Impact Analysis Scenarios

Construction Activity	Peak Construction Month(s)	Analysis Location[2]	Construction Analysis Hours[3]	Average Background Noise Level (L_{eq} dBA)
Scenario 1 – Pile driving[1] at Runway 4 End	April – May 2014	Site 2/Site 5A	Weekend 12:01 AM – 6:00 AM	50/NA
		Site 2	Weekend 8:00 AM – 7:00 PM	62
Scenario 2 – Pile driving[1] at Runway 31 End with light earthwork for RVSR	March 2015	Site 1/Site 5B	Weekend 12:01 AM – 6:00 AM	60/NA
		Site 1/Site 5C	Weekend 8:00 AM – 7:00 PM	64/NA
Scenario 3 – Excavation, milling, paving and storm drainage for RVSR	September – October 2014	Site 3/Site 4	Weekend 12:01 AM – 6:00 AM	60
		Site 4	Weekday 7:00 AM – 3:00 PM	71
Scenario 4 – Ingraham's Mountain Construction Staging Area Development with RVSR	January – June 2014	Site 1	Weekday 7:00 AM – 3:00 PM	68

Source: Paul Carpenter Associates, Inc. 2013
Note: Appendix E, *Noise*, lists the construction equipment used for each scenario as well as the number of pieces of each type of equipment, and includes the detailed construction noise analysis worksheets for each construction scenario.
1 Pile driving with use of a vibratory hammer was analyzed between 12:01 AM and 6:00 AM on weekends while impact pile driving was analyzed between 8:00 AM and 7:00 PM on weekends.
2 See Figure 5-11 for location of noise analysis sites. Sites 5A and 5B were assumed to represent nearest buildings where inmates reside while at Rikers Island, and are therefore analyzed during an overnight period. Site 5C represents the closest recreational area at Rikers Island and is therefore analyzed during a daytime period when the recreational area is most likely in use.
3 Construction analysis hours focused on times of the day when heavy construction would occur. Light construction would be permissible on the Runway 4 and 31 RSA Ends on some weeknights between 12:01 AM and 6:00 AM when the Airport is closed and on the RVSRs on weekdays from 3:00PM to 7:00AM.
NA Not Available – Average Background Noise Level was not determined for Sites 5A, 5B and 5C (Rikers Island).

In addition to impacts from peak construction activities, potential impacts from construction-related vehicular traffic were also evaluated. Construction trucks delivering materials to the Ingraham's Mountain Construction Staging Area would travel along 19th Avenue, past Elmjack Field and residential neighborhoods. The *CEQR Technical Manual* includes a proportional modeling technique, known as the Noise PCE method, which applies weighting factors to automobiles/light trucks (1 Noise PCE), medium trucks (13 Noise PCEs), heavy trucks (47 Noise PCEs) and buses (18 Noise PCEs). These weighting factors are applied to the total volumes of each vehicle class to compute overall total Noise PCE values for the No-Action Alternative and the Proposed Action Alternative (i.e., with construction) in 2014. Total Noise PCEs were computed for an AM peak hour of 6:30 AM to 7:30 AM in Quarter three of 2014, which corresponds with the greatest number of truck,

automobile/light truck construction trips based on the traffic analysis. Construction truck trips during the PM peak traffic hour would be negligible and would not warrant a quantitative traffic or noise analysis. Per *CEQR Technical Manual* guidelines, the following logarithmic equation was used to compute the incremental change in noise levels based on the 2014 No-Action Alternative and 2014 Proposed Action PCE values: Incremental Change (dBA) = $10*LOG_{10}$(Proposed Action PCE/ No-Action Alternative PCE). Utilizing this equation, a doubling of the Noise PCE values, which equates to a doubling of the noise source, would result in a 3 dBA incremental change in noise levels.

5.14.5.3 Construction Noise Impacts

Table 5-8 summarizes the predicted increase in noise levels above background during construction of the four scenarios at Sites 1 through 4. Construction scenarios anticipated to result in temporary unreasonable noise (i.e., noise level increase of 10 dBA or greater over background, as defined in Section 5.14.5.1, *Noise Fundamentals*) are highlighted in the table as bold. These predicted noise levels do not reflect any noise mitigation measures that may be undertaken during the Proposed Action construction to reduce noise (Chapter 6, *Mitigation,* Section 6.3.2, *Noise*).

As shown in Table 5-8, during weekend construction of the RSAs and RVSR (Scenarios 1, 2 and 3), temporary noise level increases over background would range between 2 dBA and 13 dBA, depending on the construction scenario and time of day. Most of the predicted increases in noise levels on the weekends would be perceivable (i.e., an increase of 3 dBA or greater). Temporary unreasonable noise per NYSDEC (i.e. greater than 10 dBA over background levels) could occur at the noise sensitive location represented by Site 2 (College Point) during pile driving at the Runway 4 End (Scenario 1) if the contractor uses a vibratory hammer. This activity occurs during weekend night-time hours when ambient noise levels are considerably lower than during the daytime. Temporary unreasonable noise, per NYSDEC, could also occur at Site 4 (East Elmhurst) during weekend overnight RVSR construction (Scenario 3) given the proximity of the proposed RVSR and realigned Runway Drive and the low ambient noise level during weekend overnight hours at Site 4. These noise levels were calculated in the absence of noise mitigation measures that may be implemented during construction (see Chapter 6, *Mitigation*).

Table 5-8 Predicted Increase in Noise Levels during Construction of the Proposed Action

Construction Scenario No.	Analysis Location	Construction Analysis Hours[2]	Predicted Cumulative[1] Noise Level (dBA L_{eq})	Increase over Background (dBA L_{eq})
1	Site 2	Weekend 12:01 AM – 6:00 AM	63	**13**
		Weekend 8:00 AM – 7:00 PM	70	4
2	Site 1	Weekend 12:01 AM – 6:00 AM	63	3
		Weekend 8:00 AM – 7:00 PM	65	2
3	Site 3	Weekend 12:01 AM – 6:00 AM	63	3
3	Site 4	Weekend 12:01 AM – 6:00 AM	73	**13**
3	Site 4	Weekday 7:00 AM – 3:00 PM	75	5
4	Site 1	Weekday 7:00 AM – 3:00 PM	73	5

Source: Paul Carpenter Associates, Inc., 2013
Notes: Increases over 10 dBA Leq are noted in bold.
See Figure 5-11 for location of noise analysis sites.
Appendix E, *Noise*, lists the construction equipment used for each scenario as well as the number of pieces of each type of equipment, and includes the detailed construction noise analysis worksheets for each construction scenario.
1 The cumulative noise level during construction is the logarithmic decibel addition of the average background for the specified time period and the predicted construction noise level.
2 Construction analysis hours focused on times of the day when heavy construction would occur. Light construction would be permissible on the Runway 4 and 31 RSA Ends on some weeknights between 12:01 AM and 6:00 AM when the Airport is closed and on the RVSRs on weekdays from 3:00PM to 7:00AM.

During weekday development of the Ingraham's Mountain Construction Staging Area in conjunction with RVSR construction activities (Scenario 4), the noise level increase over background is predicted to be 5 dBA at Site 1, which is regarded as a noticeable, but not adverse, change.

Table 5-9 summarizes the predicted construction noise levels that would result at Rikers Island during Runways 4 and 31 End pile driving. As background noise levels are unknown, the noise level increase cannot be determined. As shown in Table 5-9, a predicted construction-related noise level of 75 dBA during weekend overnight pile driving at the Runway 4 End (Scenario 1) would likely dominate the noise environment at Site 5A. Similarly, construction noise levels during weekend overnight pile driving at the Runway 31 End with RVSR light earthwork (Scenario 2) would result in a construction-related noise level of 70 dBA at Site 5B, which would also likely dominate the noise environment. The nearest recreation area on Rikers Island (Site 5C) would be closest to the Runway 31 End pile driving (Scenario 2). During the daytime, while the recreation area is in use, a predicted construction-related noise level of 69 dBA would also likely dominate the noise environment. See Chapter 6, *Mitigation*, for a discussion of mitigation measures to minimize construction noise effects.

Table 5-9 Predicted Construction Noise Levels on Rikers Island

Construction Scenario No.	Analysis Location	Construction Analysis Hours	Predicted Construction Noise Level (dBA L_{eq})
1	Site 5A	Weekend 12:01 AM – 6:00 AM	75
	Site 5B	Weekend 12:01 AM – 6:00 AM	70
2	Site 5C	Weekend 8:00 AM – 7:00 PM	69

Source: Paul Carpenter Associates, Inc., 2013.
Notes: See Figure 5-11 for location of sites.
Appendix E, *Noise*, lists the construction equipment used for each scenario as well as the number of pieces of each type of equipment, and includes the detailed construction noise analysis worksheets for each construction scenario.

During the AM peak traffic hour between 6:30 AM and 7:30 AM, Noise PCEs along 19th Avenue, east of Hazen Street, are predicted to cause an incremental increase in noise levels of approximately 0.3 dBA. As this increase in noise levels is considered to be undetectable to the human ear, there would be no adverse mobile source noise impacts to residences along 19th Avenue.

The Port Authority routinely closes one runway at a time at LGA on weekends for repair and maintenance work. The proposed project would require similar weekend runway closures in the 18-month RSA construction period (the total construction period is 3 years). Specifically, during weekend periods of single runway closures, aircraft would be limited to departures and arrivals on the runway that would remain open. There may be temporary, noticeable increases or decreases in aircraft noise during the weekend runway closure periods, depending on the receptor location and the runway closure. However, due to the fact that both runways would be closed during different weekend periods but for the same general amount of time, there would be no change in annual average day aircraft noise exposure. The proposed project would not cause a change in annual average day runway utilization, aircraft fleet mix or aircraft noise exposure during or after construction of the RSA enhancements are completed.

5.14.6 Socioeconomic Impacts and Environmental Justice

This section evaluates temporary economic impacts of the Proposed Action, and construction-period impacts to environmental justice populations.

5.14.6.1 Economic Effects

The Airport currently employs about 10,000 people. Recent economic studies have shown that the Airport contributes more than $13.6 billion in annual economic activity to the New York/New Jersey region and generates about 103,000 total jobs and $4.9 billion in annual wages and salaries.[43]

43 Port Authority of New York and New Jersey. Accessed March 20, 2013. www.panynj.gov/airports/lga-facts-info.html

Additional income and employment opportunities are generated in the region on a temporary basis whenever the Airport undertakes a significant capital project such as the Proposed Action.

Construction of the Proposed Action is currently estimated to last approximately three years. According to the Port Authority's most recent estimates, the total project cost for the design and construction of all elements of the Proposed Action is approximately $202.9 million (Appendix H, *Port Authority of New York and New Jersey Board of Commissioners Program Resolution*, *April 24, 2013*). The breakdown of total project cost by program element is:

- Deck extensions: $119.1 million[44]
- EMAS: $23.2 million
- RVSR: $57.5 million
- Ingraham's Mountain Construction Staging Area: $3.1 million

The level of temporary local economic impact associated with the Proposed Action construction is summarized in Table 5-10. The Proposed Action is estimated to generate approximately 410 person-years of construction-related employment over the 36-month period construction period, or an annual average of approximately 137 jobs. Direct payroll expenses from the Proposed Action construction are estimated to be $36 million. Including indirect and induced effects, construction of the Proposed Action is estimated to create approximately 920 job years, $62 million in wages, and a total of $301 million in total economic activity (including construction materials, subcontractors and the purchase of other goods and services) within the region.

Employment related to the Proposed Action construction is most likely to come from local workers and trades and is not anticipated to cause local population growth or a shift in population movement. Overall, the temporary changes to local employment and economic activity expected as a result of the Proposed Action construction are estimated to be positive and relatively minor when compared to the Airport's overall contribution to the local economy.

44 Note that the most recent design and construction cost estimates for the Runways 4 and 31 RSAs, documented in the Port Authority Board of Commissioners Program Resolution (Appendix H) differ from the cost estimate for the RSAs in Table 3-2 of Chapter 3, Alternatives. The costs shown in Table 3-2 were completed based on a specific scope of work requesting estimates for several RSA alternatives in 2010 and did not incorporate design cost estimates. The costs included in the Board Resolution and used for this socioeconomic impacts analysis were refined since 2010 based on a greater understanding of the project scope.

Table 5-10 Local Economic Impact from Construction of the Proposed Action

Category	Total	Annual Average over Construction Period
Direct Job Years	410	137
Direct Payroll Wages (in millions)	$36	$12
Indirect/Induced Job Years	510	170
Indirect/Induced Payroll Wages (in millions)	$26	$9
Total Job Years	920	307
Total Payroll Wages (in millions)	$62	$21
Total Economic Activity (in millions)	$301	$100

Source: Port Authority Board of Commissioners Program Authorizaxtion, April 24 2013 (Appendix H); may not total due to rounding.

5.14.6.2 Environmental Justice Populations

As indicated in Table 5-7 of Section 5.14.5.3, *Construction Noise Impacts*, the average background noise level at Site 4 is estimated to be 60 dBA on the weekends and 71 dBA during weekdays. Table 5-8 shows the predicted increase in noise levels at Site 4 during construction of the Proposed Action anticipated to be as much as 13 dBA during weekend nights and 5 dBA during weekdays. As noted in Section 5.14.5.1, *Noise Fundamentals*, for purposes of this project, unreasonable noise was defined as an increase of 10 dBA or greater, based on the NYSDEC criterion. Therefore, in the absence of mitigation, there is the potential for a construction noise impact at Site 4. Site 4 is located within Queens Census Tract 347 in the East Elmhurst neighborhood. As discussed in Chapter 4, *Affected Environment,* this census tract has a population that is approximately 93 percent minority, which is considered an environmental justice population. Therefore, in the absence of mitigation, impacts to environmental justice populations in East Elmhurst could occur as a result of construction-related noise.

However, as discussed in detail in Section 6.3.2, *Noise,* mitigation is proposed that would require construction contractors to develop a noise mitigation plan with strategies to minimize construction-related noise impacts. Strategies noted in Section 6.3.2, *Noise,* would reduce the construction-related noise impact at Site 4 and in East Elmhurst to below the NYSDEC unreasonable threshold, thereby eliminating it as an impact. To that end, with the inclusion of mitigation, there would be no construction-related severe noise impact.

Therefore, according to guidance provided in FAA Order 5050.4B and FAA Order 1050.1E, Change 1, and the *Environmental Desk Reference for Airport Actions*, with the implementation of a contractor noise mitigation plan the minority population within the East Elmhurst neighborhood would not bear a disproportionate burden of the effects of the Proposed Action, as there would be no severe noise impacts to any residential

population. The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on low-income or minority populations.

5.14.7 Surface Transportation

FAA Order 1050.1E, Change 1 requires that surface transportation be addressed in the context of Socioeconomic Impacts, and considers a significant impact when a Proposed Action would disrupt local traffic patterns in such a way that would substantially reduce the levels of service of the roads serving the Airport and its surrounding communities [Appendix A, section 16.3c(3)]. FAA Order 5050.4B, Table 7-1: Significance Thresholds, also states "For Socioeconomic issues: when an action would cause… disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the Airport and its surrounding communities". This section describes the traffic impact assessment methodology, the No-Action Alternative and Proposed Action traffic levels of service during the construction period, and the adverse impact assessment.

RSA Enhancement construction would occur on weekends during the day and overnight on weekdays, RVSR construction would occur on weekends during the day and overnight, as well as on weekdays during the day and overnight. Development of the Ingraham's Mountain Construction Staging Area would occur on weekdays. Construction would peak in the third quarter of 2014 with 270 weekday daily vehicle trips, 45 vehicle trips during the peak weekday AM construction hour, and 26 vehicle trips during the peak weekday PM construction hour. The peak weekday PM construction hour would not generate enough trips to require further traffic studies according to the *CEQR Technical Manual* guidelines, but the peak weekday AM construction hour would generate just below the 50 vehicles per hour threshold, which requires further traffic studies. Therefore, 2014 weekday AM peak hour construction traffic was analyzed for the Proposed Action. The 2014 No-Action Alternative construction traffic conditions were also analyzed as a basis for comparison.

5.14.7.1 Methodology

As described in Section 4.2.10, *Surface Transportation,* and shown in Figure 4-6, 10 intersections[45] were analyzed under the Proposed Action construction condition (the nine existing intersections and the proposed new construction access road intersection at 81st Street and 19th Avenue). The surface transportation analysis was performed consistent with The Port Authority Traffic Engineering and *CEQR Technical Manual* guidelines. The operation of all signalized and unsignalized intersection analysis locations were analyzed using methodologies presented in the *Highway Capacity Manual* using Synchro software to assess the potential for significant impacts during construction of the Proposed Action.

45 Of the 10 intersections analyzed as part of the Proposed Action Alternative, nine intersections are existing and one is the new, proposed at 19th Avenue and 81st Street. Figure 4-6 shows each of these analyzed intersections.

The FAA Orders listed above do not provide specific criteria that define substantially reduced or significant traffic impacts. The assessment of potential significant traffic impacts is therefore based on the significant impact criteria used in other traffic studies conducted by the Port Authority for construction, transportation improvement and transit projects. Using these criteria, a significant adverse traffic impact is defined as:

- A deterioration in LOS from below mid-LOS D to above mid-LOS D or to LOS E or F where the increase in delay is 10 seconds or more; or
- Deterioration from LOS E to LOS F, or within LOS E or within LOS F, where the increase in delay is 10 seconds or more.

5.14.7.2 No-Action Alternative

The 2014 No-Action condition was developed by increasing the existing (2012) background traffic volumes by the expected growth (0.5 percent) according to the *CEQR Technical Manual* guidelines. According to information provided by the New York State and City Departments of Transportation, and the NYCDCP, there are no anticipated off-Airport projects that would significantly affect traffic volumes, patterns or operations.

One concurrent project would improve traffic at a study intersection. As part of the 94th Street interchange improvements project on the Grand Central Parkway, the New York State Department of Transportation (NYSDOT) is constructing an additional lane along the westbound Grand Central Parkway off-ramp to 82nd Street to widen the approach to three lanes. It would be completed in mid-2013. This would improve levels of service for that westbound approach under the No-Action Alternative at the Grand Central Parkway off-ramp and 82nd Street intersection.

Under the No-Action Alternative, all nine existing analysis locations would operate at similar overall levels of service in 2014 as in the existing condition, as documented in Chapter 4, *Affected Environment*. The No-Action traffic volume map and detailed level of service findings for the No-Action AM construction peak hour are provided in Appendix D, *Surface Transportation*.

5.14.7.3 Proposed Action

Under a reasonable worst case scenario, traffic volumes from RSA deck worker exiting trips and RVSR and Ingraham's Mountain Construction Staging Area construction worker entering trips could overlap from approximately 6:30 AM to 7:30 AM. The 7:30 AM to 8:30 AM background traffic peak does not coincide with the projected construction AM peak hour; there would be 21 construction trips generated during the background traffic AM peak, which does not require further traffic studies according to the *CEQR Technical Manual* guidelines. Similarly, from 3:15 PM to 4:15 PM during the background traffic PM peak hour, the projected construction hourly volumes would be 26 vehicles per hour, which does not require further traffic

studies according to the *CEQR Technical Manual* guidelines. Therefore, only the construction AM peak hour has been analyzed due to its potential for significant adverse traffic impacts, while all other construction hours have been screened out and do not call for detailed analysis. Overnight and weekend traffic impacts are not expected because of lower background traffic. The RSA/RVSR project elements would not generate additional traffic or result in significant changes in the roadway network after the construction period.

Construction workers have been assumed to park at the Ingraham's Mountain Construction Staging Area and would be shuttled to their respective construction sites. The distribution of construction auto trips to and from the Construction Staging Area during the AM construction peak hour was based on Reverse Journey-to-Work 2010 U.S. Census data obtained for the LGA census tract. These trips would be distributed among several arrival and departure routes including 19th Avenue, 43rd, 45th, 49th, and 82nd Streets, Steinway Street, 23rd Avenue and Astoria Boulevard. Trucks were assigned to designated truck routes based on New York City Department of Transportation (NYCDOT) maps.

During the weekday construction AM peak hour, the Proposed Action would generate 45 vehicle trips, consisting of 35 autos (20 in and 15 out), six contractor passenger vans to shuttle RSA/RVSR workers from the Airport to the Ingraham's Mountain Construction Staging Area (three in and three out), and four trucks (two in and two out). Level of service changes (Table 5-11) were calculated based on more conservative volumes that had assumed (based on early construction phasing estimates) that RVSR weekday construction would only occur during the overnight period. Therefore, it is expected that the level of service changes that would occur under the reasonable worst case scenario would be less than those shown in this EA and in Appendix D, *Surface Transportation*.

A new access point at 19th Avenue and 81st Street (Figure 4-6) would be created to allow construction vehicles to move between the Ingraham's Mountain Construction Staging Area and the on-Airport construction areas. Depending on the results of a traffic signal warrant analysis that will be undertaken by the Port Authority (Traffic Engineering) during the preliminary design of this new intersection, this new access point may be signalized, or it may operate under flag control. If it were signalized or under flag control, it would operate at an overall acceptable level of service, similar to the nine existing analysis locations. The Port Authority (Traffic Engineering) would coordinate with NYCDOT regarding construction of the new intersection at 19th Avenue and 81st Street. This coordination would occur before the access point design is finalized. All necessary permits and approvals would be secured prior to construction. Because the conceptual design of the construction vehicle access road and signal were not complete at the time this EA was prepared, the analysis in the EA assumed a two-phase signal with signal timing consistent with the nearby intersection of 81st Street and Ditmars Boulevard, which provides signal progression along 81st Street.

The four traffic movements that would operate at unacceptable levels of service under the No-Action Alternative would continue to operate at unacceptable levels of service under the Proposed Action. All other traffic movements would operate at acceptable levels of service. The southbound 45th Street approach at 19th Avenue would deteriorate approximately eight seconds from acceptable LOS C to acceptable LOS D during the construction period, but this is within acceptable thresholds. Traffic volume maps and detailed level of service tables are provided in Appendix D, *Surface Transportation*.

Table 5-11 Weekday Construction AM Peak Hour Level of Service

		2014 No Action				2014 Proposed Action			
Intersection and Approach	Direction	Movement	V/C	Control Delay	LOS	Movement	V/C	Control Delay	LOS
19th Avenue / 45th Street									
19th Avenue	Eastbound	L T R	-	1.2	A	LTR	-	1.3	A
	Westbound	L T R	-	0.4	A	LTR	-	0.4	A
45th Street	Northbound	L T R	-	17.6	C	LTR	-	18.6	C
	Southbound	L T R	-	17.9	C	LTR	-	26.0	D
	Overall Intersection	-	-	3.2	A	-	-	6.2	A
19th Avenue / Hazen Street									
19th Avenue	Eastbound	L T R	0.33	14.9	B	LTR	0.36	15.4	B
	Westbound	L T	0.49	4.8	A	LT	0.51	7.3	A
		R	0.89	20.6	C	R	0.89	24.8	C
Hazen Street	Northbound	L T R	1.00	81.9	F	LTR	1.00	81.9	F
	Southbound	L	0.64	31.0	C	L	0.64	31.0	C
		T R	0.18	18.1	B	TR	0.18	18.1	B
	Overall Intersection	-	0.92	28.1	C	-	0.92	30.0	C
21st Avenue / 81st Street									
21st Avenue	Eastbound	L R	0.28	22.1	C	L R	0.28	22.1	C
81st Street	Northbound	L T	0.82	28.4	C	L T	0.83	28.6	C
	Southbound	T R	0.19	13.5	B	TR	0.21	12.1	B
	Overall Intersection	-	0.61	25.2	C	-	0.61	25.0	C
Ditmars Boulevard / 81st Street									
Ditmars Boulevard	Eastbound	L T R	0.11	7.4	A	L T R	0.11	7.4	A
	Westbound	L T R	0.60	12.6	B	L T R	0.61	12.7	B
		R	0.75	9.4	A	R	0.75	9.6	A
81st Street	Southbound	L	0.53	29.8	C	L	0.56	28.9	C
		L T R	0.54	30.2	C	L T R	0.56	29.1	C
	Overall Intersection	-	0.73	14.8	B	-	0.73	14.8	B

Table 5-11 Weekday Construction AM Peak Hour Level of Service (cont.)

Intersection and Approach	Direction	2014 No Action Movement	V/C	Control Delay	LOS	2014 Proposed Action Movement	V/C	Control Delay	LOS
Ditmars Boulevard / Marine Terminal Road									
Marine Terminal Road	Westbound	L	0.59	32.2	C	L	0.59	32.2	C
		R	0.55	31.8	C	R	0.55	31.8	C
Ditmars Boulevard	Northbound	T	0.66	13.0	B	T	0.66	13.1	B
		R	0.32	7.7	A	R	0.32	7.8	A
	Southbound	T	0.29	9.2	A	T	0.30	9.2	A
	Overall Intersection	-	0.63	14.9	B	-	0.63	15.0	B
Ditmars Boulevard/ 82nd Street and Grand Central Parkway (GCP) Off-Ramp									
GCP Off-ramp	Westbound	L T	0.41	14.9	B	L T	0.41	14.9	B
		R	1.03	65.9	E	R	1.04	68.0	E
82nd Street	Northbound	L T	0.86	23.0	C	L T	0.90	23.2	C
Ditmars Boulevard	Southbound	T R	0.74	31.5	C	T R	0.75	32.3	C
	Overall Intersection	-	0.90	33.1	C	-	0.91	33.8	C
23rd Avenue / 82nd Street									
23rd Avenue	Eastbound	L T R	0.49	31.5	C	L T R	0.49	31.5	C
	Westbound	L	0.49	39.9	D	L	0.49	39.9	D
		R	0.89	58.0	E	R	0.89	58.0	E
82nd Street	Northbound	T R	0.21	12.4	B	T R	0.21	12.4	B
	Southbound	L	0.43	3.9	A	L	0.43	3.8	A
		LT	0.40	2.7	A	L T	0.41	2.7	A
	Overall Intersection	-	0.55	20.9	C	-	0.55	20.7	C
GCP Service Road North / Astoria Boulevard North									
GCP Service Road North	Westbound	T	0.91	49.8	D	T	0.91	49.8	D
Astoria Boulevard North	Northbound	T	0.62	7.9	A	T	0.62	7.9	A
	Overall Intersection	-	0.73	21.5	C	-	0.73	21.5	C
23rd Avenue / Astoria Boulevard North									
23rd Avenue	Eastbound	L	-	0.0	A	L	-	0.0	A
		T	0.36	37.6	D	T	0.36	37.6	D
Astoria Boulevard North	Northbound	T R	0.58	12.1	B	T R	0.58	12.1	B
	Overall Intersection	-	0.52	16.0	B	-	0.52	16.0	B
19th Avenue and 81st Street / Proposed New Construction Airport Access Road									
19th Avenue	Eastbound	-	-	-	-	T R	0.20	5.3	A
Airport Driveway	Westbound	-	-	-	-	L T	0.88	15.2	B
81st Street	Northbound	-	-	-	-	L R	0.04	30.9	C
	Overall Intersection	-	-	-	-	-	0.72	13.6	B

Source: VHB, 2013
Notes: All intersections are signalized, with the exception of 19th Avenue / 45th Street. Control delay is measured in seconds per vehicle.
L = Left; T = Through; R = Right; these abbreviations indicate the traffic movements vehicles make within each lane group.
V/C = Volume to capacity ratio. Overall intersection V/C ratio is the critical lane groups' V/C ratio. LOS = Level of Service
Level of service changes shown above are based on more conservative 2014 Proposed Action traffic volumes from preliminary estimates of construction phasing conditions.

According to the criteria for assessing the potential for significant impacts described in FAA Order 1050.1E, Change 1, and FAA Order 5050.4B, the Proposed Action construction traffic would not result in significant impacts at Study Area intersections. As previously described, traffic volume maps and LOS used to determine the potential impact for the EA are based on preliminary, more conservative construction phasing conditions that had assumed weekday RVSR construction would only occur during the overnight period. These construction phasing conditions were revised to assume RVSR construction would occur during three 8-hour shifts. As a result, the surface transportation analyses for the weekday construction AM peak hour shown in this EA are more conservative than the likely construction scenario.

5.14.8 Water Quality

The Proposed Action is anticipated to comply with all state water quality standards and the requirements of the NYSDEC. Potential impacts associated with constructing the RSA Enhancements include increased sediment within the water column during installation or removal of sub-surface features, and the accidental release of construction materials or construction by-products. The proposed RSA deck extensions are anticipated to generate suspended sediment during construction as a result of driving piles. Protective measures, such as silt booms, would be deployed if necessary to address requirements of the Section 401 Water Quality Certification that would be issued by NYSDEC. While every feasible measure would be taken to minimize the amount of sediment generated, it is likely that construction would result in the release of sediment into the water column. This sediment would be distributed by the tides and currents, and would be redeposited in the vicinity of the work area. Stormwater drainage from the decks would be directed to the LGA stormwater collection system prior to discharge to the East River. Constructing the RVSR and Ingraham's Mountain Construction Staging Area would use best management practices to prevent erosion that could impact water quality during the construction period. In order to remain in compliance with the SPDES permit, the Port Authority would take actions to minimize stormwater impacts from construction activities, which are described in the LaGuardia Airport Best Management Practices Plan.[46]

5.15 Cumulative Impacts

Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions."[47] Cumulative impacts need to be

46 Port Authority of New York and New Jersey. 2009. *LaGuardia Airport Best Management Practices Plan.*
47 40 Code of Federal Regulations (CFR) Section 1508.7, *Cumulative Impacts.*

analyzed in terms of the specific resource or ecosystem being impacted, and need to be focused on those impacts and affected resources that are meaningful. For this EA, the geographic scope of the analysis (the cumulative impacts Study Area) includes the existing Airport property, portions of the East River (Bowery Bay and Flushing Bay), and the Queens neighborhoods of Ditmars/Steinway, East Elmhurst, College Point, and Rikers Island. This includes all areas potentially affected by the Proposed Action. The time frame for the analysis extends five years past (2008-2013) and five years into the future (2013-2018). Unless otherwise discussed below, no other projects or actions are known to affect the resources, ecosystems and human resources of concern. As identified in prior sections of Chapter 5, *Environmental Consequences,* the Proposed Action is likely to have adverse, but not significant, effects on:

- Air quality, during construction for a temporary period only. The Proposed Action would have no long-term effects on air quality.
- Fish, wildlife and plants, including the terrestrial ecosystem on Ingraham's Mountain and the aquatic ecosystem under and adjacent to the RSA deck extensions.
- Floodplains, as the two RSA deck extensions would require that new structures be placed in the coastal floodplain, within open water areas.
- Noise, during construction for a temporary period only. The Proposed Action would have no long-term effects on noise conditions.
- Traffic, during construction for a temporary period only. The Proposed Action would have no long-term effects on traffic.
- Surface waters and wetlands, limited to the subtidal water column and benthic substrate under the RSA deck extensions.
- Water quality, during construction for a temporary period only and as a result of minor changes in stormwater runoff due to the RSA deck extensions.

The purpose of the analysis of cumulative impacts is to determine whether the Proposed Action, considered with other foreseeable impacts of other actions, would result in significant resource degradation, loss of biological diversity, or significant social or economic effects that would not result from the Proposed Action considered separately. As demonstrated below, the Proposed Action being considered in the EA is unlikely to result in cumulative impacts that would differ substantially from the effects of past actions or other likely future actions and would not result in substantial damage to, or loss of, an environmental resource.

5.15.1 Past and Reasonably Foreseeable Projects

This section lists the past, on-going, and reasonably foreseeable projects on- and off-Airport within the Cumulative Impacts Study Area and timeframe that may affect the resources, ecosystems and human resources of concern as described above. Table 5-12 lists the past, on-going, and reasonably foreseeable future projects considered in this section. Minor projects necessary for maintaining the Airport in a state-of-good-repair and upgrade existing facilities, typically reviewed as categorically excluded from preparing an EA, have been determined (individually and collectively) to not result in environmental impacts.

A number of past, state-of-good-repair projects within the Cumulative Impacts Study Area received categorical exclusions[48] from any formal environmental review. These projects were:

- Runway 4-22 Rehabilitation; Perimeter Fence Strengthening
- Fillet Improvements (Taxiways AA, BB, and CY)
- Terminal D Extension for Inline Baggage Handling System
- Rehabilitation of CTB Concourse Alleyway Pavements
- Vaughn College Soundproofing
- Delta C/D Connector Bridge
- Bollard Protection Terminal Frontages
- Wildlife Hazard Assessment Study
- Airport Layout Plan (ALP) Change for the RVSR and Taxiways D, F, and Y
- Rehabilitation of Taxiways R, S, P, and G
- Rehabilitation of Taxiways A, M, ZA, and B
- Pump House 4 Upgrades

Planned state-of-good-repair projects within the Cumulative Impacts Study Area that are anticipated to receive categorical exclusions are:

- Runway Deck Structural Rehabilitation
- Taxiway Paving and Lighting Rehabilitation
- East End Road Pavement Rehabilitation
- Taxiway Rehabilitation (ZA, A, B, west of Runway 4-22)
- Barrier Replacement (9 locations)
- Runway 13-31 Rehabilitation

48 Council on Environmental Quality regulations 40 CFR 1500.4(p) allow for exemption of certain categories of actions from NEPA's requirements for environmental review. These actions normally do not individually or cumulatively have significant adverse effects on the human environment and have been found by the FAA to have no such effect.

5.15.1.1 Past Projects

The only major development projects undertaken at LGA in recent years were the new Airport Traffic Control Tower and Police Emergency Garage/Emergency Fire Pump Station projects. The Port Authority completed EAs for both projects, and FAA issued a Finding of No Significant Impact (FONSI) for each. Ten other minor projects have been categorically excluded from the requirement to prepare an EA or Environmental Impact Statement (EIS) as listed above.

5.15.1.2 On-Going Projects

Three projects are currently underway at or in the immediate vicinity of LGA. The NYSDOT 94th Street Interchange Improvement project is underway and scheduled to be complete in mid-2013. The Port Authority's East End Substation and East Garage Project, which received a FONSI on February 5, 2013, is also underway and scheduled to be complete in 2014. New York City Department of Sanitation's North Shore Marine Transfer Station Project, east of the Airport at College Point, is also under construction.

Table 5-12 Past, On-going and Future Projects

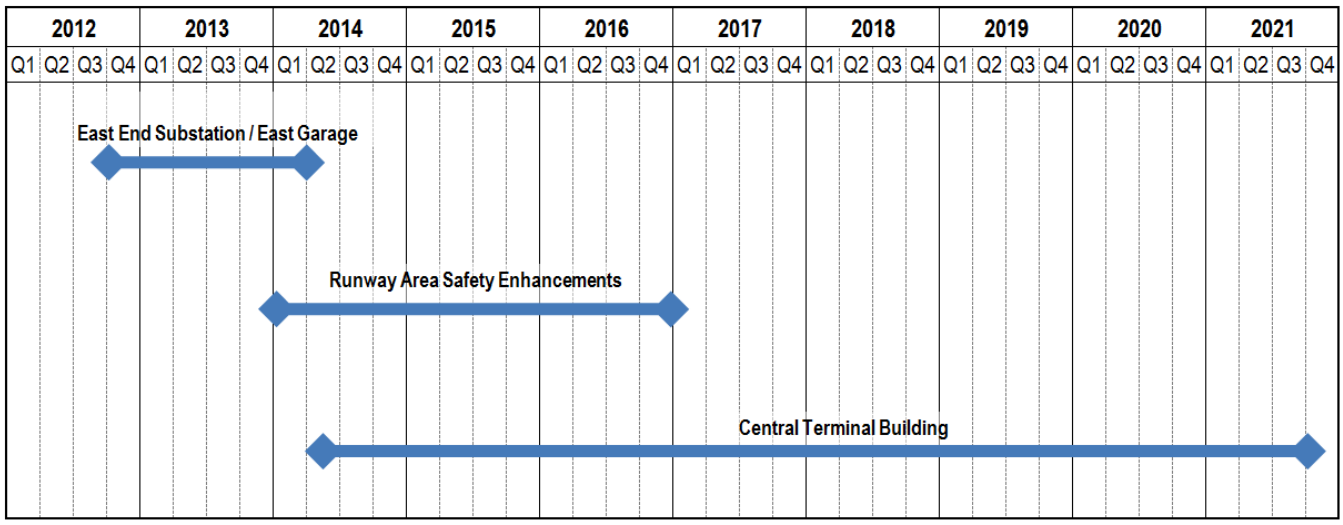
Project	Status	Description	Effects
Airport Traffic Control Tower	Past	A new air traffic control tower at LGA, including demolition of historic tower	Loss of a historic resource; change in visual setting
Emergency Fire Pump Station	Past	Constructed a new Police Garage adjacent to the south end of Employee Parking Lot 10E at LGA.	Temporary impacts to water quality; hazardous materials
East End Substation and Garage	Ongoing	Construct a new power substation and parking structure in existing Parking Lot 4 at LGA.	Temporary impacts to air quality, water quality, noise and traffic; Permanent easement from the Grand Central Parkway would result in a *de minimis* effect to Section 4(f) resources.
NYSDOT 94th Street Interchange	Ongoing	Improve the Grand Central Parkway between 82nd Street and 111st Street, including the 94th Street bridge to LGA.	Temporary impacts to air quality, water quality, noise and traffic; long-term beneficial traffic effects.
North Shore Marine Transfer Station	Ongoing	Refurbish existing closed waste transfer facility in College Point, Queens.	Beneficial effects on water quality, solid waste management.
Central Terminal Building (CTB) Redevelopment Program	Future, subject to FAA approval	Replace the existing CTB at LGA and construct major airside and landside improvements, including a new West Garage, reconfiguring apron and taxiways, Airport roadways, and connections to the Grand Central Parkway.	Temporary impacts to water quality, air quality, noise, traffic. Permanent impacts to on-Airport historic resources and to the landscaped section of the Grand Central Parkway, a Section 4(f) Resource
NYCDEP Environmental Dredging of Flushing Bay	Future	Dredge Flushing Bay at two CSO outfalls and restore wetlands	Temporary impacts to water quality; beneficial effects on water quality, wetlands and biotic communities.

Source: Port Authority; VHB, 2013.

5.15.1.3 Reasonably Foreseeable Future Projects

Within the next five years, the Port Authority plans to undertake the CTB Redevelopment Program at LGA, pending completion of the NEPA process and FAA approval of the revised ALP. The Port Authority is preparing a separate EA for that project, expected to be released for public review in late-2013. The CTB Redevelopment Program is a plan to replace the existing CTB complex including the terminal head house, concourses, parking garages, and associated roadways (including relocating the eastbound ramp from the Grand Central Parkway to the Airport). The CTB Redevelopment program is a large project that is expected to cost $3.6 billion and take up to eight years to construct. If no significant environmental impacts are identified during the EA process, and the FAA approves the revised ALP, construction is expected to begin in 2014. Figure 5-12 shows the construction schedule for the CTB program, East End Garage project, and the Runway Safety Area Enhancements.

Figure 5-12 Summary of Construction Schedule for CTB, East End Garage, and the Runway Safety Area Enhancements[1]



1 Runway Safety Area Enhancements include RSA Enhancements, construction staging areas, and RVSR construction.
Note The CTB Redevelopment Program is currently completing the NEPA process and has not yet received FAA approval.

The NYCDEP has planned to conduct the Environmental Dredging of Flushing Bay Project at two CSO outfalls south of the Airport, near the World's Fair Marina. This dredging project is planned to be initiated in 2014 and completed by 2016, and includes restoring an adjacent intertidal wetland/mudflat area.

5.15.2 Cumulative Effects

This section summarizes the likely cumulative effects of the Proposed Action, considered in combination with past, ongoing, and reasonably foreseeable future projects at, and in the vicinity of, LGA. Table 5-13 provides a summary of those effects.

Table 5-13 Summary of Cumulative Effects

Resource	Past Projects	On-Going Projects	Future Projects	Proposed Action
Air Quality	Temporary emissions during construction, impacts *de minimis*	Temporary emissions during construction, impacts *de minimis*	Temporary emissions during construction, impacts *de minimis*	Temporary emissions during construction, impacts *de minimis*
Fish, Wildlife, Plants	No effects	Improve wildlife and fisheries habitat.	No effects	Minor loss of common urban plant and wildlife habitat; Minor adverse effects to fisheries habitat would be mitigated by habitat enhancement/ restoration
Floodplains	No effects	No effects	No effects	No effects on flood storage, no changes to depth or duration of flooding; No effects on beneficial floodplain values
Historic	No effects	No effects	Yes (CTB Redevelopment Program)	No effects
Noise	Temporary construction noise	Temporary construction noise	Temporary construction noise effects	Temporary construction noise effects
Traffic	No effects	Improved traffic conditions at 94th Street Interchange	Temporary construction traffic; Improved Airport access	Minor temporary construction traffic effects; New RVSR would improve traffic conditions on Runway Road
Surface Waters and Wetlands	No effects	No effects	Flushing Bay Dredging and CSO project would restore wetlands	Negligible loss of benthic habitat (0.03 acres)
Water Quality	No effects	Temporary effects: SPDES General Permit for Stormwater Discharges from Construction Activities required; Long-term beneficial effects	Temporary effects: SPDES General Permit for Stormwater Discharges from Construction Activities required; Flushing Bay Dredging and CSO project would improve water quality	No short-or long-term significant adverse effects; SPDES General Permit for Stormwater Discharges from Construction Activities required

Source: VHB, 2013

5.15.2.1 Air Quality

Within the three years of RSA construction (2013 through 2016), the Port Authority plans to undertake the following projects at LGA:

- East End Substation and East Garage (2012 through 2015)
- CTB Redevelopment Program, subject to approval by the FAA (2014 through 2021, as currently scheduled)

Construction of the proposed RSA Enhancements and new section of the RVSR are expected to overlap with the East End Substation/East Garage construction and to be complete before the more significant components of the proposed CTB Redevelopment Program would be underway (if approved by the FAA once the NEPA process for the CTB Redevelopment Program is complete). Tables 5-14 and 5-15 present the estimated construction emissions associated with the East End Substation/East Garage and CTB Redevelopment Program, respectively.

Given that the RSA Enhancements, East End Substation/East Garage, and CTB Redevelopment Program have independent utility and are addressed in separate NEPA documents, the General Conformity evaluations are also separate. The FAA has concurred, stating that General Conformity should be evaluated separately for each of these projects in accordance with its guidance,[49] which states:

"It is up to the airport operator, in consultation with FAA, to decide whether to seek a single FAA approval for an entire plan, which eliminates the need to go back and do additional conformity analyses as each project is implemented according to the plan, to proceed with a tiered process, or to proceed with individual projects having independent utility and go through a separate conformity evaluation for each one. For airport development, if projects or actions are combined together for NEPA, then generally they should be kept together for general conformity unless there are specific reasons to separate the projects or actions."

49 Federal Aviation Administration. 2002. *General Conformity Guidance for Airports, Questions and Answers*, September 25, 2002.

Table 5-14 Construction Emissions Inventory for the East End Substation and East Garage Project (tons per year)

Pollutant	2012	2013	2014	2015	2016
Carbon Monoxide (CO)	6.35	9.39	11.9	1.95	--
Nitrogen Oxides (NO_x)	18.9	30.4	31.2	4.45	--
Particulate Matter 10 micrometers (PM_{10})	0.64	1.06	1.08	0.16	--
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.62	1.02	1.03	0.15	--
Volatile Organic Compounds (VOC)	0.95	1.71	1.71	0.29	--

Source: Port Authority. East End Substation and East Garage at LaGuardia Airport, Draft Environmental Assessment, November 2012 and Port Authority. East End Substation and East Garage at LaGuardia Airport FONSI, February 2013.
Note: *de minimis* levels for CO, NO_x, and $PM_{2.5}$ are 100 tpy; and 50 tpy for VOC.

Table 5-15 Construction Emissions Inventory for the Central Terminal Building Program (tons per year)

Pollutant	2012	2013	2014	2015	2016
Carbon Monoxide (CO)	--	--	2.98	11.9	9.78
Nitrogen Oxides (NO_x)	--	--	9.76	34.4	27.42
Particulate Matter 10 micrometers (PM_{10})	--	--	0.41	1.56	1.23
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	--	--	0.38	1.45	1.15
Sulfur Dioxide (SO_2)	--	--	0.35	1.23	1.00
Volatile Organic Compounds (VOC)	--	--	0.71	2.71	2.20

Source: Port Authority. Preliminary Construction Emissions Inventory for Central Terminal Building at LaGuardia Airport, April 5, 2013.
Note: *de minimis* levels for CO, NO_x, and $PM_{2.5}$ are 100 tpy; and 50 tpy for VOC.

The construction emissions associated with the Proposed Action are less than the *de minimis* thresholds. The East End Substation/East Garage and the proposed CTB Redevelopment Program construction emissions are also each expected to be below *de minimis* thresholds. Taken together, the RSA Enhancements, East End Substation/East Garage project, and proposed CTB Redevelopment Program construction emissions are below *de minimis* thresholds. Thus, the RSA Enhancements are not expected to cause or contribute to a significant adverse impact on the environment when considered with other past, present or reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

5.15.2.2 Fish, Wildlife and Plants

The Proposed Action, when considered with other past, present or reasonably foreseeable future actions, would not have a significant adverse impact on populations of terrestrial wildlife and plants within the geographic scope of this analysis. None of the past, present or future projects listed in

Table 5-12 would have an adverse effect on terrestrial habitats, and the cumulative effects are therefore the same as the direct and indirect effects of the Proposed Action.

Aquatic habitats in the Upper East River have been highly modified by shoreline development, effluents (primarily CSOs), and dredging for navigation. In addition, tributaries have been highly modified, which eliminated most of the headwater portions of tidal creeks which contained large expanses of wetlands. The cumulative effect of these changes to aquatic habitats is that the overall quantity and quality of habitat for many aquatic species have diminished. Despite these changes, the Upper East River provides extensive habitat for many aquatic species and is an important corridor for movements of fish and invertebrates between coastal waters and the Hudson River. The relatively high quality of the existing aquatic community is likely due to the control of shoreline development, the control of dredging operations, and the improvement in water quality that have occurred since the latter part of the 1990s.

Recently, habitat restoration and enhancement projects have been implemented by others to recover some of the lost habitat values in the Upper East River. Oyster restoration is underway in the lower Bronx River off Soundview Park; fish passage facilities have been installed on dams in the Bronx River; fish habitat enhancement was incorporated in a waterfront park at Farragut Street at the mouth of the Bronx River; and environmental dredging is taking place at CSO outfalls in Flushing Bay to remove accumulated organic sediments to improve local water quality and provide clean substrates for fish and benthos. Collectively, these nearby habitat enhancements represent improvements for aquatic life, but are small in area and their long-term benefits would not be known for some time. It is anticipated that, as more habitat enhancement projects are implemented, overall conditions for aquatic life would continue to improve in the Upper East River.

The adverse impacts of the Proposed Action on aquatic life would be offset through mitigative actions directed to fish and benthos, or other actions that enhance conditions for aquatic life in the Upper East River. During construction, best management practices would be employed that would limit the types of impacts to only temporary, which would end when construction is complete. The net effect of the measures proposed to mitigate the potential impacts of the Proposed Action, in combination with other separate actions involving aquatic resources in the Upper East River, would not be significant, long-term impacts on aquatic resources (see Chapter 6, *Mitigation*, for a discussion of best management practices that would be employed).

5.15.2.3 Floodplains

Past, ongoing, and reasonably foreseeable future impacts on the floodplains of the Upper East River, Bowery Bay, and Flushing Bay were evaluated in combination with the Proposed Action. As these

waterbodies are tidal, combined effects on flood storage would not be a concern. None of the past, ongoing, or planned projects would result in a net increase in impervious surfaces within the floodplain that would diminish the natural and beneficial floodplain values.

5.15.2.4 Noise

As discussed within Section 5.9, *Noise*, there would be no permanent noise impacts as a result of the Proposed Action. Therefore, cumulative effects of the Proposed Action, considered in combination with ongoing and reasonably foreseeable future projects were evaluated for temporary construction noise effects. As shown in Table 5-12, ongoing and reasonably foreseeable future projects that would generate temporary noise impacts during construction are the East End Substation and Garage and NYSDOT 94th Street Interchange (ongoing) as well as the CTB Redevelopment Program (future, subject to FAA approval).

Cumulative noise impacts during construction may result from two conditions:

- Multiple construction activities occurring simultaneously in proximity to the same noise sensitive receiver, such that the total construction noise level from the multiple sources exceeds the impact threshold; or
- Multiple construction activities occurring during non-overlapping but consecutive time periods, and those activities would all be proximate to the same noise sensitive receiver.

In the second condition, the cumulative effect is an extension of the exposure period of an activity as it relates to sensitive sites. For example, one project may allow pile driving at night while another allows pile driving during the day, thereby exposing the receiver to an extended period of noise. Alternately, one project may result in pile driving from January to March, while another project may result in pile driving from March or April to May, thereby also extending the period of exposure.

As indicated within Section 5.14, *Construction Impacts,* heavy construction work associated with the Proposed Action is expected to occur on weekends during single runway closures from midnight Saturday to noon Sunday. Minimal work is expected on weeknights, and mainly involves accepting materials deliveries. RVSR construction would occur during weekdays, weeknights, and weekends. All construction associated with the Ingraham's Mountain Construction Staging Area would occur weekdays between 7 AM and 3 PM.

During construction of the Proposed Action, pile driving is anticipated to be the worst-case activity, causing the most noise, associated with the RSA deck extensions. As indicated within Section 5.14,

Construction Impacts, and contract specifications for the Proposed Action, impact pile driving is only permissible on Saturdays between 8 AM and 7 PM and Sundays between 8 AM and 11:59 AM. However, installing piles using a vibratory hammer is not restricted by contract specifications. Therefore this methodology may be implemented at any time during the weekend single runway closure.

RSA decks construction is expected to occur from April to May of 2014 and from March to April of 2015. During this time, there would be no pile driving from ongoing or reasonably foreseeable future projects. Pile driving associated with the East End Substation is scheduled to occur from July 2013 to September 2013 and pile driving associated with the foundation work for the East Garage would occur between October and November of 2013. Pile driving associated with the construction of the new West Garage, as part of the CTB Redevelopment Program, is expected to occur between August and September of 2014, and would not overlap with the pile driving associated with the Proposed Action. All other pile driving activities associated with the CTB Redevelopment Program is not expected to commence until April 2015. As pile driving from the reasonably foreseeable future CTB Redevelopment Program and from the Runway 31 End deck extension would be proximate to different noise sensitive receivers, a cumulative noise effect is not expected.

Peak construction of the Ingraham's Mountain Construction Staging Area would occur from January 2014 to June 2014. No other ongoing or reasonably foreseeable future projects would temporarily increase noise levels during the same timeframe or during non-overlapping, but consecutive timeframes. Therefore, no cumulative noise effects are expected.

Construction related to the realignment of Runway Drive and the RVSR would commence in June 2014 with peak construction anticipated in September and October 2014. As the ongoing NYSDOT 94th Street interchange improvements project is expected to be completed in mid-2013, there would be no simultaneous or consecutive temporary construction activities proximate to the hotels and residential neighborhood along the Grand Central Parkway. The East End Substation and East Garage pile driving work would finish in December 2013, prior to any work associated with the RVSR and realignment of Runway Drive. Therefore, no cumulative effect from the combination of the Proposed Action with this ongoing project is expected. Pile driving associated with the construction of the new West Garage, as part of the CTB Redevelopment Program, is expected to occur between August and September of 2014, which would not overlap with the pile driving associated with the Proposed Action. All other pile driving activities associated with the CTB Redevelopment Program is not expected to commence until April 2015. As pile driving from the reasonably foreseeable future

CTB Redevelopment Program and from the Runway 31 End deck extension would be proximate to different noise sensitive receivers, a cumulative noise effect is not expected.

5.15.2.5 Traffic

Past, on-going and reasonably foreseeable future impacts on local roads and traffic conditions were evaluated in combination with the Proposed Action. The Proposed Action would not result in any permanent increases in traffic volumes, and would have no impacts on local traffic conditions following the construction period. There would be several on-going state-of-good repair projects within the Airport during 2014. Traffic for these projects is already accounted for in the existing traffic volume network or would be part of the background growth.

Peak construction of the Proposed Action would occur in the third quarter of 2014 and consist of weekday daytime and overnight or weekend daytime construction consolidated to the west Airport area. Peak construction of the East End Substation/East Garage project would occur in 2014 and consist of primarily weekday construction consolidated to the east Airport area. Peak construction of the proposed CTB Redevelopment Program would occur in the fourth quarter of 2015 and consist of a large weekday daytime shift and a smaller weekday evening shift and span from the west of the Airport to the central terminal area. Construction vehicles associated with the Proposed Action and the CTB Redevelopment Program could use the roadway network at the same time, although the peak activity levels for these two projects would not occur in the same year, and would occur during different times of the day and week The cumulative impacts of these projects occurring simultaneously could have the potential for adverse traffic impacts, but traffic improvements to increase traffic capacity and operations are currently being planned by the proposed CTB Redevelopment Program, which would mitigate impacts for that construction project. There would be no adverse long-term effects on surface transportation as a result of the Proposed Action when considered in combination with on-going and reasonably foreseeable future projects.

5.15.2.6 Water Quality

Past, ongoing, and reasonably foreseeable future impacts on water quality within the Upper East River, Bowery Bay, and Flushing Bay were evaluated in combination with the Proposed Action. Major past and on-going projects undertaken by the Port Authority at LGA may have had temporary construction-period effects on water quality, but have not adversely affected water quality. Reasonably foreseeable actions that may affect water quality include the proposed Flushing Bay dredging and CSO project to be undertaken by the NYCDEP, which would improve overall water quality within the area when complete. The Flushing Bay dredging project may result in temporary increases of suspended sediment levels during dredging operations, but is anticipated to only have localized and temporary minor effects on water quality.

The Proposed Action, including the RSA Enhancements and RVSR improvements, would be designed to meet all relevant state water quality standards and would not have a significant impact on water quality. LGA currently has a SPDES permit for stormwater runoff, and would manage and treat any stormwater in accordance with this permit throughout the project. Any construction activities would have minimal impacts to water quality and would comply with LGA's SPDES Permit. Any minor and limited discharge of sediment from the Proposed Action, in combination with other projects potentially underway at the same time, would not have a cumulative adverse effect on water quality in the Upper East River including Bowery and Flushing Bays.

5.15.2.7 Surface Waters and Wetlands

The Proposed Action, when considered with other past, present or reasonably foreseeable future actions, would not have a significant adverse impact on surface waters, and would have no adverse impact on wetlands. There are no wetland impacts associated with any of the past or ongoing projects near the LGA facility. The future NYCDEP Environmental Dredging of Flushing Bay would include temporary impacts to subtidal aquatic habitats, but the long-term effects would be beneficial. The project includes enhancements to several acres of subtidal and intertidal habitats. The Proposed Action at LGA would result in a loss of benthic habitat (0.03 acres), and would change the habitat quality of 4.65 acres of subtidal waters through shading. With the appropriate mitigation measures, these actions would not be anticipated to result in significant adverse impacts to aquatic resources (Chapter 6, *Mitigation*).

5.16 Summary of Environmental Consequences

As no potentially significant adverse impacts would result from the Proposed Action, it is unlikely that the incremental impact of the Proposed Action would cause or contribute to a significant adverse effect on the environment when added to past, on-going, or reasonably foreseeable future projects or actions involving LGA. The Proposed Action is not expected to cause or contribute to a significant adverse impact on the environment when considered with other past, present or future actions regardless of what agency or person undertakes such other actions. Table 5-16 presents a summary of the permanent and construction-related impacts, as well as the cumulative effects associated with the Proposed Action.

Table 5-16 Summary of Environmental Consequences for the Proposed Action

Resource	Permanent Impacts	Construction Impacts	Cumulative Effects
Air Quality	None	Temporary emissions during construction, impacts *de minimis*	Temporary emissions during construction, impacts *de minimis*
Coastal Resources	RSA deck extensions would add permanent new structures in the Coastal Zone, but would be consistent with CZM policies	Temporary construction impacts (water quality)	None
Natural Resources, Energy Supply, & Sustainability Design	None	None	None
Fish, Wildlife, Plants	Minor loss of common urban plant and wildlife habitat. Shading of 4.65 acres of the water column would minimally affect local populations of fish and invertebrates	Minimal hydroacoustic impacts from pile driving activities; mitigation measures would reduce the potential for effects on Atlantic sturgeon	Minor loss of common urban plant and wildlife habitat. Minor adverse effects to fisheries habitat would be mitigated by habitat enhancement/ restoration.
Floodplains	The floodplains within the LGA facility have been modified for industrial use, and the Proposed Action would not represent a significant change in floodplain function	None	No effects on flood storage, no changes to depth or duration of flooding. No effects on beneficial floodplain values
Hazardous Materials, Pollution Prevention, & Solid Waste	None	None	None
Historical, Architectural, Archaeological & Cultural Resources	No historic properties affected	None	None as a result of RSA project.
Light Emissions and Visual Impacts	Negligible change in some views of the Airport	None	None
Noise	None	Temporary construction noise impacts, which would be mitigated	Temporary construction noise effects
Socioeconomic Impacts, Environmental Justice	None	Beneficial economic effects of construction jobs	Beneficial economic effects of construction jobs
Surface Transportation	None	None	Minor temporary construction traffic effects
Surface Water and Water Quality	None	Release of sediment into the water column would be minimized through use of best management practices to contain suspended sediment	No short-or long-term adverse effects. SPDES General Permit for Stormwater Discharges from Construction Activities would be required.
Surface Waters and Wetlands	Loss of benthic habitat (0.03 acres) and shading 4.65 acres	None	No cumulative adverse effects

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6 Mitigation

6.1 Introduction

According to the Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR 1500.2(f)), project proponents shall, to the fullest extent possible:

> "Use all practicable means consistent with the requirements of the Act and other essential considerations of nation policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment."[1]

In accordance with the NEPA regulations, this chapter identifies and evaluates measures that would avoid impacts, as well as measures to minimize impacts by limiting the degree or magnitude of the proposed Runway Safety Area Enhancements project and its implementation.

As documented in this Environmental Assessment (EA), impacts to environmental resources are unavoidable due to the existing runway safety areas' (RSAs) locations, therefore measures that would compensate for these adverse impacts, in accordance with state and federal regulatory programs, have been identified.

Resources that would not experience any long-term adverse impacts, or require mitigation as per regulatory requirements, include:

1 Council on Environmental Quality. *Regulations for Implementing the National Environmental Policy Act* (40 CFR 1500). http://ceq.hss.doe.gov/ceq_regulations/regulations.html

- Coastal Resources;
- Floodplains;
- Hazardous Materials, Pollution Prevention, and Solid Waste;
- Historical, Architectural, Archaeological and Cultural Resources;
- Light Emissions and Visual Impacts;
- Socioeconomic Impacts and Environmental Justice; and
- Surface Transportation.

Based on the analysis presented in this EA, mitigation would be required for impacts to aquatic resources. In addition, temporary construction activities would result in short-term consequences to certain physical resources. This chapter provides a description of the Port Authority of New York and New Jersey's (Port Authority) proposed commitment and approach(es) to compensatory mitigation for impacts to aquatic resources (surface waters and benthic habitat) and to mitigation for short-term air quality, noise, and water quality impacts during construction.

6.2 Aquatic Resources

The following section identifies the context and requirements for mitigating impacts to aquatic resources (surface waters and benthic habitat), and provides a list of potential mitigation opportunities. These mitigation measures are conceptual and would be refined during the final design and permitting phase of the project. The information presented in this section demonstrates that impacts to the aquatic environment can be mitigated within the local watershed.

6.2.1 Background and Context

Implementing the enhancements to the Runways 4 and 31 End RSAs at LaGuardia Airport (LGA) would require placing pilings in unvegetated benthic habitat within navigable waters of the United States and shading approximately 4.65 acres of such waters. These impacts would require permits from the United States Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC), and would require compensatory mitigation for impacts to aquatic resources.

Mitigation proposals should follow the requirements set forth in the United States Environmental Protection Agency (EPA) and USACE 2008 Final Rule on Compensatory Mitigation for Losses of Aquatic Resources.[2] The rule emphasizes the need for a watershed approach to determine appropriate

2 United States Environmental Protection Agency and United States Army Corps of Engineers. 2008. *Final Rule on Compensatory Mitigation for Losses of Aquatic Resources.* 2008 Mitigation Rule. USACE 33 CFR Parts 325 and 332, EPA 40 CFR Part 230.

mitigation. The rule requires a description of the importance of replacing functionality and a preference for in-kind replacement of wetland functions (although out-of-kind mitigation is allowed). However, the rules also acknowledge that potential wildlife attractants and associated hazards may result from restoring habitat in the vicinity of an active airport.

The magnitude of compensation to offset impacts requires negotiation with the permitting agency because there are no universally accepted formulas that can match the level of impact to specific mitigation actions. In the case of LGA, the RSA deck extensions require placement of piles with a resultant small area of fill and also create overwater coverage of a discrete area of aquatic habitat which would be altered (shaded, affecting the quality of fish habitat), but not lost.

Refining the approach to mitigation for the RSA Enhancements requires consultation with the (NYSDEC) and USACE because any project (including its compensatory mitigation plan) in an urban environment is a complex planning action that can involve legal, regulatory, environmental and public participation issues.

6.2.2 Impacts to Aquatic Resources

LGA lies within the Harlem River, East River & Western Long Island Sound planning region of the Hudson-Raritan Estuary.[3] As currently planned, the proposed RSA Enhancements at LGA would require a total of 240 support piles and deck extensions for Runway Ends 4 and 31. This would affect 0.03 acres of unvegetated benthic substrate for the two RSA deck extensions combined. Indirect impacts include shading approximately 4.65 acres of the water column under the RSA decks. The functional value that would be lost as a result of the project would be limited to shading that would diminish habitat value for fish and some invertebrates that rely on light for their survival. There would be limited to no impacts on photosynthetic production of phytoplankton, a food source for some fish and invertebrates, because of the swift currents that move through the area and the relatively high turbidity that limits photosynthesis to the upper few feet of the water column.

6.2.3 Avoidance and Minimization

As documented in Section 5.4 and Chapter 3, *Alternatives*, there are no practicable alternatives that would allow the Runway Safety Area Enhancements project to be constructed in a way that avoids impacts to the aquatic environment. Impacts have been minimized to the greatest extent practicable by using the smallest RSA dimensions acceptable to the Federal Aviation Administration (FAA) that would satisfy the Purpose and Need for the project.

3 United States Army Corps of Engineers. 2009. *Hudson-Raritan Estuary Comprehensive Restoration Plan.* Draft March 2009.

As stated in Section 2.1, the purpose of the project is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 per Congressional mandate, and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LaGuardia Airport (LGA). Congress mandated that all commercial airports provide RSAs that comply with FAA standards by the end of 2015.

Three alternatives for RSA enhancement were evaluated that would avoid wetland impacts; Conceptual Alternatives A, B and C. The analysis presented in Chapter 3 showed that Alternatives A and B would adversely affect the airfield capacity because the usable length of each runway would be reduced from 7,001 feet to between approximately 6,100 feet, for a full-dimension RSA, 6,501 feet for a non-standard RSA or 6,820 feet for a non-standard EMAS. This action would reduce the ability of existing larger aircraft to use the Airport. Air travel would be adversely affected because airlines would either have to cancel flights with larger aircraft that require greater runway lengths to operate, reduce the aircraft weight by reducing the number of passengers that can be accommodated on the flights, or switch to smaller aircraft resulting in fewer seats available to the traveling public.

Alternative C would also result in substantial community impacts such as road relocations and property acquisitions. As with RSA Conceptual Alternatives A and B, arrival thresholds would be relocated and result in the loss of ILS capability on Runway 22 and adverse effects to the Runway 13 approach. These changes would reduce the aircraft arrival capacity of the Airport and result in increased delays. Although shifting the runways a much shorter distance to provide non-standard EMAS (compared to the full dimension RSA) would avoid substantial community impacts associated road relocations and property acquisitions, arrival thresholds would be relocated and result in the loss of ILS capability on Runway 22 and adverse effects to the Runway 13 approach. These changes would reduce the aircraft arrival capacity of the Airport and result in increased delays.

In the second (minimization) step of the alternatives analysis, three alternatives (Refined Alternatives 2, 3 and 4) were evaluated to minimize the wetland impacts of a full-build RSA (Refined Alternative 1). Of these, Refined Alternative 4 would have the least impact to aquatic resources. However, it would not meet the minimum FAA-required aircraft arrestment because there is not enough available space on the end of each of the existing decks to place an adequately-sized EMAS bed. Therefore, Refined Alternative 4 was not considered a cost-effective safety enhancement and was not considered further. Refined Alternative 3, with the second-lowest wetland impacts, was selected as the preferred alternative.

6.2.4 Mitigation Options

The USACE 2008 Mitigation Rule includes a hierarchy of preference for different types of mitigation within the same watershed as the impact:

1. Mitigation Bank Credits
2. In-Lieu Fee Program Credits
3. Permittee-responsible mitigation under a watershed approach
4. On-site and/or in-kind permittee-responsible mitigation
5. Off-site and/or out-of-kind permittee-responsible mitigation

There are currently no mitigation banks or accepted In-Lieu Fee Programs in the Harlem River, East River & Western Long Island Sound planning region that could offer credits to offset the project-related impacts. Prior to the publication of the 2008 Compensatory Mitigation Rules, the NYSDEC had accepted mitigation funds to offset impacts to regulated waters. At this time, there is no formal mechanism for an In-Lieu Fee agreement with the NYSDEC. As it is not available, other potential options that would satisfy mitigation requirements are discussed below.

In the New York City region, the typical mitigation approach is permittee-responsible, in-kind, on-site actions that address the impact directly. However, the approach is challenging and seldom feasible in an urban environment including the Upper East River because of the many constraints associated with existing shoreline development, such as existing habitat values, infrastructure conflicts, and access to sites, limit the options. FAA requirements regarding airport wildlife hazards further limit the on-site and some nearby off-site mitigation options at LGA.

FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports* (August 28, 2007) provides standards, practices and recommendations to assist airports to comply with the wildlife hazard management requirements of Title 14 CFR Part 139, *Certification of Airports*. As the AC notes, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide as well as billions of dollars in aircraft damage. Wildlife hazards are constructed or natural areas that encourage wildlife to enter an airport's approach or departure airspace and present potential hazards to aviation. The AC establishes a minimum separation distance of 10,000 feet between an airport's Aircraft Operating Area (AOA), the ground surface on which the airport operates, and any hazardous wildlife attractant. The AC further recommends a five-mile separation between the airport and a hazardous wildlife attractant on the approach and departure paths.

Section 2-4 of the AC specifically addresses wetlands. Paragraph (c) notes that mitigation for wetland impacts from airport projects must be designed so it does not create a wildlife hazard. FAA recommends that wetland mitigation projects that may attract hazardous wildlife be outside of the separation distances (10,000 feet and five miles) unless the wetlands provide unique functions that must remain on-site. The FAA and the USACE have signed a Memorandum of Agreement[4] concerning the implementation of the AC with regard to permits for Section 404 of the Clean Water Act. As a result, mitigation areas that have the potential to attract hazardous wildlife (particularly waterfowl), such as salt marshes, intertidal mud flats, eelgrass beds, and shellfish beds are not recommended within Bowery Bay, Flushing Bay, or other coastal areas adjacent to the AOA.

For these reasons, mitigation options identified in this EA focus on off-site actions that address the impacts directly (in-kind) or that are out-of-kind but provide ecological values that enhance the watershed's ecosystem. A combination of approaches may be needed to achieve a level of compensation that is satisfactory to regulatory agencies.

6.2.4.1 In-Kind Mitigation Options

In-kind mitigation is an action that, when implemented provides a similar function as the impacted resource. An example of an in-kind mitigation for filling the benthic habitat would be the excavating upland area to create benthic habitat or improvements to a degraded area of benthic habitat.

If shading created by the new overwater deck could be mitigated by removing an existing deck of comparable size, the indirect shading impacts could be mitigated in-kind. However, finding abandoned existing decks equivalent to 4.65 acres (a little more than the deck area of two major shipping piers in the New York/ New Jersey Harbor) is very unlikely.

6.2.4.2 Out-of-Kind Mitigation Options

Out-of-kind mitigation options would be those that would enhance ecosystems within the watershed but would offer slightly different functional benefits than the impacted resource. For example, out-of-kind mitigation for installing the decks in the subtidal benthic habitat could be improvements to intertidal habitats that provide fish nursery habitat.

On-Site

On-site mitigation is not preferred because of the potential to create or exacerbate a wildlife hazard. The impacts that would be caused by the RSA deck extensions include the loss of water column and

4 2003 Memorandum of Agreement between FAA, U.S. Air Force, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture to address Aircraft-Wildlife Strikes. http://www.usace.army.mil/Portals/2/docs/civilworks/mous/aircraft_wildlife.pdf

unvegetated subtidal habitat at LGA and loss of fisheries habitat value in shaded areas under the deck extensions. Mitigation for these impacts could be achieved through actions that restore or enhance habitat values for fish and benthic invertebrates in the general vicinity of LGA, such as establishing shellfish beds, intertidal wetlands, artificial reefs, or removing artificial substrates or debris. Restoring unvegetated aquatic habitat would be less likely to serve as an attractant for wildlife near the Airport and may be considered acceptable by the FAA, NYSDEC and USACE. Fish and invertebrate enhancements in deep water under the RSA deck extensions or in association with the runway light arrays may eliminate the value of such enhancements for waterfowl.

Off-Site

There are a number of aquatic habitat enhancement projects proposed or underway in the Upper East River, and mitigation for the Proposed Action could complement these existing programs. The magnitude of mitigation credit achievable at these sites has not been determined. As the species of fish and invertebrates in the vicinity of the Airport are widespread in the Upper East River, actions that enhance aquatic habitats throughout the area would benefit species impacted by the Proposed Action. Site investigation and planning would be needed to confirm the feasibility and value of these sites for mitigation. The following projects near LGA have been identified:

- ***South Bronx Greenway***: A possibility for improving subtidal habitat would be to assist the New York City Economic Development Corporation with the implementation of the South Bronx Greenway. The South Bronx Greenway is being developed along the north shore of the Upper East River. The project involves a shoreline esplanade with nodes at selected locations for the public to interact with the water. At Farragut Street along the Greenway, a waterfront park included a fishing pier and underwater structures for fish and invertebrate habitat. Similar enhancements may be suitable at undeveloped sites along the Greenway.

- ***Oyster Restoration Research Partnership:*** Oyster restoration has been undertaken at numerous sites in the Hudson-Raritan Estuary by the New York/ New Jersey Baykeeper, the Hudson River Foundation, New York City Department of Parks and Recreation (NYCDPR), the USACE, and others. A site near Soundview Park at the mouth of the Bronx River was developed and has been studied for several years by NYCDPR. This site has potential for expansion in order to increase the viability of this site. Other sites in the Upper East River or its tributaries would likely have the potential for oyster restoration.

The Comprehensive Restoration Plan (CRP) for the Hudson-Raritan Estuary[5] identified sites where habitat enhancement or restoration potential exists. Planning for these restoration projects is underway at a very conceptual level. The USACE is in the process of developing conceptual designs for these sites. Most of these sites do not have detailed plans and little to no site-specific data have been collected. Restoration planning and site characterization information has not been released to the public but the USACE anticipates making the information available to the Port Authority by the summer of 2013. Additional site specific information would be required to determine the feasibility of restoring habitats on these sites to serve as mitigation.

Sites in the Upper East River identified in the CRP include many that have potential for enhancement of shorelines and shallows, habitat for fish and invertebrates, as well as other ecosystem benefits. In addition, there are several sites in the Bronx River involving existing dams where fish passage has been identified as a desirable restoration goal. The following sites were identified near the Upper East River during the CRP planning phase, and are shown in Figure 6-1:

- ***Flushing Creek:*** Habitat restoration (through dredging) is currently planned as mitigation for the New York City Department of Environmental Protection's Combined Sewer Outfall Abatement project in Flushing Bay. As this is authorized as a mitigation project, it would not directly be considered mitigation for the LaGuardia Airport Runway Safety Area Enhancements project, but the dredging could potentially be expanded as mitigation for the RSA project through Port Authority funding.

- ***Bronx Kill Shoreline- Randall's Island:*** This site is located along the eastern portion of the Bronx Kill. There is a stretch of undeveloped shoreline on the northern bank of the Bronx Kill that may offer an opportunity for intertidal habitat restoration. The site appears to contain large scale debris on the undeveloped lands and in the water.

- ***Hallet's Cove:*** This site is along the East River east of Roosevelt Island and adjacent to Goodwill Park and Vernon Boulevard in Queens. The site may offer opportunities to enhance shoreline and subtidal habitats, and improve local water quality by improving tidal flushing and/or shellfish restoration.

- ***South Brother Island:*** There may be opportunities for intertidal and subtidal habitat restoration along the shoreline of South Brother Island in the Upper East River.

5 United States Army Corps of Engineers. 2009. *Hudson-Raritan Estuary Comprehensive Restoration Plan.* Draft March 2009.

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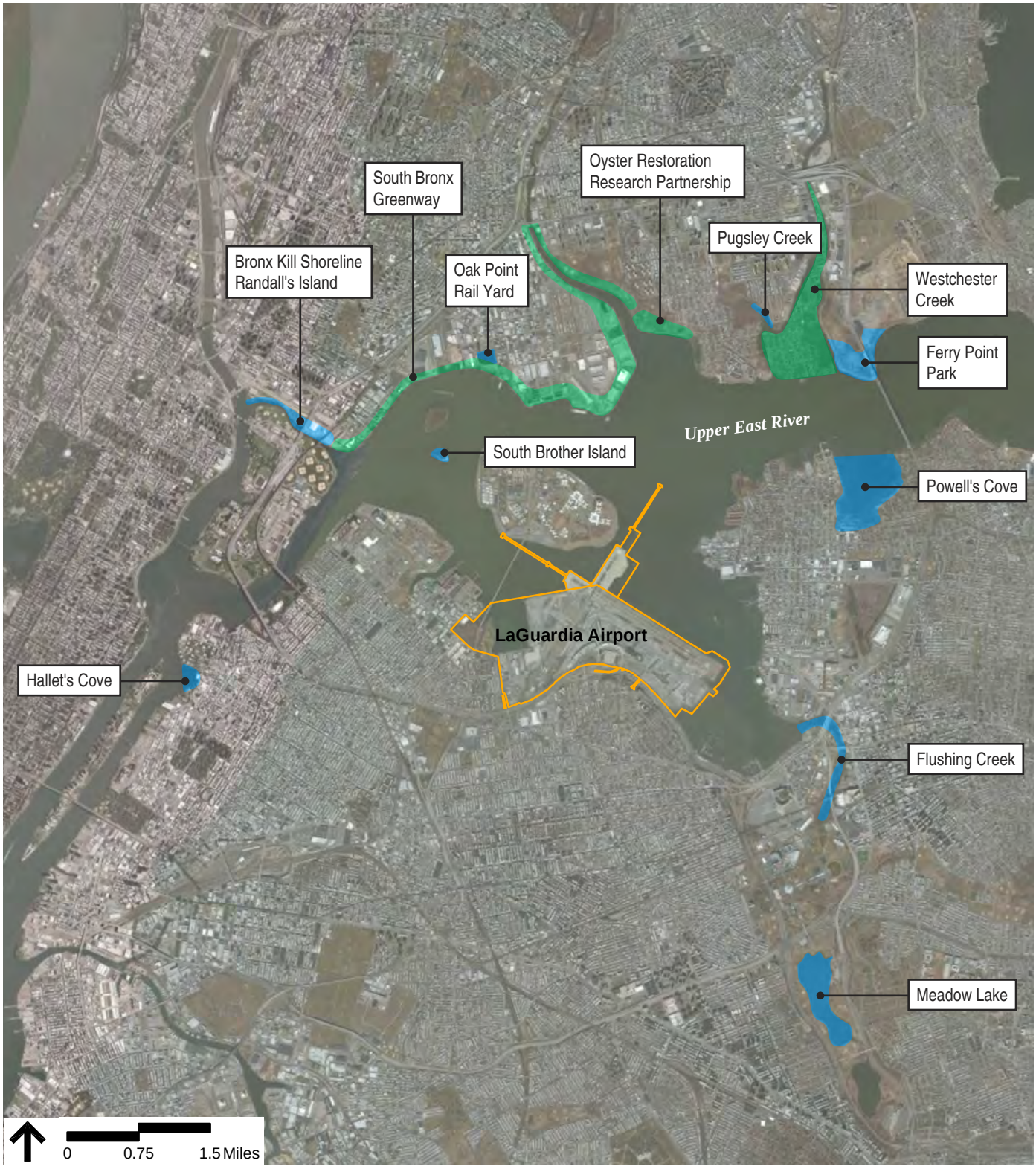

Source: ArcGIS Bing Aerial service

Legend

- LaGuardia Airport
- Sites identified for the Comprehensive Restoration Plan for the Hudson Raritan Estuary
- Other Potential Mitigation Sites

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LaGuardia Airport
Runway Safety Area Enhancements
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Figure 6-1

Potential Off-Site Aquatic Habitat Mitigation Sites

- ***Oak Point Rail Yard:*** This is a stretch of Upper East River shoreline on the southern end of the Oak Point Rail Yard where intertidal and subtidal habitat restoration opportunities may exist. Based on examination, there appears to be remains of derelict rail infrastructure in the waters along the shoreline. As these structures may provide shelter habitat for fish, additional evaluation of their functions and values would need to be conducted.

- ***Pugsley Creek:*** Pugsley Creek is a small tributary to the Hutchinson and Upper East rivers in the Bronx. The banks of the creek are lined with parklands (Pugsley Creek and Castle Hill parks) and restoration opportunities may exist to improve intertidal, subtidal habitats and improve water quality.

- ***Ferry Point Park:*** Located at the Bronx side of the Whitestone Bridge, the park has about 1.7 miles of undeveloped shoreline along the Upper East River and the Hutchinson River that may offer intertidal and subtidal habitat restoration opportunities.

- ***Meadow Lake:*** This site is located within Flushing Meadows Corona Park in Queens and is roughly bounded by the Long Island Expressway to the north, the Van Wyck Expressway to the east, the Grand Central Parkway to the west, and Jewel Avenue to the south. Meadow Lake is a man-made freshwater feature and may not have suitable mitigation opportunities for impacts to tidal surface waters at LGA.

- ***Powell's Cove:*** This New York City Park is located in the College Point section of Queens. As noted in the CRP, the park contains subtidal habitat that could potentially prove to be suitable for several types of mitigation. Based on aerial photographs, there is a derelict pier structure within Powell's Cove.[6] If it is feasible, removal of this pier could provide mitigation for a portion of the shading impacts.

- ***Westchester Creek*:** This Young Men's Christian Association property, near Zarega Avenue, is a priority project for NYSDEC. The Port Authority is meeting with NYSDEC and Parks to explore a collaborative mitigation project. However, this project may not provide enough acreage to fulfill the LGA RSA mitigation requirements.

6 Google Maps: as downloaded on April 2, 2013 at: https://maps.google.com/maps?t=h&daddr=40.78931963160,+-73.83452879560+(Center+of+Powell's+Cove+Park)

The CRP identifies many other sites along the Hutchinson River, Bronx River and throughout the Harlem River, East River and Western Long Island Sound Planning Region of the study. If sites in close proximity to LGA are not suitable, the search for mitigation opportunities should next explore these sites.

6.2.4.3 Proposed Compensatory Mitigation

Of the sites noted above, the Port Authority has identified four sites based on the type and size of mitigation opportunities and their distance from LGA that should be further evaluated to determine if they could provide compensatory mitigation for the impacts of the two proposed deck extensions on the aquatic environment:

- Powell's Cove
- Oak Point Rail Yard
- Randall's Island
- Westchester Creek

During the final design and permitting phase of the Proposed Action, the Port Authority would work with the NYSDEC and USACE and other stakeholders to develop conceptual designs for these mitigation sites, identify the amount of mitigation required to compensate for the lost area and functions, and develop permit-level plans for the final selected site(s).

6.3 Construction-Period Mitigation Measures

This section describes the construction-period mitigation measures and best management practices that the Port Authority would incorporate into the Proposed Action to mitigate for short-term impacts associated with construction equipment and operations.

6.3.1 Air Quality

Project construction is expected to generate short-term construction-related air emissions, including mobile source emissions from construction vehicles and equipment and fugitive dust emissions from earthmoving activities, as described in Chapter 5, *Environmental Consequences*. The project would not exceed *de minimis* thresholds under the Clean Air Act's General Conformity provisions.

Construction-related air emissions cannot be avoided but can be minimized to reduce the temporary adverse effects on air quality. Emission reduction is addressed by incorporating the provisions of FAA Advisory Circular 150/5370 – 10F, *Standards for Specifying Construction of Airports* and the Port Authority *LaGuardia Airport Runway Safety Area Improvements – Design and Construction for Extending*

Runway Decks, Contract LGA-124.185 (dated April 2013). These measures include (but are not limited to):

- Using ultra-low sulfur diesel fuel in all diesel-powered construction equipment.
- Where practicable, using diesel engine retrofit technology in off-road equipment (greater than 50 horsepower) to further reduce emissions. Such technology may include diesel oxidation catalyst/diesel particulate filters, engine upgrades, engine replacements, or combinations of these strategies.
- Limiting unnecessary idling times on diesel powered engines to three minutes.
- Using electrically powered equipment as opposed to diesel power equipment, where electrical power is available throughout the construction site.
- Controlling construction dust by implementing a soil erosion sediment control plan that includes:
  - Suppressing dust by spraying water on dirt piles and streets/roads and
  - Reducing dust-generating activities in periods of high winds.

6.3.2 Noise

Contract specification documents prepared by the Port Authority require the contractor chosen for construction to prepare a noise mitigation plan, which would include noise mitigation strategies, methods, and procedures to ensure construction-related noise would not exceed unreasonable noise levels, in order to protect neighboring communities. This plan may include, but is not limited to, the following mitigation measures:

- Maintaining mufflers on construction equipment;
- Limiting truck idling to a minimum to three minutes;
- Fitting any air-powered equipment with pneumatic exhaust silencers;
- Only allowing construction at the Ingraham's Mountain site during daytime weekday hours;
- Using sound-reducing blocks (layered plastic and aluminum) between the pile and hammer when driving piles using an impact hammer;
- Using acoustical shroud constructed of continuous 2 pounds/square-foot sound absorbing material hung from leads blocking the point of contact to the height of the pile driver;
- Using electrical-powered equipment instead of more noisy diesel or gas-powered equipment;
- Using hoppers, storage bins and dump trucks with noise reducing bed liners;

- Using broadband or strobe backup warning devices, or backup observers in lieu of pure tone backup warning devices for mobile equipment;
- Using physical barriers (shields, temporary noise barriers or curtains/acoustical blankets);
- Using solar-powered arrow boards and variable message signs for traffic control;
- Not using truck tailgates to remove materials from the truck bed; and
- Ensuring on-site construction equipment is the correct size and power for the activity.

6.3.3 Threatened and Endangered Species

In a letter dated February 25, 2013 the National Marine Fisheries Service (NMFS) indicated that ESA-listed sea turtles and atlantic sturgeon may occur in Flushing Bay, and that any proposed in-water work has the potential to affect these species. The FAA subsequently entered into an informal Section 7 consultation with NMFS concerning potential temporary construction-period effects to listed species. To mitigate for temporary effects, the Port Authority would implement noise mitigation measures to reduce underwater sound levels from pile-driving and mitigate for potential impacts of noise and vibration on fish. On August 15, 2013, NMFS concurred with these mitigation measures (Appendix A, *Agency Coordination*), which include:

- Using cushioning material, consisting of alternating layers of aluminum and micarta (a plastic) to drive piles with an impact hammer. Use of this type of cushioning block would result in a 7 to 8 decibel (dB) reduction in sound pressure levels.
- Doing a "soft start" in driving each pile. These "warning strikes" would be at 40 percent or less of the total energy of the impact hammer, for the first five minutes of impact hammer use. This procedure, which was approved for the Tappan Zee Bridge, alerts fish to the start of a noise-producing activity and is presumed to result in fish leaving the vicinity of the work area.

6.3.4 Water Quality

Potential impacts associated with constructing the RSA deck extensions include increased sediment within the water column during pile driving and the potential for accidental release of construction materials or construction by-products. The Proposed Action would be required to comply with applicable NYSDEC water quality standards and requirements including preparing a Stormwater Pollution Prevention Plan (SWPPP) and filing a Notice of Intent. In order to remain in compliance with the State Pollution Discharge Elimination System (SPDES) permit for LGA, the Port Authority

must take actions to minimize erosion and sedimentation during construction as described in the LGA Best Management Practices Plan[7] consisting of the following:

- RSA Deck Construction:
  - Preparing a spill prevention and erosion control plan, and
  - Using a silt curtain, if necessary and/or possible, to control sediment released during pile driving.[8]

- RVSR and Construction Staging Area Construction:
  - Preparing spill prevention and erosion control plans;
  - Stabilized construction entrance;
  - Slope drains;
  - Installing inlet filters at any drainage inlet structures;
  - Perimeter erosion and sedimentation controls consisting of staked hay bales, filter fence, or silt fence;
  - Dust control using water or suppressing agent;
  - Temporary seeding; and
  - Paved roads used by construction equipment to be broom cleaned at the end of the day.

6.4 Conclusion

The information presented in this chapter demonstrates that the Port Authority has proposed sufficient commitments and approaches to mitigate for long-term impacts to aquatic resources and short-term air quality, noise and water quality impacts resulting from the proposed project.

7 Port Authority of New York and New Jersey. 2009. *LaGuardia Airport Best Management Practices Plan, July 2009*.
8 Silt curtains, however, are not anticipated to be necessary, because the piles would sink under their own weight and that of the pile driving hammer through most of the organic silt layer, instead of being driven through this layer. In addition, with the swift currents that exist at the deck locations, it may not be practical to secure silt curtains in place.

7 List of Preparers

Introduction

The LaGuardia Airport Runway Safety Area Enhancements Environmental Assessment (EA) was prepared by the Port Authority of New York and New Jersey (Port Authority). Technical analyses and documents were prepared by a team of technical consultants. The entities involved, as well as the personnel and their individual areas of responsibility, are listed below. The years of experience for each individual are listed in parentheses.

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Appendices

- Appendix A – Agency Coordination
- Appendix B – Air Quality
- Appendix C – Shading Analysis
- Appendix D – Surface Transportation
- Appendix E – Noise
- Appendix F – Public Coordination
- Appendix G – Hydrodynamic Modeling Report
- Appendix H – Port Authority of New York and New Jersey Board of Commissioners Program Authorization, April 24, 2014
- Appendix I – Acronyms & Glossary of Terms
- Appendix J – Comments on the Draft EA and Responses to Comments

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A Agency Coordination

- Federal Aviation Administration (FAA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)
- New York State Department of Environmental Conservation (NYSDEC)
- New York State Department of State
- New York State Office of General Services
- New York State Office of Parks, Recreation & Historic Preservation
- New York City Department of City Planning

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Federal Aviation Administration (FAA)

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Airport Safety and
Standards

800 Independence Avenue, SW
Washington, DC 20591

Cost and Schedule reflect information known at time of letter.

MAY 29 2012

Mr. Kevin Bleach
Manager, Aviation Technical Services Division
The Port Authority of NY & NJ
225 Park Avenue South, 9th Floor
New York, NY 10003

**Subject: Runway Safety Area Compliance Initiatives
Future Plans for La Guardia Airport**

Dear Mr. Bleach:

Thank you for your April 30 letter outlining the Port Authority of New York and New Jersey's (PANYNJ) proposed project to improve the runway safety areas (RSA) at La Guardia Airport. As stated in your letter, the PANYNJ - with assistance from the Federal Aviation Administration (FAA) - has extensively reviewed alternatives to improve the RSAs to meet federal requirements.

Your letter summarizes the various studies that the PANYNJ conducted of RSA improvements between 2006 and 2011. After review of the alternatives examined during these studies, the PANYNJ has identified a proposal that would conform to the FAA's Revised RSA Determination dated September 22, 2005. Specifically, the PANYNJ proposes to build a runway deck extension at the 22 end and 13 end of the Runways 4-22 and 13-31, and to install 40 knot Engineered Materials Arresting System (EMAS) beds on each runway. As you know, the FAA's actions to approve amendment of the airport layout plan to depict and to fund this project are subject to the appropriate environmental review.

We are fully committed to working with you on these important projects and have identified a group of professionals at the New York Airports District Office (NYADO), the Eastern regional office, and Headquarters to work with you to complete the necessary review. The meeting that was held at the NY ADO on May 17th was a successful first step that enabled us to begin to identify issues, points of contact, review schedule, and explain the steps comprising the NEPA process. We also understand that you are already working with the NYADO and regional office on a passenger facility charge application.

The NYADO will be the lead FAA office and our regional and Headquarters offices will be heavily involved throughout the process. The NYADO will also keep FAA upper management apprised of the progress and will seek assistance to facilitate timely reviews.

We concur in your proposal to conduct the NEPA and permitting process concurrently to the degree that plans, designs and work are needed to support any applications for federal, state or local permits. Please note however, that until the FAA determines either that an

Environmental Impact Statement is not required, or that a permit application warrants more, plans and designs for the proposed action and its reasonable alternatives may only be completed to a level needed to properly analyze environmental consequences. Normally, this analysis requires no more than 25% design level. Additionally, as we stated during our meeting, should you proceed beyond this design level, such actions are taken at your own risk because they potentially raise issues of compliance with NEPA and jeopardize eligibility for funding. (See FAA Order 5050.4B paragraph 1004.)

While we need to examine in more detail your proposal to reorganize the roadways south of the approach end of Runway 4, we also need your assurance that this work does not impede your ability to meet the 2015 RSA improvement deadline. We also note your ongoing discussions with the city of New York regarding the potential need for the Uniform Land Use Review Procedure process. We appreciate the briefing and update provided by you during the May 17th meeting and we strongly advise that you continue your efforts to expedite coordination with the city to ensure timely completion of this process or to confirm that it is not required.

We look forward to working together on these very important RSA improvements. If you have any questions, please do not hesitate to contact me.

Sincerely,

John R. Dermody
Manager, Airport Engineering Division

U.S. Army Corps of Engineers (USACE)

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From: Brighton, Nancy J NAN02 [mailto:Nancy.J.Brighton@usace.army.mil]
> Sent: Monday, March 25, 2013 6:58 AM
> To: Weed, Carol
> Subject: RE: PANYNJ LGA Runway Safety Area Project_followup to 3/1/13 vim (UNCLASSIFIED)
>
> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Good Morning
>
> I've taken a look and we don't have any info for that area - we did some research in Flushing Bay but really in the enclosed part of the bay - not by the airport.
>
> If I encounter anything I will send it your way.
>
> Hope you are doing well
>
> Nancy
>
> -----Original Message-----
> From: Weed, Carol [mailto:CWeed@VHB.com]
> Sent: Friday, March 15, 2013 3:17 PM
> To: Brighton, Nancy J NAN02
> Subject: PANYNJ LGA Runway Safety Area Project_followup to 3/1/13 vm
>
> Nancy: I called earlier and am following up with this email. We are completing an EA for the Port Authority of New York & New Jersey LaGuardia Runway Safety Area Project. The Proposed Action entails limited work offshore of existing Runways 4 End and 31 End. The existing USGS (Central Park 7.5-minute) and the 2000 Nautical Chart (Tallman Island to Queensboro Bridge, New York. US Coast & Geodetic Survey. NOAA Office of Coast Survey Historical Maps & Chart Collection, File 12339_7_1941. July 2000) do not illustrate the presence of shipwrecks within the two impact areas. Marc Helman, however, suggested that I contact you to confirm that no previously reported underwater resources are present within or within the near vicinity of the two RSA locations.
>
>
> Hope this note finds you well. In advance, thank you for any information.
>
> Regards, Carol
>
> Carol S. Weed
> Senior Project Manager/Cultural and Natural Resources
>
> VHB Engineering, Surveying and Landscape Architecture, P.C.
> Planning | Transportation | Land Development | Environmental Services
>
> Two Penn Plaza, Suite 2602
> New York, NY 10121
> Phone: 212.695.5858 x7327 | Fax: 212.971.7239
> Direct: 212.857.7327 | Mobile: 646.276.2460 cweed@vhb.com
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>
> Classification: UNCLASSIFIED
> Caveats: NONE

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
ATTENTION OF:

Regulatory Branch

SUBJECT: Permit Application Number NAN-2013-00119-ERY
By The Port Authority of New York and New Jersey for
LaGuardia Airport Runway Safety Improvements

Port Authority of New York and New Jersey
Attn: Carol Lurie, VHB
Two Penn Plaza, Suite 2602
New York, NY 10121

Dear Ms. Lurie:

I am in receipt of your letter dated February 6, 2013, regarding the subject proposal by the Port Authority of New York and New Jersey to improve the Runway Safety Areas at LaGuardia Airport in Flushing, Queens County, New York. I plan to attend the meeting scheduled for February 14, 2013. In advance of that meeting, this letter is to bring to your attention some additional information that would be needed by the U.S. Army Corps of Engineers as part of the formal application for a Department of the Army permit.

Please provide the limits of all construction work seaward of the line of Mean High Water and Spring High Water. Is there any construction work in vegetated wetlands? If so, please provide the impacts and acreages. What is the intrusion of aircraft vertical and horizontal take-off and landing space cones upon navigation and Federal Navigation Channels?

Please note the 18-character Permit Application Number cited above and use that number with any correspondence regarding this application. If any questions should arise concerning this matter, please contact me at (917) 790-8720.

Sincerely,

Jodi M. McDonald
Chief, Regulatory Branch

Enclosures
CF: Dr. Marc Helman, PANYNJ

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February 6, 2013

Jodi McDonald
US Army Corps of Engineers NY District
26 Federal Plaza, Room 1937
New York, NY 10278-0090

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Ms. McDonald,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

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U.S. Environmental Protection Agency (USEPA)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP - 4 2013

Mr. Edward Knoesel
The Port Authority of New York and New Jersey
233 Park Avenue South, 9th Floor
New York, NY 10003

Dear Mr. Knoesel:

The Environmental Protection Agency (EPA) has reviewed the August 2013 Draft Environmental Assessment (EA) analyzing the potential effects associated with the proposed LaGuardia Airport Runway Safety Area Enhancements at LaGuardia Airport, Borough of Queens, New York. The proposed action includes extension of two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runways 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located airside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard.

EPA concurs that the project is unlikely to have a significant impact on the environment when coupled with the proposed environmental performance commitments and mitigation.

Thank you for the opportunity to comment on the Draft EA.

Sincerely,

Grace Musumeci

Grace Musumeci, Chief
Environmental Review Section
Sustainability and Multimedia Programs Branch

cc: Marie C. Jenet, FAA

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February 6, 2013

Dan Montella
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Montella,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

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VHB Engineering, Surveying
and Landscape Architecture, P.C.
Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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February 6, 2013

Grace Musumeci
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Ms. Musumeci,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

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Very truly yours,

Carol Lurie

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\docs\letters\20130206_AgencyCoord-Letters_VHB\20130206_AgencyCoord_EPA2_VHB.docx

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U.S. Fish and Wildlife Service (USFWS)

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
New York District Office

600 Old Country Rd Suite 446
Garden City NY 11530

March 28, 2013

US Fish and Wildlife Service
Long Island Ecological Services Field Office
340 Smith Road
Shirley NY 11967

RE: LaGuardia Airport (LGA)
Runway Safety Improvements Project
US Fish and Wildlife Service – Section 7 Consultation
Consultation Tracking Number: 05EIL00-20130SLI-0096

Dear Mr. Sinkevich,

The Federal Aviation Administration (FAA), the lead federal agency responsible for the LaGuardia Runway Safety Improvements Project NEPA process, has reviewed your letter of February 18, 2013 concerning potential effects to species protected under the Endangered Species Act. We have therefore prepared this Determination of Effects under Section 7 of the Endangered Species Act of 1973, and request your concurrence. As documented below, we have determined that the Proposed Action would have no effect on habitat potentially used by listed species, and would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitat.

Project Description

The Port Authority of New York and New Jersey is proposing to improve the Runway Safety Areas (RSAs) at the ends of Runway 4 and Runway 31 at LaGuardia Airport (LGA). The proposed improvements are part of an ongoing safety program and are required to improve the RSAs, to be consistent with the FAA's current airport design criteria[1] for RSAs. RSAs are designed to achieve the key safety goals of protecting an aircraft that runs beyond the runway end or lands short of the runway. The RSA improvements being considered are safety improvements only and do not extend runways or have any effect on normal runway operations, runway capacity, or types of aircraft that can use the runways. In November 2005, Congress mandated that all Part 139[2] airport sponsors enhance passenger safety by improving their airport's RSAs by the end of 2015 and that FAA report annually on its progress toward improving RSAs.[3]

1 United States Department of Transportation, Federal Aviation Administration, Advisory Circular (AC) 150/5300-13, Airport Design, Changes 1 through 15, December 31, 2009.

2 Part 139 airports are those that conduct commercial passenger flight operations and are required to meet rigorous FAA standards.

3 United States Department of Transportation, Office of Inspector General, *Actions Taken and Needed to Improve FAA's Runway Safety Program*, March 3, 2009, p. 1.

The proposed project is to construct RSAs that meet FAA's standards. The Proposed Action would extend the two existing runway decks at LGA each by approximately 182 feet each (the decks are 500 feet wide) with an EMAS (Engineered Material Arresting System) on a pile-supported deck to be built over water. Both decks are currently bisected by the approach light piers.

Each of the two pile-supported decks would be constructed above approximately 2.1 acres (4.2 acres total) of subtidal marine habitat in the Upper East River (Bowery Bay and Flushing Bay) and would replace approximately 180 feet of each existing lighting pier. Subtidal benthic habitat would be lost only where pilings are installed beneath the deck. Depending on pile type and configuration, the direct impact resulting from the installation of the piles would be expected to be approximately 700 square feet, with 112, 24-inch, driven steel piles for each deck. The construction of these decks is anticipated to result in negligible changes to currents and sedimentation. Similar to conditions around the existing lighting pier, a small amount of erosion of the harbor bottom may occur around the piles. Shading beneath and in the vicinity of the pile-supported deck could result in indirect impacts to the ability of fish to locate prey visually, and to benthic organisms, however, habitat for shellfish would continue to be available as filter feeders and detritivores would not likely be significantly affected.

A construction staging area would be constructed on a small portion of the employee parking lot and the nearby landform known as Ingraham's Mountain. This landform is a man-made hill vegetated with successional upland tree and shrub species.

Federal Species
The USFWS comment letter states that three listed species may be found in the vicinity of LGA. These include:

- Federally threatened Piping Plover (*Charadrius melodius*)
- Federally endangered Roseate Tern (*Sterna dougallii*)
- Federally threatened Seabeach Amaranth (*Amaranthus pumilus*)

Finding
The proposed runway safety improvement project area does not include any designated Critical Habitat for the three listed species.

Piping Plover: the project will result in no effect because no supporting habitat (sand beach and dune habitat) is present within the project area. The construction of the two deck extensions will occur in subtidal marine waters, and there are no sandy beach or dune landforms in the vicinity of the airport. The proposed construction staging area is a wooded upland, and does not provide habitat.

Roseate Tern: the project will result in no effect because no supporting habitat (sand beach and dune habitat) is present within the project area. The construction of the two deck extensions will occur in subtidal marine waters, and there are no sandy beach or dune landforms in the vicinity of the airport. The proposed construction staging area is a wooded upland, and does not provide habitat.

Seabeach Amaranth: the project will result in no effect because no supporting habitat (sand beach and dune habitat) is present within the project area. The construction of the two deck extensions will occur in subtidal marine waters, and there are no sandy beach or dune landforms in the vicinity of the airport. The proposed construction staging area is a wooded upland, and does not provide habitat.

For these reasons, we conclude that the proposed runway safety areas at Runway 4 and Runway 31 would not affect these listed species. We look forward to your concurrence with this Finding.

If you have any questions or require additional information, please contact Marie Jenet of my staff at (516) 227-3811 or at marie.jenet@faa.gov.

Sincerely,

for Steven M. Urlass, Manager
New York Airports District Office

Enclosures

- Project Area Map
- Proposed Action graphic

cc: C. Lurie, VHB
E. Knoesel, PANYNJ

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LaGuardia Airport Runway Safety Area Improvement Project

United States Fish and Wildlife Service Threatened and Endangered Species Consultation

Submitted by:

Henningson, Durham and Richardson Architecture and Engineering

One Blue Hill Plaza, 12th Floor

Pearl River, NY 10965

Species Conclusions Table

Project Name: LaGuardia Airport Runway Safety Area Improvement Project

Date: 3/12/2013

Species Name/Critical Habitat	Potential Habitat Present?	Species Present?	Critical Habitat Present?	ESA / Eagle Act Determination	Notes / Documentation Summary (include full rationale in your report)
Piping Plover *(Charadrius melodus)*	No		No	No effect	The project will result in no effect on piping plovers because supporting habitat such as sand beach and dune habitat is not present within the project area. The entire site is already heavily disturbed and the shorelines around the airport are riprap.
Roseate tern *(Sterna dougallii dougallii)*	No		No	No effect	The project will result in no effect on roseate terns because supporting habitat such as beaches and dunes of barrier islands is not present within the project area. The entire site is already heavily disturbed and the shorelines around the airport are riprap.
Seabeach amaranth *(Amaranthus pumilus)*	No		No	No effect	The project will result in no effect on seabeach amaranth because supporting habitat such as sandy beaches/dune shoreline is not present within the project area. The entire site is already heavily disturbed and the shorelines around the airport are riprap.
bald eagle (*Haliaeetus leucocephalus*)				unlikely to disturb nesting bald eagles	New York Natural Heritage Program consultation indicates that no bald or golden eagles are present within 660 ft of the project area. See attachment.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
LONG ISLAND ECOLOGICAL SERVICES FIELD OFFICE
340 SMITH ROAD
SHIRLEY, NY 11967
PHONE: (631)286-0485 FAX: (631)286-4003

Consultation Tracking Number: 05E1LI00-2013-SLI-0096 February 18, 2013
Project Name: LaGuardia Airport Runway Safety Area Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

USFWS Official Species List

United States Department of Interior
Fish and Wildlife Service

Project name: LaGuardia Airport Runway Safety Area Improvements

Official Species List

Provided by:

LONG ISLAND ECOLOGICAL SERVICES FIELD OFFICE
340 SMITH ROAD
SHIRLEY, NY 11967
(631) 286-0485

Consultation Tracking Number: 05E1LI00-2013-SLI-0096
Project Type: ** Other **
Project Description: Runway Safety Area (RSA) improvements will be taking place at the end of runways 22 and 13 extending into the Upper East River. The employee parking lot will be relocated to Ingrahams Mountain and a restricted vehicle service road (RVSR) will be constructed around the southern end of runway 22.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-73.8914686 40.779333, -73.8868509 40.7841423, -73.8701997 40.7871318, -73.8556085 40.7773831, -73.8453088 40.766203, -73.8580118 40.7611323, -73.8628183 40.766203, -73.872088 40.7720533, -73.8804994 40.7701032, -73.8849626 40.7680231, -73.8916574 40.7719233, -73.894567 40.7749133, -73.8914686 40.779333)))

Project Counties: Bronx, NY | Queens, NY

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

Roseate tern *(Sterna dougallii dougallii)*

Population: northeast U.S. nesting pop.

Listing Status: Endangered

Seabeach amaranth *(Amaranthus pumilus)*

Listing Status: Threatened

February 6, 2013

Steve Sinkevich
U.S. Fish and Wildlife Service
340 Smith Road
Shirley, NY 11967

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Sinkevich,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

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National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

AUG 15 2013

Steven M. Urlass, Manager
U.S. Department of Transportation
Federal Aviation Administration
New York District Office
600 Old County Road,
Suite 446
Garden City, New York 11530

Re: La Guardia Airport Runway Safety Improvement Project

Dear Mr. Urlass,

We have completed an Endangered Species Act (ESA) section 7 consultation in response to your letters dated March 28, 2013 and June 27, 2013, and additional information received through July 24, 2013. We concur with your determination that the proposed project may affect, but is not likely to adversely affect any species listed as threatened or endangered by us under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Project

The proposed project is located at Runway 4 and Runway 31 of La Guardia Airport, Flushing, New York. The applicant, the Port Authority of New York and New Jersey (PANYNJ), is requesting authorization to improve the Runway Safety Areas (RSAs) at the ends of Runway 4 and Runway 31 by extending the two existing decks at each Runway by approximately 182 feet with an Engineered Material Arresting System (EMAS). Each respective Runway's EMAS will be built upon a pile supported deck that will extend over/into the Upper East River/Bowery Bay (Runway 31) or Upper East River/Flushing Bay (Runway 4). Each of the decks will be supported by 120, 30-inch diameter steel pipe piles.

Installation of each of the 30-inch diameter steel pipe piles will involve a two-step process. First, the pile will be placed into position, and via its own weight, allowed to settle through the first 50 to 65 feet of silt sediment. Once the pile has settled, it will be driven to capacity with an impact hammer (i.e., approximately 10 more feet, at approximately 10 blows/inch); however, it should be noted that during the first 5 minutes of pile driving, the impact hammer will be operated at 40% or less of its total energy; that is, all pile driving operations will begin with a "soft" start. In addition, to assist in underwater noise attenuation during pile installation, a micarta cushion block will be placed atop all steel pipe piles to be driven.

All construction activities, including pile driving operations, will occur on weekends only, from 8:00 am to 7:00 pm. To maintain airfield operations during the RSA improvements, only one

Runway can be shutdown at a time. Therefore, work will occur, and be completed, at one Runway, prior to initiating work at the other Runway to be improved.

NMFS Listed Species in Project Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). For this project, the action area includes the project footprint as well as the underwater area where effects of pile driving (*e.g.*, increase in underwater noise levels, levels of suspended sediment) will be experienced. Analysis of pile driving activities (*i.e.*, the type and size of the piles to be driven) indicates that effects of increased under water noise are likely to be experienced from a zero to up to a maximum of 3,281 foot radius of the pile to be driven (depending on pile type and driving method) (Illingworth and Rodkin, Inc. and Jones and Stoke 2009). Based on this information, the action area is considered to be that area within the Upper East River, Bowery Bay, and Flushing Bay located within a zero, to up to, 3,281 foot radius of the piles being driven. This area is expected to encompass all of the effects of the proposed project.

The following ESA listed species under our jurisdiction may occur in the action area:

Sea Turtles
Four species of federally listed threatened or endangered sea turtles under our jurisdiction may be found seasonally in the coastal waters of New York: the threatened Northwest Atlantic Ocean DPS of loggerhead (*Caretta caretta*), and the endangered Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtles, although the latter species is found in deeper, more offshore waters and as such, is unlikely to occur in the action area (*i.e.*, depths up to 30 feet). In general, listed sea turtles are seasonally distributed in coastal U.S. Atlantic waters, migrating to and from habitats extending from Florida to New England, with overwintering concentrations in southern waters. As water temperatures rise in the spring (at least 15°C), these turtles begin to migrate northward; in New York waters, this generally coincides with the months of May through November, with the highest concentration of sea turtles present from June – October (Morreale 1999; Morreale 2003; Morreale and Standora 2005; Shoop and Kenney 1992). As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration.

Atlantic Sturgeon
There are five DPSs of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered, while the Gulf of Maine DPS is listed as threatened (77 FR 5880; 77 FR 5914; February 6, 2012). The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida.

Atlantic sturgeon spawn in their natal river, with spawning migrations generally occurring during February-March in southern systems, April-May in Mid-Atlantic systems, and May-July in Canadian systems (Murawski and Pacheco 1977; Smith, 1985; Bain 1997; Smith and Clugston 1997; Caron *et al.* 2002). Young remain in the river/estuary until approximately age 2 and at

lengths of 30-36 inches before emigrating to open ocean as subadults (Holland and Yelverton 1973; Dovel and Berggen 1983; Dadswell 2006; ASSRT 2007). After emigration from the natal river/estuary, subadults and adult Atlantic sturgeon travel within the marine environment, typically in waters between 16 to 164 feet in depth, using coastal bays, sounds, and ocean waters (Vladykov and Greeley 1963; Murawski and Pacheco 1977; Dovel and Berggren 1983; Smith 1985; Collins and Smith 1997; Welsh *et al.* 2002; Savoy and Pacileo 2003; Stein *et al.* 2004; Laney *et al.* 2007; Dunton *et al.* 2010; Erickson *et al.* 2011). Therefore, adult and subadult Atlantic sturgeon from any of five DPSs could occur in the action area; however, as Atlantic sturgeon spawn in freshwater portions of large rivers and early life stages are not tolerant of salinity, no eggs, larvae or juvenile Atlantic sturgeon are likely to occur in the action area.

Effects of the Action

Pile Driving

Noise Associated with Installation of Steel Pipe Piles

The proposed project will involve the installation of 30-inch diameter steel pipe piles via an impact hammer. As described above, a micarta cushion block (noise attenuation device) will be placed on top of the steel piles throughout the installation process. The cushion block will act as an "absorbent" of sound energy, and thus, assist in the attenuation of underwater noise produced during the driving of steel piles. Based on the best available information, micarta cushion blocks can reduce source level pressures by 7 to 8 dB(Illingworth and Rodkin, Inc. and Jones and Stoke 2009). As the exact attenuation level to be achieved is unknown, a worst case scenario of only a 7 dB reduction in source level pressures will be assumed.

Based on the available literature, the table below (Table 1) describes the estimated average attenuated underwater noise levels produced by the driving of steel pipe piles with a micarta cushion block. The estimated underwater noise levels (i.e., Peak, Root Mean Square (RMS), Single Strike Sound Exposure Level (sSEL), and Cumulative Sound Exposure Level (cSEL)) are taken from a distance of 33 feet from the pile being driven (i.e., Illingworth and Rodkin, Inc. and Jones and Stoke 2009).[1]

---

[1] **Peak sound pressure level**: the largest absolute value of the instantaneous sound pressure and is expressed as dB re: 1 μPa.

Root Mean Square (RMS) pressure: the square root of the average squared pressures over the duration of a pulse; most pile-driving impulses occur over a 50 to 100 millisecond (msec) period, with most of the energy contained in the first 30 to 50 msec (Illingworth and Rodkin, Inc. 2001, 2009). Therefore, RMS pressure levels are generally "produced" within seconds of pile driving operations and represent the effective pressure and its resultant intensity (in dB re: 1 μPa;) produced by a sound source.

Single strike Sound Exposure Level (sSEL): the amount of energy in one strike of a pile lasting for one second and is expressed as dB re: $1 \mu Pa^2 \cdot sec$.

Cumulative SEL (cSEL): the energy accumulated over a period of time; the cSEL value is not a measure of the instantaneous or maximum noise level, but is a measure of the accumulated energy over a period of time to which an animal is exposed during any kind of signal. The rapidity with which the cSEL accumulates depends on the level of the single strike SEL, the number of piles being installed, and the total number of pile strikes it takes to install the pile. The actual level of accumulated energy (cSEL) is the logarithmic sum of the total number of single strike SELs; cSEL (dB) = Single-strike SEL + 10 Log (N); where N is the number of pile strikes (Bastasch *et al.* 2008; Stadler and Woodbury 2009). According to information provided to us from the PANYNJ (memo dated June 27, 2013), piles will be driven through 10 feet of benthic sediment, at an average rate of 10 blows per inch. Based on this information, for the proposed action, approximately 1200 strikes are needed to install one 30" diameter steel pipe pile. Please note, the calculated cSEL level in Table 1 is the cSEL level that is experienced at 33 feet from the pile.

Table 1. Estimated average attenuated* underwater noise levels produced by the driving of 30-inch diameter steel pipe piles (*Attenuation achieved via a micarta cushion block).

Type Pile	Hammer Type	Estimated Peak Noise Level (dB_{Peak})	Estimated RMS Pressure Level (dB_{RMS})	Estimated Single Strike Sound Exposure Level (sSEL)[2]	Estimated Cumulative Sound Exposure Level (cSEL)[3]
Steel Pipe	Impact	198	183	173	204

Practical Spreading Loss Model: Estimating Underwater Noise Attenuation

Throughout the following analysis, the Practical Spreading Loss Model will be used to estimate the distance at which thresholds to injury or behavioral modification to Atlantic sturgeon or sea turtles will be experienced. This Model's formula is based on geometric spreading and considers the distance between the source and received underwater noise levels and the change in underwater noise levels at these distances (i.e., resultant transmission loss) to estimate the distance at which underwater noise levels attenuate to a specific threshold of interest (Bastasch *et al.* 2008). This model also considers sound propagation to be uniform and therefore, does not consider important physical factors or features of the aquatic and surrounding environment, such as temperature, bottom topography, or geography of the affected area (e.g., presence of landmasses within the affected water body), that are known to greatly affect the propagation/ attenuation of sound in water (Bastasch *et al.* 2008; e.g., 78 FR 29705). As a result, the practical spreading loss model overestimates the distance at which underwater noise levels of interest are reached. This is important to note as the portion of the action area where pile driving will occur is situated in a narrow channel of the East River (Rikers Island Channel), with an island (i.e., Rikers Island) situated (within the East River) northeast of Runway 31 and northwest of Runway 4 right to the north, and the shorelines of New York situated around the entire project area. The presence of Riker's Island, alone, impedes the uniform propagation of sound in the project area and serves as source of sound attenuation as the sound pressure waves hit the land mass. As a result, the estimated distances to thresholds believed to result in injury or behavioral modification to sea turtles or Atlantic sturgeon are conservative and in reality, are likely to be much less than what has been estimated in this letter. However, as we do not have access to a program that will model the proposed action's acoustic footprint, considering physical factors such as those described above (e.g., temperature, salinity, geographical features), the best available model that can be run is the Practical Spreading Loss Model, and thus the estimated distances provided below for each listed species represent the worst case scenario for underwater noise propagation/attenuation.

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[2] sSEl levels were not provided in Illingworth and Rodkin, Inc. and Jones and Stoke (2009) for the installation 30-inch diameter steel piles; however, sSEL values were estimated using the equation : sSEL=peak pressure-25 (developed by J. Stadler and D. Woodbury for NMFS pile driving calculations; see http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm).

[3] See Footnote 1

Physiological and Behavioral Effects to Sea Turtles

The hearing capabilities of sea turtles are poorly known and there is little available information on the effects of noise on sea turtles. Some studies have demonstrated that sea turtles have fairly limited capacity to detect sound, although all results are based on a limited number of individuals and must be interpreted cautiously. Most recently, McCauley *et al.* (2000) noted that decibel levels of 166 dB re $1\mu Pa_{RMS}$ were required before any behavioral reaction (*e.g.*, increased swimming speed) was observed, and decibel levels above 175 dB re $1\mu Pa_{RMS}$ elicited avoidance behavior of sea turtles. The study done by McCauley *et al.* (2000), as well as other studies done to date, used impulsive sources of noise (*e.g.*, air gun arrays) to ascertain the underwater noise levels that produce behavioral modifications in sea turtles. As no studies have been done to assess the effects of impulsive and continuous noise sources on sea turtles, McCauley *et al.*(2000) serves as the best available information on the levels of underwater noise that may produce a startle, avoidance, and/or other behavioral or physiological response in sea turtles. Based on this and the best available information, NMFS believes any sea turtles exposed to underwater noise greater than 166 dB re $1\mu Pa_{RMS}$ may experience behavioral disturbance/modification (*e.g.*, movements away from ensonified area).

While there is some data suggesting noise levels from exposure to underwater explosives might result in injury to sea turtles, no such information is available for pile driving; however, studies on the effects of explosions on sea turtles recommend that an empirically based safety range developed by Young (1991) and Keevin and Hempen (1997) be used for guidance in estimating possible injury thresholds for sea turtles. Using the safety range formulas developed by Young (1991), and Keevin and Hempen (1997), and converting back to sound pressure levels using the "Ross Formula (Ross 1987)," SVT Engineering Consultants (2010) calculated a value of 222 dB re $1\mu Pa_{Peak}$ as a conservative estimate of the underwater noise levels that may cause injury to sea turtles during pile driving operations. The study by SVT Engineering Consultants (2010); however, did not provide an estimated RMS value of underwater noise levels that may result in injury to sea turtles. As the sea turtle behavioral thresholds noted above are measured using the RMS of the sound source, to be consistent, we estimated the RMS value from the estimated PEAK level of underwater noise associated with possible sea turtle injury (*i.e.*, 222 dB re $1\mu Pa_{Peak}$). The RMS of a sound source is approximately 15 dB lower than the PEAK level of underwater noise for that sound source (developed by J. Stadler and D. Woodbury for NMFS pile driving calculations; see http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm). Based on this information, we have estimated an RMS value for injury of 207 dB re $1\mu Pa_{RMS}$. This value, like the PEAK value estimated by SVT Engineering Consultants (2010), is a conservative estimate of the level of underwater noise, resulting from pile driving, that may cause injury to sea turtles. Based on this, and the best available information, NMFS believes that underwater noise levels at or above 207 dB re $1\mu Pa_{RMS}$ has the potential to injure sea turtles.

In summary, based on the best available information, we believe underwater noise at, or above, the following levels have the potential to cause injury or behavioral modification to sea turtles:

Organism	**Injury**	**Behavioral Modification**
Sea Turtle	207dB re $1\mu Pa_{RMS}$	166 dB re $1\mu Pa_{RMS}$

Physiological Effects to Sea Turtles

Based on the information presented in Table 1, RMS pressure levels produced by the driving of steel pipe piles, via an impact hammer, will produce underwater noise levels below 207 dB re $1\mu Pa_{RMS}$ (see Table 1). Therefore, at any distance from the pile being driven, underwater noise levels will be below levels thought to cause injury to sea turtles.[4] Based on this and the best available information, the installation of 30-inch diameter steel pipe piles is extremely unlikely to cause injury to sea turtles, and thus, we have concluded that injury to sea turtles resulting from the noise effects of pile driving is discountable.

Behavioral Effects to Sea Turtles

Based on the information presented in Table 1, underwater noise levels thought to cause sea turtle behavioral modification (*i.e.*, greater than 166 dB re $1\mu Pa_{RMS}$, but less 207 dB re $1\mu Pa_{RMS}$) will be experienced within approximately 446 feet of the pile being driven.[5] As there are no barriers preventing species of sea turtles from accessing the project area, should a sea turtle migrate into the area the East River, Bowery Bay, and/or Flushing Bay where the 166 dB re 1 μPa_{RMS} isopleth extends (*i.e.*, approximately 446 feet from the steel pile being driven), it is reasonable to assume that a sea turtle, upon detecting underwater noise levels of 166 dB re 1 μPa_{RMS}, will modify its behavior such that it redirects its course of movement away from the ensonfied area and therefore, away from the project site. If any movements away from the ensonified area do occur, it is extremely unlikely that these movements will amount to substantial changes to essential sea turtle behaviors (*e.g.*, reproduction, foraging, resting, and migration) as the extent of underwater noise will not present a barrier to sea turtle movements (*i.e.*, width of the East River at Runway 4 is approximately 7,920 feet, while the width of the East River at Runway 31 is approximately 10,560 feet; the distance to the 166 dB re $1\mu Pa_{RMS}$ isopleth is 446 feet from the pile being installed). Therefore, underwater noise produced from pile installation will not preclude the continuation of normal behaviors (*e.g.*, feeding, resting, reproduction/nesting, and migrating) in other portions of the East River that may be contain more suitable habitat to meet the needs of these behaviors. Additionally, as the action area is not a known resting, nesting, or foraging ground (i.e., project area devoid of benthic forage (no submerged aquatic vegetation (SAV), crabs, mollusks)), sea turtles will not be prevented from accessing essential areas necessary to complete these essential life functions. Based on this information, and the fact that pile driving operations will be limited in time and duration (i.e., only weekends; 11 hrs per day), we conclude that pile driving noise effects on sea turtle behavior are insignificant.

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[4] Maximum underwater noise levels are experienced at the source (i.e., within 3 feet or less of the pile) of the pile. Overall source levels of no more than 198 dB re $1\mu Pa_{RMS}$ were estimated (Received Level= Source Level-15 Log R; NMFS 2012) for timber piles. Therefore, at any distance from the piles, underwater noise levels will be below 207 dB re 1 μPa_{RMS}, the threshold for sea turtle injury.

[5] Estimated distance to the 166dB re $1\mu Pa_{RMS}$ threshold was estimated via the equation: $R2=R1*10^{((RMS-Noise\ Threshold)/15)}$ (Bastasch *et al.* 2008; Stadler and Woodbury 2009); where R2= the distance (in meters) to the RMS behavioral threshold level (i.e., 166dB re $1\mu Pa_{RMS}$); R1=distance of the calculated (or recorded) RMS level (generally 10 meters); RMS=underwater noise level estimated (or recorded) at R1; and, for this instance, the Noise Threshold=166dB re $1\mu Pa_{RMS}$.

Physiological and Behavioral Effects to Atlantic Sturgeon

As a source of underwater noise, pile driving produces underwater sound pressure waves of varying intensity (*i.e.*, sound attenuates over distance so noise levels are greater closer to the source) that can cause behavioral and/or physiological effects to aquatic species, such as Atlantic sturgeon. The intensity of the underwater noise and the ability of the animal to detect the sound may result in behavioral modification of the animal (*e.g.*, temporary avoidance of an area; Richardson *et al.* 1995). The physical nature of the sound (i.e., pressure waves and particle motion) produced by pile driving; however, may result in physiological effects to an animal. Pressure waves, generated from particle motion, cause fields of compression and rarefaction to move through the water, as well as through any object that contains air or gas filled chambers (*e.g.*, swim bladders of fish), thereby causing injury to internal organs of the organism. The latter can result in a range of physiological effects on fish ranging from those that are not likely to affect the survival of the fish species (e.g., small ruptures of capillaries in fins) to those that result in mortality (*e.g.*, rupturing of the swimbladder) (Reyff 2003; Abbott and Bing-Sawyer 2002; Caltrans 2001; Longmuir and Lively 2001; Stotz and Colby 2001; Stephensen *et al.* 2010). These characteristics, as well as many other factors (*e.g.*, the type and size of pile; installation method; type and size of fish (smaller fish are more often impacted); fish hearing sensitivity; received distance), contribute to the likelihood of behavioral and physiological effects to an individual fish.

Criteria for Assessing Potential Physiological and Behavioral Effects

An interagency work group, including the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), has reviewed the best available scientific information and developed criteria for assessing the potential of pile driving activities to cause injury to fish (Fisheries Hydroacoustic Working Group (FHWG) 2008). The workgroup established dual sound criteria for injury, measured 33 feet away from the pile, of 206 dB re 1 μPa_{Peak} and 187 dB accumulated sound exposure level (dB_{cSEL}; re: $1\mu Pa^2 \cdot sec$) (183 dB accumulated SEL for fish less than 2 grams). While this work group is based on the U.S. West coast, species similar to Atlantic sturgeon were considered in developing this guidance (green sturgeon). As these species are biologically similar to the species being considered herein, it is reasonable to use the criteria developed by the FHWG to assess Atlantic sturgeon injury resulting from pile driving operations.

Additionally, for purposes of assessing behavioral effects of pile driving at several West Coast projects, NMFS has employed a 150 dB re 1 μPa_{RMS} sound pressure level criterion, including projects at the San Francisco-Oakland Bay Bridge and the Columbia River Crossings. As we are not aware of any studies that have considered the behavior of Atlantic or shortnose sturgeon in response to pile driving noise, given the available information from studies on other fish species (*i.e.*, Purser and Radford 2011; Wysocki *et al.* 2007), we consider 150 dB re 1 μPa_{RMS} to be a reasonable estimate of the noise level at which exposure may result in behavioral modifications. As such, for the purposes of this consultation, we will use 150 dB re 1 μPa_{RMS} as a conservative indicator of the noise level at which there is the potential for behavioral effects. That is not to say that exposure to noise levels of 150 dB re 1 μPa_{RMS} will always result in behavioral

modifications, but that there is the potential, upon exposure to noise at this level, to experience some behavioral response (*e.g.*, temporary startle to avoidance of an ensonified area).

In summary, based on the best available information, we believe underwater noise at, or above, the following levels have the potential to cause injury or behavioral modification to Atlantic sturgeon:

Organism	**Injury***	**Behavioral Modification**
Sturgeon	206 dB re 1 μPa_{Peak} and 187 dB_{cSEL}	150 dB re 1μPa_{RMS}

*Dual Criteria

Physiological Effects to Atlantic Sturgeon

Based on the information presented in Table 1, although, underwater noise levels will be below 206 dB re 1 μPa_{Peak} at 33 feet from the pile, peak pressure levels at or above this level may be experienced within this distance (i.e., from the source to 33 feet).[6] However, Atlantic sturgeon exposure to elevated peak pressure levels that may result in injury is not expected. Based on the information provided to us by PANYNJ, the benthic habitat in the portion of the action area where piles are to be installed is degraded and devoid of benthic invertebrates. These habitat characteristics are not preferred by Atlantic sturgeon and as such, Atlantic sturgeon are not expected to be found within the immediate vicinity of pile driving operations (i.e., within 0-33 feet of piles being driven). However, as there are no barriers preventing Atlantic sturgeon from accessing the project area, we cannot discount the possibility that a transient sturgeon may migrate through the portion of the action area where piles are to be installed. Even under this scenario, though, exposure to injurious levels of underwater noise is still not expected. As described above, all pile driving operations will be initiated with a "soft" start or a system of "warning" strikes that are designed to create enough noise to cause fish to leave the area prior to full energy pile driving; that is, for the first 5 minutes of pile driving, the impact hammer will be operated at 40 percent or less of its total energy, which will result in the production of underwater noise levels at or above 150 dB re 1μPa_{RMS} (within seconds of the initiation of pile driving operations; see footnote 1), but below 206 dB re 1μPapeak, within 33 feet of the pile being driven. As described above, sturgeon are believed to modify their behavior (i.e., avoid ensonified area) upon exposure to underwater noise levels of 150 dB re 1 μPa_{RMS} (see below for further assessment of behavioral effects). As a result, any transient sturgeon that may migrate within the immediate vicinity of the project area where piles are to be installed will detect the warning strikes and respond behaviorally (i.e., move away from the pile being installed) well before pile driving is undertaken at full energy (after 5 minutes of soft start) and thus, well before peak levels of underwater noise are attained that may result in injury to sturgeon. Based on this

[6] Maximum underwater noise levels are experienced at the source (i.e., within 3 feet or less of the pile) of the pile. Overall source levels of no more than 213 dB re1μPa_{Peak} were estimated (Received Level= Source Level-15 Log R; NMFS 2012) for any of the piles to be installed; using this information and the later equation, we estimated the distance to the 206 dB re1μPapeak threshold to be approximately 10 feet from the pile (i.e., 206 dBpeak=213 dBpeak-15log R; where R is the distance, in meters to the received level).

and the best available information, Atlantic sturgeon exposure to peak levels of 206 dB or greater is not expected.

Information presented in Table 1 also indicates that "cSELs" of 187dB$_{cSEL}$ are also likely to be reached in the action area. Based on the information provided in Table 1, cSELs" of 187dB$_{cSEL}$ will be experienced at a distance of approximately 442-feet from the 30-inch diameter steel pile to be driven.[7] Although cSEL will reach levels believed to cause injury to Atlantic sturgeon, Atlantic sturgeon exposure to these injurious levels of underwater noise is not expected. As described above, the cSEL is not an instantaneous maximum noise level, but is a measure of the accumulated energy over a specific period of time (e.g., the period of time it takes to install a specific structure, such as a pile). For the proposed action, it will take approximately 10 or more minutes (i.e., 1200 blows) to install each pile with an impact hammer. As such, it will take approximately 10 minutes or more to attain cSEL values of 187dB$_{cSEL}$, with this level being reached at a distance of 442 feet from the 30-inch steel pile being installed. For an Atlantic sturgeon to be exposed to this level of underwater noise, the sturgeon would have to remain, stationary, within 442 feet of the pile, for the duration of the piles installation, to experience this injurious level of underwater noise (i.e., 187 dB$_{cSEL}$). This however, is extremely unlikely to occur. As described above, sturgeon are believed to modify their behavior (i.e., avoid ensonified area) upon exposure to underwater noise levels of 150 dB re 1 μPa_{RMS}, which under the proposed action, will be attained at a distance of approximately 5,184 feet from the pile being driven and within seconds of the initiation of pile driving operations (see footnote 10 below; see below for further assessment of behavioral effects). Given this distance and timeframe in which sturgeon will be exposed to behaviorally disturbing levels of underwater noise, Atlantic sturgeon will have detected and modified their movements away from the action area well before (i.e., within seconds) underwater noise levels accumulated to injurious levels (i.e., within minutes), and thus, are not expected to be present in the action area after pile driving operations have been fully initiated and therefore, will not be present in the action area for a sufficient period of time (i.e., 10 minutes or more) to be exposed to injurious levels of underwater noise. Based on this and the best available information, we have concluded that injury to Atlantic sturgeon resulting from the noise effects of 30-inch steel pile installation via an impact hammer is discountable.

Behavioral Effects to Atlantic Sturgeon

Based on attenuation rates and the information presented in Table 1, underwater noise levels are expected to be below 150 dB re 1 μPa_{RMS} at a distance beyond approximately 5,184 feet from the 30-inch diameter steel pile being driven with an impact hammer.[8] As there are no barriers

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[7] Estimated distance to the 187dBcSEL threshold was estimated via the equation: $R2=R1*10^{((cSEL-Noise\ Threshold)/15)}$ (Bastasch *et al.* 2008; Stadler and Woodbury 2009); where R2= the distance (in meters) to the cSEL threshold level (i.e., 187 dB$_{cSEL}$), R1=distance of the calculated cSEL (generally 10 meters), cSEL= Single-strike SEL + 10 Log (N); where N is the number of strikes, and, for this instance, the Noise Threshold=187dB$_{cSEL}$. It is important to note, the 187dBcSEl will not be attained until the pile has been completely installed (i.e., after 1200 blows; approximately 10 or more minutes per pile).

[8] Estimated distance (attenuation) to the 150dB$_{RMS}$ behavioral threshold was estimated via the equation: $R2=R1*10^{((RMS - Behavioral\ Noise\ Threshold) / 15)}$ (Bastasch *et al.* 2008; Stadler and Woodbury 2009); where R2= the distance (in meters) to the RMS behavioral threshold level (i.e., 150 dB$_{RMS}$), R1=distance of the measured RMS level for the pile of interest (generally 10 meters); and, for this instance, the Behavioral Noise Threshold=150dB$_{RMS}$.

preventing Atlantic sturgeon from accessing the project area, should an Atlantic sturgeon migrate into the action area where the 150 dB re 1 μPa_{RMS} isopleth extends, as described above, it is reasonable to assume that a sturgeon, upon detecting underwater noise levels of 150 dB re 1 μPa_{RMS}, will modify its behavior such that it redirects its course of movement away from the ensonfied area and therefore, away from the project site. If any movements away from the ensonified area do occur, it is extremely unlikely that these movements will amount to substantial changes to essential Atlantic sturgeon behaviors (*e.g.*, spawning, foraging, resting, and migration) as the extent of underwater noise will not present a barrier to Atlantic sturgeon movements (*i.e.*, width of the East River at Runway 4 is approximately 7,920 feet, while the width of the East River at Runway 31 is approximately 10,560 feet; distance to the 150 dB re 1 μPa_{RMS} isopleth is 5,184 feet from the pile being installed). Therefore, underwater noise produced from pile installation will not preclude the continuation of normal behaviors (*e.g.*, feeding, spawning, overwintering and migrating) in other portions of the East River/Bowery Bay/Flushing Bay that may contain suitable habitat to meet the needs of these behaviors. Additionally, as the action area is not a known overwintering, spawning, or foraging ground (i.e., degraded habitat, devoid of benthic organisms), Atlantic sturgeon will not be prevented from accessing areas necessary to complete these essential life functions. Based on this and the best available information, we conclude that pile driving noise effects on Atlantic sturgeon behavior are insignificant.

Water Quality Effects of Pile Installation

The installation of piles will disturb shoreline sediments and may cause a temporary increase in suspended sediment in the nearshore area. If any sediment plume does occur, it is expected to be small, confined primarily to the immediate area of pile installation and is expected to settle out of the water column within a few hours. Turbidity levels associated with pile driving are expected to be only slightly elevated above background levels (average range of 10.0 to 120.0 mg/L) (ACOE 2007, Anchor Environmental 2003).

No information is available on the effects of total suspended solids (TSS) on juvenile and adult sea turtles. Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). TSS is most likely to affect sturgeon and sea turtles if a plume causes a barrier to normal behaviors or if sediment settles on the bottom affecting sea turtle or sturgeon prey. As sturgeon and sea turtles are highly mobile, they are likely to be able to avoid any sediment plume and any effect on sea turtle or sturgeon movements is likely to be insignificant. Additionally, the TSS levels expected for pile driving (10.0 to 120.0 mg/L) are below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993) and benthic communities (390.0 mg/L (EPA 1986)); therefore, effects to benthic resources that sturgeon or sea turtles may eat are unlikely. Additionally, while the increase in suspended sediments may cause Atlantic sturgeon or sea turtles to alter their normal movements, any change in behavior is likely to be insignificant as it will only involve movements to alter course out of the sediment plume and is not likely to affect the overall movement or migration ability of sturgeon and sea

turtles. Based on this information, the effect of suspended sediment resulting from pile driving activities on Atlantic sturgeon and sea turtles will be insignificant.

Habitat Modification

Once completed, the new EMAS decks will create areas of shading within the Upper East River. Although shading can impact dissolved oxygen levels, the area under consideration is relatively small (approximately 2.1 acres per deck). Due to the small area of river covered by the structures, shading would not be expected to impact dissolved oxygen levels in the general area. Additionally, as described above, the benthos within and around the project area is degraded and devoid of benthic invertebrates and SAV and thus, is sub-optimal for sea turtle and sturgeon foraging. As such, Atlantic sturgeon and sea turtles are not likely to use the action area as a foraging ground and therefore, the alteration of the habitat (e.g., shading) as a result of the construction of EMAS decks is not expected to remove critical amounts of prey resources from the action area for Atlantic sturgeon or sea turtles. Also, the EMAS decking structures will not cause any obstruction to migration for sea turtles or Atlantic sturgeon and thus, will not alter the habitat in any way that prevents sea turtles or Atlantic sturgeon from using the action area as a migratory pathway to other areas of the (Upper) East River, Bowery Bay, or Flushing Bay that may be more suitable for foraging and therefore, there would not be any disruption of essential behaviors such as migrating or foraging. Based on this information, the effects on Atlantic sturgeon and sea turtle migration and foraging from EMAS deck installation are expected to be insignificant and discountable.

Conclusions

Based on the analysis that any effects to ESA listed species of sea turtles and Atlantic sturgeon will be insignificant or discountable, we are able to concur with your determination that the proposed project is not likely to adversely affect any listed species under NMFS jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action.

No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Danielle Palmer at (978) 282-8468 or by e-mail (Danielle.Palmer@noaa.gov).

Sincerely,

for John K. Bullard
Regional Administrator

Ec: Rusanowsky, Boelke NMFS/HCD
Palmer, NMFS/PRD

File Code: Sec 7 FAA-La Guardia Airport Runways 4 and 31
PCTS: NER-2013-10009

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
New York District Office

600 Old Country Rd Suite 446
Garden City NY 11530

June 27, 2013

Mary A. Colligan
Assistant Regional Administrator for Protected Resources
U.S. Department of Commerce, NOAA
National Marine Fisheries Service, Northeast Region
55 Great Republic Drive
Gloucester MA 01930-2276

RE: LaGuardia Airport (LGA)
Runway Safety Improvements Project
National Marine Fisheries Service – Section 7 Consultation

Dear Ms. Colligan:

The Federal Aviation Administration (FAA), as the lead federal agency responsible for the LaGuardia Runway Safety Improvements Project, has continued informal consultation, pursuant to Section 7, with your office concerning potential effects to marine species protected under the Endangered Species Act. Following correspondence and discussions with Ms. Danielle Palmer, the Port Authority of New York and New Jersey has prepared the attached memorandum and proposed mitigation measures to avoid harm to Atlantic sturgeon.

Based on this analysis, we have determined that the proposed action may affect habitat potentially used by Atlantic sturgeon, but is not likely to adversely affect or jeopardize the continued existence of this species or adversely change its critical habitat. We are requesting your concurrence with this determination.

If you have any questions or require additional information, please contact Marie Jenet of my staff at at (516) 227-3811 or at marie.jenet@faa.gov.

Sincerely,

Steven M. Urlass, Manager
New York Airports District Office

Enclosures
- PANYNJ Memorandum

cc: C. Lurie, VHB
E. Knoesel, PANYNJ

THE PORT AUTHORITY OF NY & NJ
LaGuardia Airport
Runway Safety Area Enhancements
Environmental Assessment

Memorandum

To: File

Date: 27 June 2013

Project No.: 28878.00

From: Lisa A. Standley, Ph.D.

Re: Noise Impacts, Atlantic Sturgeon

History

On March 26, 2013 FAA submitted its finding to NOAA/ NMFS for concurrence, in an informal consultation pursuant to the Endangered Species Act that the proposed Runway Area Safety Enhancement Project (RASE) at La Guardia Airport (LGA) "could impact habitat of Atlantic sturgeon, but would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitats". NOAA responded (April 15, 2013) with concerns that the noise levels from pile-driving may result in an adverse effect to listed species, particularly Atlantic sturgeon, and requested more information on the pile-driving procedures. FAA and PANYNJ provided additional information on April 25, 2013. Danielle Palmer of NOAA used this information in a preliminary calculation of the cumulative noise impacts, and concluded (email of April 29, 2013) that noise levels from pile driving were likely to have an adverse effect on Atlantic sturgeon. In a phone call on June 3, 2013, she recommended that PANYNJ provide more information on whether the benthic habitats in Flushing and Bowery Bays in the vicinity of the project were likely to provide habitat for sturgeon, and that PANYNJ implement measures to reduce the noise from pile driving. This memorandum responds to NOAA's concerns.

Background on Pile Driving Impacts

NOAA measures noise levels from pile driving in three ways – peak sound pressure level (SPL), single-stroke sound exposure level (sSEL), and cumulative sound exposure level (cSEL)[1]. For the purposes of consultations under the Endangered Species Act (ESA), NOAA has determined that physical injury to fish would be expected if the peak SPL exceeds 206 dB, and/ or the cSEL exceeds 187 dB. In an email dated June 4, 2013 Danielle Palmer stated that NOAA fisheries recognizes that an sSEL below 150 would not contribute to the overall cSEL because it has virtually no effect on fish and would never accumulate to levels reaching 187 dB cSEL.

The primary reference provided by NOAA states that several studies showed no physiological effect on fish at SPL levels of 209 dB or cumulative SEL levels of 191 dB[2]. However, NOAA acknowledges that the actual sound levels that result in injury to fish are not well documented and that these numbers are not fully science-based. NOAA believes that the cumulative SEL, measured over the entire time that piles would be driven continuously, is currently the best available metric. The cSEL is extremely difficult to calculate, since it requires an estimate of the duration of pile-

1 Stadler, J.H. and D.P Woodbury. Assessing the effects to fishes from pile driving: application of new hydroacoustic criteria. Inter-noise 2009.
2 IFC Jones and Stokes and Illingworth and Rodkin, Inc. 2009. Technical Guidance for Assessment and mitigation of the hydroacoustic effects of pile driving on fish. California Department of Transportation.

driving in any interval separated by a 12-hour break, and the number of strikes required per pile. NOAA acknowledges that this is very difficult, and that our ability to predict site-specific sound levels is currently not reliable. Because of the degree of uncertainty, NOAA recognizes that this is an interim approach.

LGA Runway Safety Area Enhancement Project Analysis
FAA's findings (see letter of March 26, 2013) of were based on the assumption that the deck construction would use 24-inch steel piles. Subsequently, the PANYNJ has confirmed that 30-inch steel piles would be used. NOAA attempted to calculate the cSEL for 24-inch pilings, based on insufficient data and assumptions on the number of piles and number of strikes per piling. For 30-inch pilings, the literature[3] indicates that the SPL would be 208 dB, and the single-strike SEL would be 180 dB.

PANYNJ believes that it would not be productive to attempt to calculate the cSEL for the construction of the decks, since we have no acceptable level of prediction on the duration or number of strikes per piling. A more acceptable method would be to propose mitigation measures that would reduce the SPL to 206 dB or lower.

Atlantic and Short-Nosed Sturgeon Habitat at LGA
Atlantic sturgeon are reported to forage in shallow nearshore waters with sand or gravel substrates, and feed on a variety of benthic macro-organisms (finfish, mollusks, bivalves, gastropods, shrimp, polychaetes). Although they have been reported from Long Island Sound and the Hudson River, the East River (including Flushing Bay and Bowery Bay) is not critical habitat, does not provide breeding habitat, and is not the direct estuary of any river where these species have been reported to breed. The project area (Upper East River) is also highly degraded due to discharges from Combined Sewer Overflows (CSOs), marine industry, and other historic discharges. According to the NYSCED's final 2012 CWA Section 303(d) list, the Upper East River is impaired due to PCBs, and Flushing Bay is impaired due to organic enrichment/ oxygen depletion. Bowery Bay is not specifically listed as impaired but is part of the larger East River which is under TMDLs for copper, mercury, nickel and lead.

PANYNJ has recently completed a study of the project area to evaluate winter flounder (essential fish habitat) values. To date, the study suggests that there is no evidence that the area is used for overwintering or spawning by Winter Flounder, i.e. no larvae. There is little to no evidence of shellfish in the area – mostly soft bottom sediments with a low density of polychaetes and oligochaetes present. An area identified in the literature as an "oyster reef" showed only decomposing shell hash. Larvae found at the site were mostly from Essential Fish Habitat (EFH) prey species (not EFH-managed species) that are found throughout the region. As the area has relatively strong currents, it is not unexpected that larvae from a range of species are found moving through the area. The study found no evidence of the use of the region by either Atlantic or shortnose sturgeon, and indicates that there is not suitable preferred habitat for foraging, as the silty substrate is not optimal, there are no mollusk beds, and no concentrations of other prey species.

Description of Pile Driving
Proposed pile driving at LGA would consist of two steps. Piles are anticipated to drop through the upper 50 to 65 feet of soft silt under their own weight, although a vibratory hammer would be used if needed. A diesel impact hammer would be used to drive the piles through the 10 feet of dense sand, silt and clay until reaching hard bedrock, at an average rate of 10 blows per inch. As described in the FAA's correspondence with NOAA, plastic (micarta)/ metal blocks would be used to cushion the impact hammer. These would result in a 7- to 8-dB reduction. Pile driving in water would only occur two days per week (Saturday and Sunday) in order to maintain airfield operations.

3 IFC Jones & Stokes and Illingworth and Rodkin, Inc. 2009.

Mitigation Measures

NOAA has suggested three means of reducing sound levels to avoid injury to any Atlantic or short-nosed sturgeon potentially within the vicinity of the proposed deck extensions, although the likelihood of sturgeon being within these areas is minimal. Sound levels could be reduced by a combination of sound-dampening measures (cushion blocks, drapes, bubble curtains), or fish could be excluded from the area within 10 meters (30 feet) of a piling by silt curtain or bubble curtain, or by a "soft start" to impact hammer use that would cause animals to leave the impact area. PANYNJ notes that the proposed pilings would result in considerably lower noise levels than the Tappan Zee Bridge construction, recently approved by NOAA. NOAA recently issued a biological opinion for the Tappan Zee Bridge construction, a project which would install 48-inch steel pilings in the Hudson River - in habitat used by Atlantic sturgeon during movement between foraging and breeding areas. In its biological opinion for the Tappan Zee Bridge, NMFS suggested only one potential type of cost-effective mitigation ("soft start") during construction. The NMFS Biological Opinion on the TZ can be downloaded here: http://www.nero.noaa.gov/protected/section7/bo/actbiops/tappan_zee_bridge_replacement_2013_reinitiation.pdf

In the Tappan Zee Biological Opinion, NOAA stated that "it is reasonable to assume that sturgeon, on hearing the pile driving sound, would either not approach the source or move around it. Sturgeon in the area when pile driving begins are expected to leave the area. This will be facilitated by the use of a "soft start" or system of "warning strikes" where the pile driving will begin at only 40 percent of its total energy. These "warning strikes" are designed to cause fish to leave the area before the pile driving begins at full energy. As noted above, since the pile driving sounds are very loud, it is very likely that any sturgeon in the action area will hear the sound, and respond behaviorally, well before they reach a point at which the sound levels exceed the potential for physiological effects, including injury or mortality. Available information suggests that the potential for behavioral effects may begin upon exposure to noise at sound pressure levels of 150 dB re 1 μPa rms."

PANYNJ therefore believes that sound mitigation measures similar to those approved for the Tappan Zee Bridge would be sufficient for the LGA deck extensions. PANYNJ proposes two mitigation measures for the LGA deck extensions, which would reduce noise levels from impact hammers, and encourage animals to leave the work area before sound reaches the potential injury level.

- The Contractor would be required to use cushioning material, consisting of alternating layers of aluminum and micarta (a plastic) to drive piles with an impact hammer. Use of this type of cushioning block would result in a 7 to 8 –dB reduction in sound pressure levels.
- The Contractor would also be required to do a "soft start" in driving each pile. These "warning strikes" would be at 40 percent or less of the total energy of the impact hammer, for the first five (5) minutes of impact hammer use. This procedure, which was approved for the Tappan Zee Bridge, would alert fish to the start of a noise-producing activity and is presumed to result in fish leaving the vicinity of the work area.

Mitigation Measures Considered but Eliminated

NOAA suggested using siltation curtains, placed 10 meters from the piling, to prevent sturgeon from entering the area where sound levels could result in injury. PANYNJ has reviewed that suggestion, but the two deck extensions are in areas of high current velocity and it would be impracticable to install or maintain silt curtains at this location. Currents in the Rikers Island Channel during peak tidal ebbing reach approximately 3.5 feet per second.

NOAA suggested using wooden cushioning blocks, as these have been documented to have a higher (10-26 dB) sound reduction. PANYNJ has reviewed that suggestion and stated that wooden blocks would not be used as they provide poor cushioning, degrade quickly, and result in damage to the pile top.

Air bubble curtains were also considered. The available data indicate that air bubble curtains would provide about 10 dB of noise reduction for a 30-inch piling.[4] Unconfined bubble curtains are not feasible for the proposed LGA deck extension project due to the current velocities. A proprietary confined bubble curtain (Gunderboom) has been developed by Gunderboom, Inc. that can be suspended (similar to a silt curtain) or attached to a rigid frame around a piling. This system provides a higher sound attenuation (up to 85 percent in one test).[5] However, the high current velocities are unsuitable for a suspended curtain. The use of a rigid frame would add unwarranted cost and time delays to the project. As noted in previous correspondence, PANYNJ anticipates installing an average of two pilings per 24-hour work period. The time required to install a rigid-frame system around each piling would significantly increase mobilization time. While this system may be practicable where several pilings will be driven in a small area, it is not feasible to install a rigid frame around the entire work area where pilings would be driven (approximately 2 acres, a perimeter of 1,365 linear feet).

Summary

As documented above, based on recent studies, PANYNJ believes that the project area does not provide suitable foraging habitat for Atlantic or short-nosed sturgeon, and that sturgeon are unlikely to be within the vicinity of the proposed deck extensions due to the poor water quality, unsuitable substrate, and lack of food items. PANYNJ proposes to use two mitigation measures to reduce the potential of harm to any sturgeon potentially passing through this section of the Upper East River: a "soft start" to pile driving, and use of micarta cushioning blocks. No other mitigation measures are feasible due to the high current velocities in the Rikers Island Channel and the logistics of installing the piles.

4 Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects on Fish from Pile Driving Noise. February 2009.

5 http://www.gunderboom.com/sas/sas.html, accessed June 17, 2013

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From: Danielle Palmer - NOAA Federal <danielle.palmer@noaa.gov>
To: Marie Jenet/AEA/FAA@FAA,
Date: 05/01/2013 10:04 AM
Subject: Re: LaGuardia Airport

HI Marie,

Just as a follow up to my previous email, would you also be able to tell me:

1. how long it will take to install one pile? I just received information on how to better calculate cSEL levels for vibratory pile installation, so depending on this value, we may have to adjust the recommended distance that the curtain be installed (i.e., potentially up to 100 feet from the pile).

2. Based on the number of piles to be installed in one day, it appears that approximately two piles per hour will be installed, is that a correct assumption? If so, will the 2 piles being installed occur within the same RSA deck, or will one pile be installed at one RSA deck and the other pile at the other deck?

This information is necessary for us to get a complete picture of the underwater sound footprint being produced per day under the proposed. action.

Thank you for your assistance,
Danielle

From: Danielle Palmer - NOAA Federal <danielle.palmer@noaa.gov>
To: Marie Jenet/AEA/FAA@FAA,
Date: 04/29/2013 10:25 AM
Subject: Re: LaGuardia Airport

Hi Marie,

Thank you for the information. After my review and analysis of the material provided to us, it is apparent that underwater noise levels during impact pile driving will reach levels that are believed to cause injury to Atlantic sturgeon. Our criteria for injury for sturgeon is a dual criteria based on peak levels and cumulative sound exposure levels (cSEL) (i.e., 206dBpeak and 187 dBcSel). cSEL levels will reach levels above 187 dBcSEL within 10 meters of the pile being driven, and thus, there is the potential for injury. As such, we are requesting that a turbidity curtain be placed around the piles to be installed at a distance of at least 10 meters from the pile being driven. By placing the curtain 10m from the pile, we can prevent sturgeon from entering the ensonified area where injurious levels of underwater noise are being produced. If this is not feasible, please let us know and we can coordinate further on other potential mitigation measures that can be implemented to prevent injury to this species.

Additionally, I forgot to ask previously, during what months will the work be undertaken?

Thank you,
Danielle

On Thu, Apr 25, 2013 at 1:24 PM, <Marie.Jenet@faa.gov> wrote:
HI Danielle

I sent your questions to the Port Authority and their consultant. Here is what they had to say:

1) How many piles will be installed?
Approximately 120 piles will be driven at each deck extension, for a total of approximately 240 piles.

2) What method will be used to install the piles?
The contractor plans to use a vibratory hammer to set the piles through the upper layer of organic silt material, and an impact hammer to set the piles through the underlying dense sand, silt and clay. Cushioning material will be used with the impact hammer. Based on Port Authority specifications, the cushioning material will be alternating layers of plastic and aluminum.

3) How many piles would be installed per day?
Pile driving can only occur during daytime hours (8 AM to 7 PM) on weekends, when the runways can be closed without significant effects to operations. The contractor will be able to drive 20 piles during this narrow construction window.

4) How many strikes of an impact hammer will be needed to install each pile?
The contractor estimates that a total of 50 to 300 blows per pile will be required to drive each pile to refusal on bedrock.

5) Describe the benthic habitat in the project area.
Water in the project area is 15 to 30 feet deep, with a soft organic silt substrate. There are no submerged aquatic vegetation and no shellfish beds in the project area.

6) Will any silt or turbidity curtains be placed around the project area?
Silt or turbidity curtails will be used if required. The Port Authority does not anticipate a substantial sediment plume, based on the soil stratigraphy and the use of a vibratory hammer.

I look forward to working with you on this important safety project. If you need additional information, please let me know.

Marie

Marie C. Jenet
Environmental Specialist
Federal Aviation Administration
New York Airports District Office
600 Old Country Road, Suite 446
Garden City, New York 11530
516-227-3811
marie.jenet@faa.gov

From: Danielle Palmer - NOAA Federal <danielle.palmer@noaa.gov>
To: Marie Jenet/AEA/FAA@FAA,
Date: 04/15/2013 10:09 AM
Subject: LaGuardia Airport

Hi Marie,

I was reviewing the letter we recently received regarding the RSA improvement project at LaGuardia Airport's Runway's 4 and 31. I have some questions on the proposed project:

1. In regards to the steel pipe piles to be installed:
   a. How many piles will be installed at Runway 4 and Runway 31?
   b. What method will be used to install the piles (e.g., jetting, vibratory or impact hammer)? If the piles must be driven, we would recommend the use of a vibratory hammer to reduce the levels of underwater noise that will be produced. If a vibratory hammer cannot be used, and an impact hammer is required, we would strongly recommend the placement of a wooden cushion block atop the piles during impact pile driving; this will assist in reducing levels of underwater noise.
   c. How many piles will be installed per day?
   d. If an impact hammer is to be used, approximately how many strikes will be needed to install one pile?

2. Can you provide a description of the benthic habitat in the project area (e.g., any SAV, benthic community, shellfish beds, substrate..etc),

3. Will any silt or turbidity curtains be placed around the project area?

Thank you,
Danielle

--
Danielle Palmer
NOAA-NMFS
Section 7 Fisheries Biologist
978-282-8468

U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
New York District Office

600 Old Country Rd Suite 446
Garden City NY 11530

March 28, 2013

Mary A. Colligan
Assistant Regional Administrator for Protected Resources
U.S. Department of Commerce, NOAA
National Marine Fisheries Service, Northeast Region
55 Great Republic Drive
Gloucester MA 01930-2276

RE: LaGuardia Airport (LGA)
Runway Safety Improvements Project
National Marine Fisheries Service – Section 7 Consultation

Dear Ms. Colligan:

The Federal Aviation Administration (FAA), as the lead federal agency responsible for the LaGuardia Runway Safety Improvements Project, has reviewed your letter of February 25, 2013 concerning potential effects to marine species protected under the Endangered Species Act. We have therefore prepared this Determination of Effects under Section 7, and request your concurrence. As documented below, we have determined that the proposed action could impact habitat potentially used by atlantic sturgeon or sea turtles, but would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitat.

Project Description

The Port Authority of New York and New Jersey is proposing to improve the Runway Safety Areas (RSAs) at the ends of Runway 4 and Runway 31 at LaGuardia Airport (LGA). The proposed improvements are part of an ongoing safety program and are required to improve the RSAs, to be consistent with the FAA's current airport design criteria[1] for RSAs. RSAs are designed to achieve the key safety goals of protecting an aircraft that runs beyond the runway end or lands short of the runway. The RSA improvements being considered are safety improvements only and do not extend runways or have any effect on normal runway operations, runway capacity, or types of aircraft that can use the runways. In November 2005, Congress mandated that all Part 139[2] airport sponsors enhance passenger safety by improving their airport's RSAs by the end of 2015 and that FAA report annually on its progress toward improving RSAs.[3]

1 United States Department of Transportation, Federal Aviation Administration, Advisory Circular (AC) 150/5300-13, Airport Design, Changes 1 through 15, December 31, 2009

2 Part 139 airports are those that conduct commercial passenger flight operations and are required to meet rigorous FAA standards.

3 United States Department of Transportation, Office of Inspector General, *Actions Taken and Needed to Improve FAA's Runway Safety Program*, March 3, 2009, p. 1.

The proposed project is to construct RSAs that meet FAA's standards. The Proposed Action would extend the two existing decks at LGA each by approximately 182 feet (the decks are 500 feet wide) with an EMAS (Engineered Material Arresting System) on a pile-supported deck to be built over water. Both decks are currently bisected by the approach light piers.

Impacts to Marine Resources

Each of the two pile-supported decks would be constructed above approximately 2.1 acres (4.2 acres total) of subtidal marine habitat in the Upper East River (Bowery Bay and Flushing Bay) and would replace approximately 180 feet of each existing lighting pier. Subtidal benthic habitat would be lost only where pilings are installed beneath the deck. Depending on exact pile type and configuration, the direct impact resulting from the installation of the piles would be expected to be approximately 700 square feet, with 112, 24-inch, driven steel piles for each deck. The construction of these decks is anticipated to result in negligible changes to currents and sedimentation. Similar to conditions around the existing lighting pier, a small amount of erosion of the harbor bottom may occur around the piles. Shading beneath and in the vicinity of the pile-supported deck could result in indirect impacts to the ability of fish to locate prey visually, and to benthic organisms, however, habitat for shellfish would continue to be available as filter feeders and detritivores would not likely be significantly affected.

Affected Federal Species

The NMFS comment letter states that four species of federally threatened or endangered sea turtles and one listed species of fish may be found in the vicinity of LGA. These include:

- Federally endangered Kemp's ridley (*Lepidochelys kempi)*
- Federally threatened loggerhead (*Caretta caretta)*
- Federally endangered leatherback (*Dermochelys coriacea)*
- Federally endangered green sea turtles (*Chelonia mydas*)
- Federally endangered Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus* New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPS
- Federally threatened Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), Gulf of Maine DPS

While we are not aware of any observations of sea turtles in the Upper East River, it is possible that suitable forage and habitat exists in this area and it is possible that sea turtles occasionally are present during the summer months. The Upper East River is not within designated Critical Habitat for any sea turtle species[4].

Atlantic sturgeon belonging to the Gulf of Maine, New York Bight, and Chesapeake Bay DPS have the same maritime range, from Labrador to Florida, but breed in different inland rivers. The New York Bight DPS breeds in the Connecticut, Hudson

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4 National Marine Fisheries Service, Office of Protected Resources: Marine Turtles. Website:http://www.nmfs.noaa.gov/pr/species/turtles/

and Delaware Rivers. The Upper East River is within the potential marine foraging habitat for individuals from these three population segments as well as the two southern DPS, Carolina and South Atlantic. The Upper East River is not within designated Critical Habitat for Atlantic sturgeon and does not provide breeding habitat.

Potential Effects

Construction could result in temporary impacts to sea turtle or sturgeon habitat as a result of several activities. Construction is anticipated to generate suspended sediment, which would, after a short time in the water column, settle on the bottom at depths up to 10 mm (0.4 inches). These impacts would be short-term and not anticipated to result in any long-term disruption of growth or population dynamics of sea turtles or foraging sturgeon.

Construction equipment (barges, cranes, pile-driving, etc.) would result in temporary disturbance. This would likely cause turtles and fish to avoid the work area and therefore avoid impacts of sedimentation and noise. Construction, particularly pile-driving, can generate high noise levels underwater that could potentially harm turtles or fish. However, these noise levels would decrease to levels unlikely to cause harm within 20 meters (66 feet) of the work area. Because of the activity and noise of construction, turtles (if present) would be expected to avoid the area during active in-water construction.

FAA *Order 1050.1E* defines a significant impact for endangered species as one when the USFWS or NMFS determines a proposed action would likely jeopardize a species' continued existence or destroy or adversely affect a species' critical habitat. As documented in this section, the FAA has determined that the proposed RSA improvements would have an effect, but not an adverse effect, on the potential habitat of sea turtles and Atlantic sturgeon.

Although no sea turtles or Atlantic sturgeon have been documented in Bowery Bay or Flushing Bay of the Upper East River, the proposed RSAs could impact marine waters potentially used by these species but would not result in an adverse effect that would jeopardize the continued existence of these species or adversely change their critical habitat. The proposed RSA extensions would result in the loss of approximately 1,400 square feet of subtidal habitat, and would shade approximately 4.2 acres of marine habitat for both decks. The impact area is minor, and there is extensive similar habitat and substrate in the areas adjacent to the project area.

Temporary construction noise and turbidity are not anticipated to affect sea turtles or sturgeon, in the event that these were present in Bowery Bay or Flushing Bay. Controls for water pollution and soil erosion, such as using a siltation curtain and a debris boom to contain and minimize any siltation or debris, would be implemented as needed during construction to minimize impacts. These controls would also act as a barrier to keep protected species out of the construction area, avoiding any incidental mortality.

Finding

The proposed runway safety improvement project area does not include any designated Critical Habitat for sea turtles or Atlantic sturgeon. The proposed safety project would result in the loss of a small area (1,400 square feet) of subtidal marine habitat potentially used by vagrant sea turtles or sturgeon. The project site may provide suitable habitat/food food (e.g., jellyfish, invertebrates,

mollusks, and crabs). There would be no impacts to water quality or habitat quality other than shading. For these reasons, we conclude that the proposed runway safety areas at Runway 4 and Runway 31 would not affect Critical Habitat or jeopardize the continued existence of these species. We look forward to your concurrence with this Finding.

If you have any questions or require additional information, please contact Marie Jenet of my staff at at (516) 227-3811 or at marie.jenet@faa.gov.

Sincerely,

Otto N. Summers

for Steven M. Urlass, Manager
New York Airports District Office

Enclosures

- Project Area Map
- Proposed Action graphic

cc: C. Lurie, VHB
E. Knoesel, PANYNJ

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

FEB 25 2013

David Brizzolara
HDR
One Blue Hill Plaza
12th Floor
P.O. Box 1509
Pearl River, New York 10965

Re: LaGuardia Airport Runway Safety Area Improvement Project

Dear Mr. Brizzolara,

This is in response to your letter dated February 15, 2012 requesting information on the presence of species listed by NOAA's National Marine Fisheries Service (NMFS) in the vicinity of the LaGuardia Airport Runway Safety Area (RSA) Improvement Project, Flushing Bay, Queens, New York. The following Endangered Species Act (ESA) listed species may occur in the vicinity of the proposed project:

Species	**Status**
Gulf of Maine Distinct Population Segment (DPS) of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Threatened
New York Bight DPS of Atlantic sturgeon	Endangered
Chesapeake Bay DPS of Atlantic sturgeon	Endangered
Carolina DPS of Atlantic sturgeon	Endangered
South Atlantic DPS of Atlantic sturgeon	Endangered
Northwest Atlantic Ocean DPS of loggerhead sea turtle (*Caretta caretta*)	Threatened
Kemp's ridley sea turtle (*Lepidochelys kempi*)	Endangered
Green sea turtle (*Chelonia mydas*)	Endangered
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered

Conclusions

As ESA listed species of sea turtles and sturgeon occur in the waters surrounding LaGuardia Airport (i.e., Flushing Bay), any proposed in-water work associated with the LaGuardia RSA improvement project, such as the installation of piles, has the potential to impact these species. As project details become finalized, a consultation, pursuant to section 7 of the ESA of 1973, as amended, may be necessary as any discretionary federal action, such as the approval or funding of a project by a Federal agency, that may affect an ESA listed species must undergo consultation pursuant to section 7 of the ESA. If the proposed project has the potential to affect ESA listed species, and it is being approved, permitted or funded by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining whether the proposed action is likely to affect the listed species. The Federal agency would submit their determination along with justification for their determination and a request for concurrence, to the attention of the ESA Section 7 Coordinator, NMFS Northeast Regional Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. After reviewing this information, NMFS would then be able to conduct a consultation under section 7 of the ESA.

Should you have any questions about these comments or about the section 7 consultation process in general, please contact Danielle Palmer at (978)282-8468 or by e-mail (Danielle.Palmer@noaa.gov). Additionally, should you have any questions regarding essential fish habitat, please contact Diane Rusanowsky of our Habitat Conservation Division (203-882-6504; Diane.Rusanowsky@noaa.gov).

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

EC: Rusanowsky, NMFS/HCD
Palmer, NMFS/PRD

File Code: Sec 7 technical assistance 2013– LaGuardia Airport, RSA Improvement Project

February 15, 2013

Julie Crocker
National Marine Fisheries Service
Northeast Regional Office
Protected Resource Division
55 Great Republic Drive
Gloucester, MA 01930

RE: Threatened, endangered and special concern species request for The LaGuardia Runway Safety Area Improvements Project, Queens, New York

Ms. Crocker,

On behalf of the Port Authority of New York and New Jersey (PANYNJ), Henningson, Durham and Richardson Architecture and Engineering Inc. (HDR) is submitting this request for existing information on state-listed threatened, endangered, and special concern species in the waters within one-half mile of The LaGuardia Runway Safety Area Improvements Project in Queens, New York. This request follows the U.S. Fish and Wildlife Service (USFWS) revised protocol for project reviews pursuant to the Endangered Species Act (ESA) and the Bald and Golden Eagle Protection Act (BGEPA), which require coordination with both the New York State Natural Heritage Program (NHP) and the appropriate New York State Department of Environmental Conservation (NYSDEC) regional office based on the project location (Figure 1).

The LaGuardia Runway Safety Area Improvements Project includes the Runway Safety Area (RSA) improvements as well as connected actions.

The RSA improvements will extend the existing deck at the west end of Runway 13/31 (Lat/Long: 40.7826, -73.8792) and the north end of Runway 04/22 (Lat/Long: 40.7858, -73.8705), on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The extended decks will accommodate an Engineered Materials Arresting System (EMAS) with a 40-knot stopping capacity. The RSA improvements will not affect runway length, navigational aids, lighting or aircraft operations. A related safety improvement is the construction of a Restricted Vehicle Service Road (RVSR; Lat/Long: 40.7696, -73.8825) around the south end of Runway 04/22 to allow vehicles on the airside of the Airside Operations Area (AOA) fence to travel from the east to the west end of the airport without crossing Runway 04/22. The RVSR will require that a portion of the west-side on-airport roadway system be relocated and reconstructed. Affected roadways include Runway Drive, the intersection of Runway Drive with Bowery Bay Boulevard and Marine Terminal Road, Marine Terminal Road between the Bowery Bay Boulevard and the Marine Terminal parking lot, as well as the intersection of Figrello Lane and Marine Terminal Road. The third connected project element is the relocation of Employee

Parking Lot 10E (Lat/Long: 40.7758, -73.8939) which will be required for construction staging. A replacement parking lot will be constructed on airport property north of 19th Avenue (Ingraham's Mountain). A new access road across airport property between Bowery Bay Road and the new employee parking lot may be required.

The purpose of the project is to increase safety for aircraft and their passengers in emergency situations by enhancing the RSAs at the ends of Runway 04/22 and Runway 13/33 consistent with FAA's design standards. The purpose of the Restricted Vehicle Service Road is to provide a safe route for service vehicles, within the Airside Operations Area fence, that eliminates the need for service vehicles to cross Runway 04/22 and reduce the potential for dangerous runway incursions. The purpose of relocating the employee parking lot is to provide a construction laydown and staging area during the RSA construction.

In support of an environmental assessment (EA) of the proposed project, HDR is requesting information on state-listed threatened, endangered species, and special concern species, in the waters within one-half mile of the project area (Figure 1).

The information provided by your office will be used to complete the project EA and consultation with the USFWS. Specific information on the location of sensitive species or habitats provided by your office will not be published in any document unless permission is granted by the State.

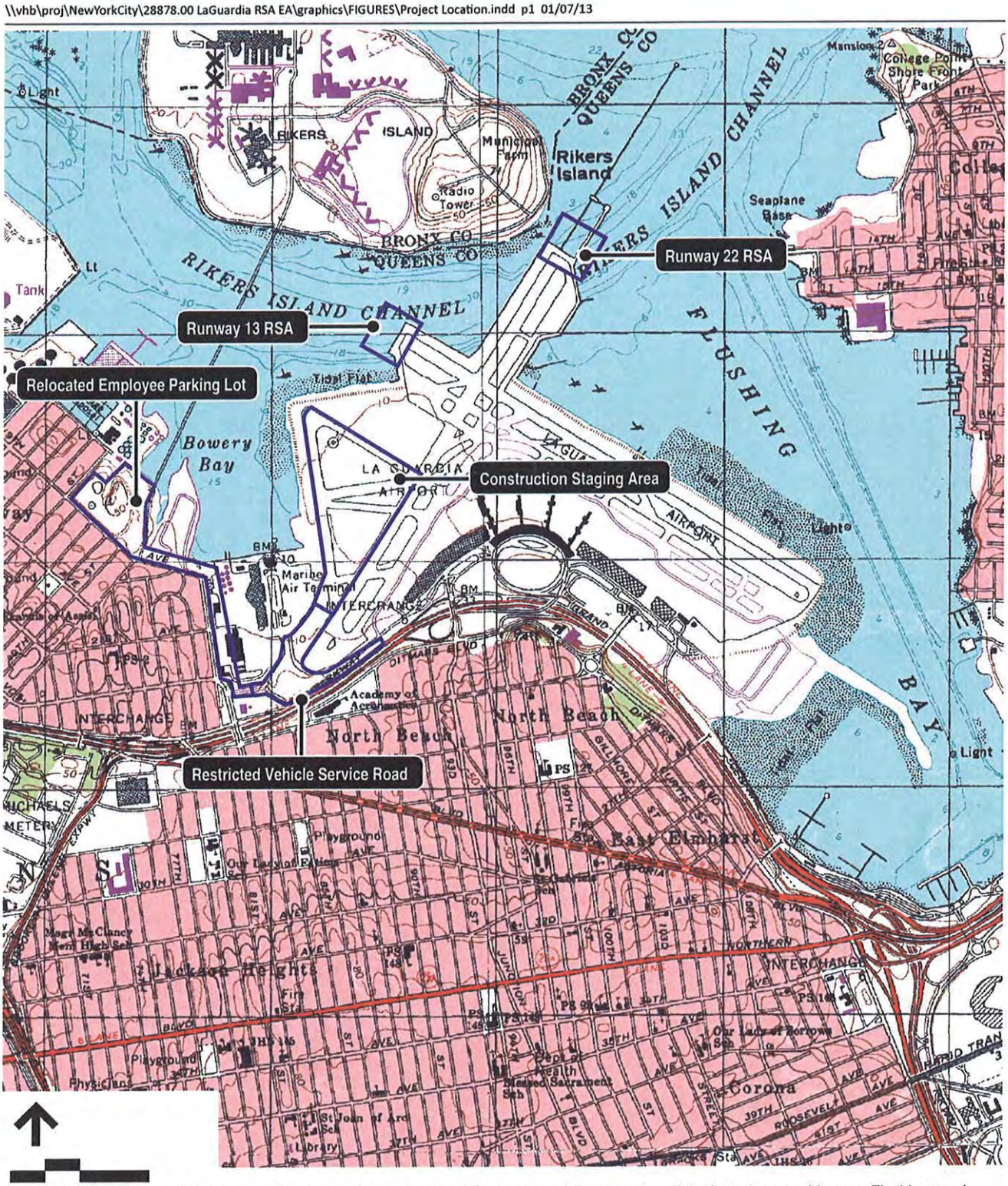
Feel free to contact me at (845) 735-8300 or via email at david.brizzolara@hdrinc.com should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

David Brizzolara

David Brizzolara
Environmental Scientist

Enclosure



Source: NYS Department of Environmental Conservation, 7.5-minute topographic map, Flushing quad

THE PORT AUTHORITY OF NY & NJ

Vanasse Hangen Brustlin, Inc.

DRAFT

Project Element Areas

LaGuardia Airport Runway Safety Areas
Environmental Assessment

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February 6, 2013

Diane Rusanowsky
National Oceanic and Atmospheric Administration
212 Rogers Avenue
Milford, CT 06460

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Ms. Rusanowski,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\docs\letters\20130206_AgencyCoord-Letters_VHB\20130206_AgencyCoord_NOAA_VHB.docx

VHB Engineering, Surveying
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212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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New York State Department of Environmental Conservation (NYSDEC)

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Joe Martens
Commissioner

February 19, 2013

David Brizzolara
H D R One Company
One Blue Hill Plaza, 12th floor, Bx 1509
Pearl River 1, NY 10965

Dear Mr. Brizzolara:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed LaGuardia Airport Runway Safety Improvements, area as indicated on your enclosed map, located in Queens, New York City.

We have no records of rare or state listed animals or plants, or significant natural communities, On or in the immediate vicinity of your project site.

The absence of data does not necessarily mean that rare or state-listed species, or significant natural communities, do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Databases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Jean Pietrusiak, Information Services
NYS Department Environmental Conservation

Enc.
cc: Reg, 2, Wildlife Mgr.

131

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February 5, 2013

Nicholas Conrad, Information Manager
NY Natural Heritage Program - Information Services
NYS DEC
625 Broadway, 5th Floor
Albany, NY 12233-4757

RE: Threatened, endangered and special concern species request for The LaGuardia Runway Safety Area Improvements Project, Queens, New York

Mr. Conrad,

On behalf of the Port Authority of New York and New Jersey (PANYNJ), Henningson, Durham and Richardson Architecture and Engineers Inc. (HDR) is submitting this request for existing information on state-listed threatened, endangered, and special concern species, for The LaGuardia Runway Safety Area Improvements Project in Queens, New York. This request follows the U.S. Fish and Wildlife Service (USFWS) revised protocol for project reviews pursuant to the Endangered Species Act (ESA) and the Bald and Golden Eagle Protection Act (BGEPA), which require coordination with both the New York State Natural Heritage Program (NHP) and the appropriate New York State Department of Environmental Conservation (NYSDEC) regional office based on the project location (Figure 1).

The LaGuardia Runway Safety Area Improvements Project includes the Runway Safety Area (RSA) improvements as well as connected actions.

The RSA improvements will extend the existing deck at the west end of Runway 13/31 (Lat/Long: 40.7826, -73.8792) and the north end of Runway 04/22 (Lat/Long: 40.7858, -73.8705), on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The extended decks will accommodate an Engineered Materials Arresting System (EMAS) with a 40-knot stopping capacity. The RSA improvements will not affect runway length, navigational aids, lighting or aircraft operations. A related safety improvement is the construction of a Restricted Vehicle Service Road (RVSR; Lat/Long: 40.7696, -73.8825) around the south end of Runway 04/22 to allow vehicles on the airside of the Airside Operations Area (AOA) fence to travel from the east to the west end of the airport without crossing Runway 04/22. The RVSR will require that a portion of the west-side on-airport roadway system be relocated and reconstructed. Affected roadways include Runway Drive, the intersection of Runway Drive with Bowery Bay Boulevard and Marine Terminal Road, Marine Terminal Road between the Bowery Bay Boulevard and the Marine Terminal parking lot, as well as the intersection of Figrello Lane and Marine Terminal Road. The third connected project element is the relocation of Employee

Parking Lot 10E (Lat/Long: 40.7758, -73.8939) which will be required for construction staging. A replacement parking lot will be constructed on airport property north of 19th Avenue (Ingraham's Mountain). A new access road across airport property between Bowery Bay Road and the new employee parking lot may be required.

The purpose of the project is to increase safety for aircraft and their passengers in emergency situations by enhancing the RSAs at the ends of Runway 04/22 and Runway 13/33 consistent with FAA's design standards. The purpose of the Restricted Vehicle Service Road is to provide a safe route for service vehicles, within the Airside Operations Area fence, that eliminates the need for service vehicles to cross Runway 04/22 and reduce the potential for dangerous runway incursions. The purpose of relocating the employee parking lot is to provide a construction laydown and staging area during the RSA construction.

In support of an environmental assessment (EA) of the proposed project, HDR is requesting information on state-listed threatened, endangered species, and special concern species, as well as significant habitats within one-half mile of the project area (Project Location Map). Pursuant to the Bald and Golden Eagle Protection Act (BGEPA), we also request information on any known bald eagle (*Haliaeetus leucocephalus*) nesting areas that may be within 660 ft. of the study area.

The information provided by your office will be used to complete the project EA and consultation with the USFWS. Specific information on the location of sensitive species or habitats provided by the NHP will not be published in any document unless permission is granted by the State.

Feel free to contact me at (845) 735-8300 or via email at david.brizzolara@hdrinc.com should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

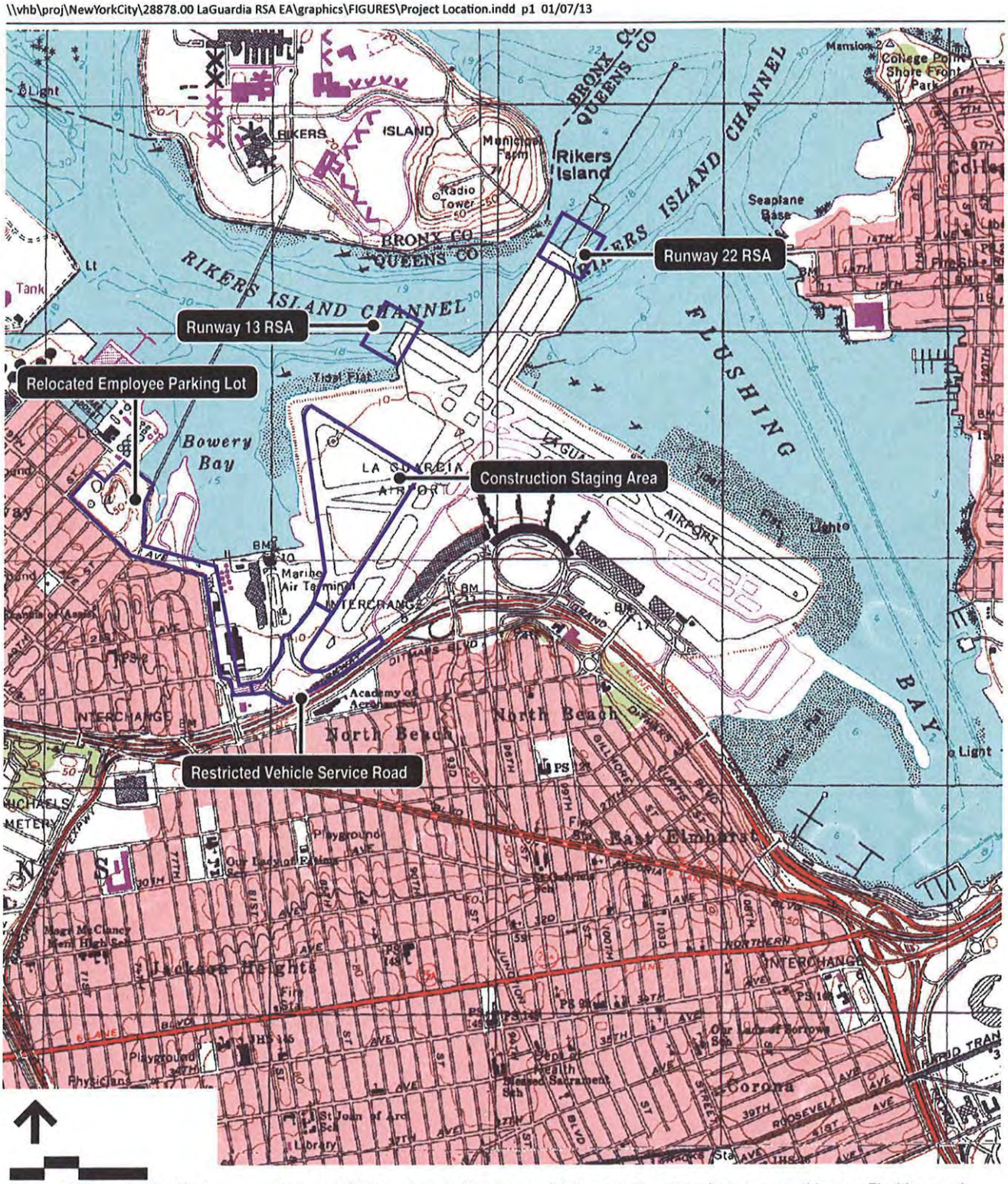
Sincerely,

David Brizzolara

David Brizzolara
Environmental Scientist

Enclosure

cc: John Cryan, NYSDEC Region 2 Permit Administrator



Source: NYS Department of Environmental Conservation, 7.5-minute topographic map, Flushing quad

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Project Element Areas

LaGuardia Airport Runway Safety Areas
Environmental Assessment

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February 5, 2013

John Cryan, Regional Permit Administrator
Region 2 Long Island City Office
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

RE: Threatened, endangered and special concern species request for The LaGuardia Runway Safety Area Improvements Project, Queens, New York

Mr. Cryan,

On behalf of the Port Authority of New York and New Jersey (PANYNJ), Henningson, Durham and Richardson Architecture and Engineers Inc. (HDR) is submitting this request for existing information on state-listed threatened, endangered, and special concern species, for The LaGuardia Runway Safety Area Improvements Project in Queens, New York. This request follows the U.S. Fish and Wildlife Service (USFWS) revised protocol for project reviews pursuant to the Endangered Species Act (ESA) and the Bald and Golden Eagle Protection Act (BGEPA), which require coordination with both the New York State Natural Heritage Program (NHP) and the appropriate New York State Department of Environmental Conservation (NYSDEC) regional office based on the project location (Figure 1).

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Feel free to contact me at (845) 735-8300 or via email at david.brizzolara@hdrinc.com should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

David Brizzolara

David Brizzolara
Environmental Scientist

Enclosure

cc: Nicholas Conrad, Information Manager, NYSDEC Natural Heritage Program

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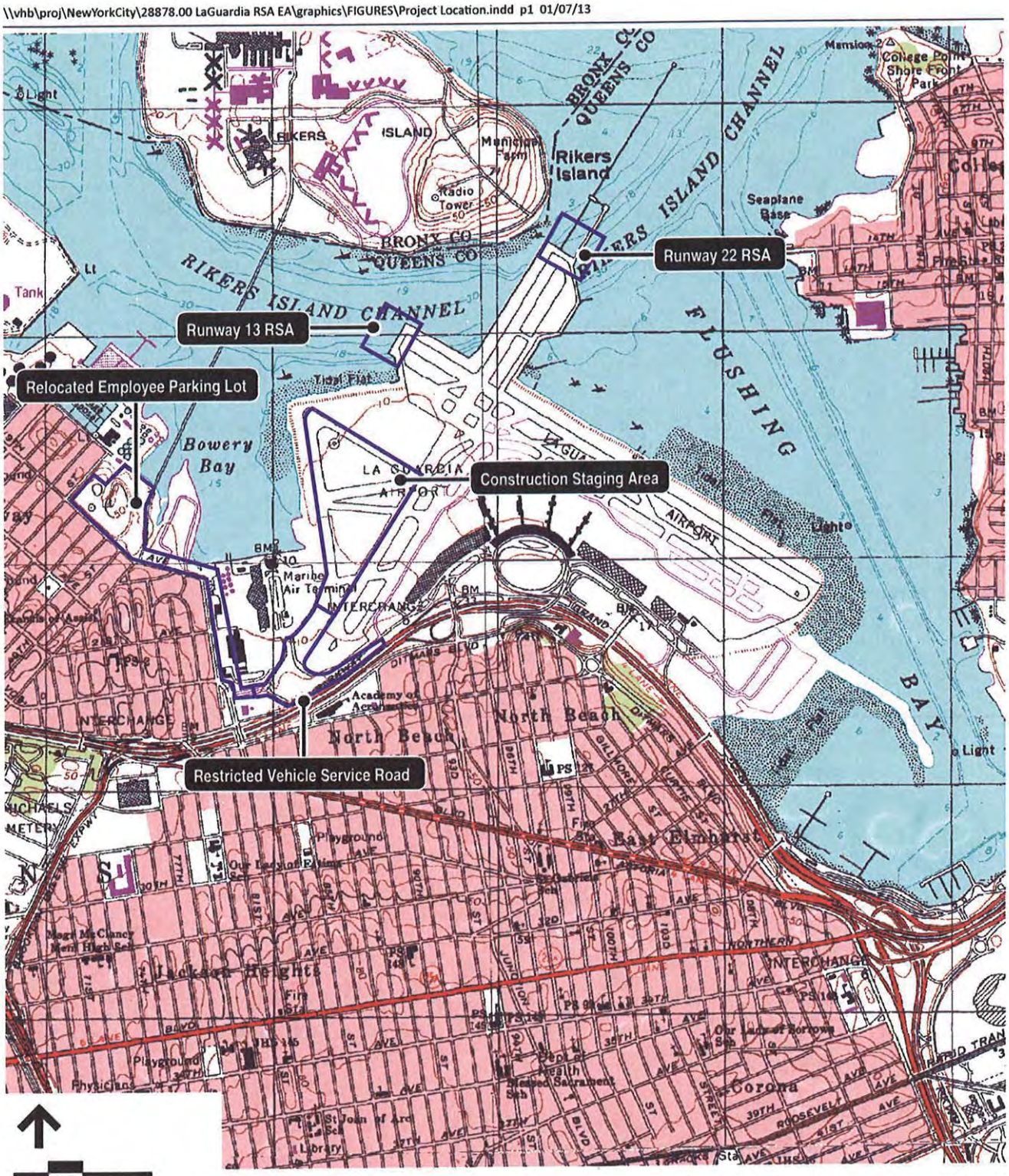

Source: NYS Department of Environmental Conservation, 7.5-minute topographic map, Flushing quad

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Project Element Areas

LaGuardia Airport Runway Safety Areas
Environmental Assessment

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February 6, 2013

John Cryan
New York State Department of Environmental Conservation Region 2
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Cryan,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\docs\letters\20130206_AgencyCoord-Letters_VHB\20130206_AgencyCoord_NYSDEC1_VHB.docx

VHB Engineering, Surveying
and Landscape Architecture, P.C.
Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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Planning | Transportation | Land Development | Environmental Services

Creating results for our clients and benefits for our communities

February 6, 2013

Susan Maresca
New York State Department of Environmental Conservation Region 2
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Ms. Maresca,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

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Very truly yours,

Carol Lurie

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Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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February 6, 2013

Steve Zahn
New York State Department of Environmental Conservation Region 2
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Zahn,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

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Very truly yours,

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New York State Department of State

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STATE OF NEW YORK
DEPARTMENT OF STATE
ONE COMMERCE PLAZA
99 WASHINGTON AVENUE
ALBANY, NY 12231-0001

ANDREW M. CUOMO
GOVERNOR

CESAR A. PERALES
ACTING SECRETARY OF STATE

December 17, 2013

Marc Helman, Supervisor
Environmental Engineering Unit
Port Authority of NY & NJ
Two Gateway Center
Newark, New Jersey 07102

Re: **F-2013-0890 (FA)**
Port Authority of New York and New Jersey – Runway Safety Enhancements at LaGuardia Airport, Queens, New York; Flushing Bay/ East River
General Concurrence - No Objection To Funding; No Objection to Federal Aviation Administration (FAA) Approval(s)

Dear Mr. Helman:

The Department of State has received the information you submitted regarding the above matter. The project work would entail extension of existing decks at the north end of Runway 4-22 and west end of Runway 13-31 to support Engineered Materials Arrestor System (EMAS) beds, construction of a new section of LaGuardia's restricted vehicle service road (RVSR) to reduce runway incursions, and creation of a construction staging area at the airport. The proposed project requires change(s) to the airport layout plan and the work is the subject of the draft environmental assessment (issued August 22, 2013) required under the National Environmental Policy Act (NEPA) environmental review process.

The Department of State has determined that this proposal meets the Department's general consistency concurrence criteria. Therefore, the Department of State has no objection to the use of federal funds for this financial assistance activity. This concurrence pertains to the federal financial assistance activity and to the changes to the airport layout plan under the authority of the FAA. As federal permit(s) may be necessary to carry out the specific project activities, the Department of State will conduct a separate review for those permit activities. Please forward a copy of the federal application for authorization, a completed Federal Consistency Assessment Form (FCAF), and all supporting information to the Department at the same time it is submitted to the federal agency from which the necessary authorization is requested.

When communicating with us regarding this matter, please contact Jeffrey Zappieri at (518) 474-6000 and refer to our file #F-2013-0890 (FA).

Sincerely,

Jeffrey Zappieri
Supervisor, Consistency Review Unit

JZ/ts

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THE PORT AUTHORITY OF NY & NJ

Engineering Department

UPS OVERNIGHT DELIVERY

November 1, 2013

Mr. Jeffrey Zappieri
Supervisor, Consistency Review Unit
New York State Department of State
Division of Coastal Resources
1 Commerce Plaza, Suite 1010
Albany, NY 12231-0001

SUBJECT: LGA AIRPORT – RUNWAY SAFETY AREA ENHANCEMENTS: COASTAL ZONE MANAGEMENT PLAN CERTIFICATION AND REQUEST FOR CONCURRENCE

Dear Mr. Zappieri:

The Port Authority of NY & NJ (Port Authority) hereby submits a Coastal Zone Management Plan Certification and request for concurrence for the LaGuardia Airport (LGA) runway safety area (RSA) enhancements project. The project site is located in Flushing Bay/East River at the Borough of Queens, Queens County, New York. This project is a major safety initiative that the Port Authority proposes to undertake to comply with both Federal Aviation Administration (FAA) and Congressional mandates to improve RSAs so that they meet FAA design standards by the end of 2015. The proposed work was discussed at an interagency meeting last February at which your agency was represented.

The proposed project would involve extending existing decks at the north end of Runway 4-22 and west end of Runway 13-31 to support Engineered Materials Arrestor System (EMAS) beds, construction of a new section of LGA's restricted vehicle service road (RVSR) to reduce runway incursions, and creation of a construction staging area at the airport.

The proposed project was the subject of a Draft Environmental Assessment (EA) prepared under the direction of the FAA, the lead federal agency for the National Environmental Policy Act (NEPA) environmental review process, for the project. Copies of the Draft EA, which was issued on August 22, 2013, were provided to your office for review and comment. The Draft EA provided an overview and detailed information about the proposed actions, alternatives, and project impacts.

Enclosed, in addition to a Federal Consistency Assessment Form (FCAF) and policy evaluation, you will find a New York City Waterfront Revitalization Plan Consistency Assessment Form (NYCWRPCAF) and policy evaluation, project diagrams, and pertinent figures from the Draft

Two Gateway Center
Newark, NJ 07102

THE PORT AUTHORITY OF NY & NJ

EA to assist in your review of the project. Consistency concurrence is required for this project because the FAA will provide funding for part of the project and also must approve a change in the Airport Layout Plan to allow the deck extensions to be built.

In addition, the Port Authority is in the process of preparing applications to be submitted to the U.S. Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC) for authorizations necessary to undertake the project. Copies of the application packages will be sent to you when they are submitted to USACE and NYSDEC.

If you have any questions or require additional information, please contact the undersigned by e-mail at mhelman@panynj.gov or by telephone at (973) 565 - 7564.

Very truly yours,

Marc Helman

Marc Helman
Supervisor, Permits and Governmental Approvals
Environmental Engineering Unit

cc: Michael Marrella, NYCDCP

Enclosures:
1) FCAF & policy evaluation
2) NYCWRPCAF & policy evaluation
3) Project Diagrams
4) Pertinent EA Figures

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. APPLICANT (please print)

1. Name: The Port Authority of New York & New Jersey ATTN: Marc Helman

2. Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102

3. Telephone: Area Code (973) 565 - 7564

B. PROPOSED ACTIVITY

1. Brief description of activity:

See Attachment A

2. Purpose of activity:

See Attachment A

3. Location of activity:

Queens County	Flushing 11369	LaGuardia Airport
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: Approval of change to Airport Layout Plan (ALP) and potential federal funding through the use of Passenger Facility Charges (PFC); Dept. of the Army Section 10/404 Permit

5. Federal application number, if known:

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known: A Stormwater Pollution Prevention Plan (SWPPP) as required by the State Pollution Discharge Elimination Permit (SPDES) permit issued by the NYS Dept of Environmental Conservation; NYSDEC Protection of Waters Permit and Section 401 Water Quality Certification required

C. COASTAL ASSESSMENT Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following:	YES	NO
a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43)	☐	☑
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44)	☑	☐
c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)	☐	☑
d. Reduction of existing or potential public access to or along coastal waters? (19, 20)	☐	☑
e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10)	☐	☑
f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29)	☐	☑
g. Siting of a facility essential to the generation or transmission of energy? (27)	☐	☑
h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)	☐	☑
i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)	☐	☑
j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)	☑	☐
k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)	☑	☐
l. Adverse effect upon land or water uses within the State's small harbors? (4)	☐	☑

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:	YES	NO
a. State designated freshwater or tidal wetland? (44)	☑	☐
b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17,)	☑	☐
c. State designated significant fish and/or wildlife habitat? (7)	☐	☑
d. State designated significant scenic resource or area? (24)	☐	☑
e. State designated important agricultural lands? (26)	☐	☑
f. Beach, dune or barrier island? (12)	☐	☑
g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)	☐	☑
h. State, county, or local park? (19, 20)	☑	☐
i. Historic resource listed on the National or State Register of Historic Places? (23)	☑	☐

3. Will the proposed activity require any of the following:	YES	NO
a. Waterfront site? (2, 21, 22)	☐	☑
b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)	☐	☑
c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16)	☐	☑
d. State water quality permit or certification? (30, 38, 40)	☐	☑
e. State air quality permit or certification? (41, 43)	☐	☑

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program? (see policies in local program document)	☑	☐

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

~~Applicant/Agent's~~ Contact Name: Marc Helman

Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102

Telephone: Area Code (973) 565 - 7564

~~Applicant/Agent's~~ Contact Signature: Marc Helman Date: 1 November 2013

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the New York State Department of State, Office of Coastal, Local Government and Community Sustainability, Attn: Consistency Review Unit, 1 Commerce Plaza - Suite 1010, Albany, New York 12231.

a. Copy of original signed form.
b. Copy of the completed federal agency application.
c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENT PROGRAM
ATTACHMENT A

Project Description
The LaGuardia Airport Runway Safety Area Enhancement Program includes a series of projects divided into two functional areas at LaGuardia Airport (LGA):

(1) Constructing deck extensions to provide for Runway Safety Areas (RSAs) and Engineered Materials Arresting System (EMAS) beds at the ends of Runway 4-22 and Runway 13-31
(2) Constructing a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to eliminate runway incursions

The Program also includes the creation of construction staging areas to support the construction projects in the Runway Safety Area Enhancement Program.

The Proposed Action elements are depicted in the attached figures and are described below:

Runway Safety Area Enhancements
The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS) beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. This would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards.

Restricted Vehicle Service Road Construction
This aspect of the project consists of constructing a new section of the Airport's existing RVSR south of the Runway 22 End to avoid repeated exits and entries of service vehicles from airport secure areas onto public roadways and to reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to aircraft service facilities on the west side of the Airport without having to leave the secured area and drive on public roadways or use the runway areas (creating runway incursions) to access the eastern terminals from the west side of the Airport.

Creation of Construction Staging Areas
In order to construct the RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging, as there is insufficient existing area on Airport that is unallocated and could be used for this purpose.

To accommodate the construction of the RSA Enhancements and RVSR, a construction staging would be created in an area within the Airport leasehold known as Ingraham's Mountain, a man-made topographic feature created with material excavated for construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA) and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard.

In addition, a portion of existing Employee Parking Lot 10E, located near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily allocated to a construction staging area to support the RSA construction project.

Purpose and Need

The purpose of the project is to increase safety for aircraft and their passengers by enhancing the RSAs at the Runway 4 and 31 Ends by the end of 2015. The RSA requirement is mandated by both the Federal Aviation Administration (FAA) and by Congress. Safety would also be enhanced by creating a new section of the RVSR south of the Runway 22 End to reduce the potential for runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA. These safety enhancements would be accomplished by:

- Constructing deck extensions and installing an Engineered Materials Arresting System (EMAS) beds on the decks
- Constructing the RVSR south of the Runway 22 End and reconfiguring Runway Drive to accommodate the construction of the RVSR

The Proposed Actions are needed because the existing RSAs do not meet the FAA requirement and the current RVSR is not adequate to prevent runway incursions. In order for LaGuardia Airport to meet the FAA safety requirements the following issues must be addressed:

Runway Safety Area Enhancement

Currently, the existing decks of both runways are not long enough to provide adequate space for a full dimension RSA, a standard EMAS installation (standard RSA), or a non-standard EMAS. If the runway thresholds are kept in their existing locations, then the existing decks need to be extended to provide adequate space for RSAs.

Creation of a New Section of the Restricted Vehicle Service Road (RVSR)

To avoid the security concerns and time delays associated with repeated exits and entries of service vehicles and to reduce the risk of runway incursions and of increasing Air Traffic Control's workload, LGA needs a RVSR that is on Airport property in secured areas (i.e., airside) near the Runway 22 End. Constructing a new section of the RVSR south of the Runway 22 End would allow fuel trucks to deliver jet fuel to ramps located at the eastern Terminals B, C, and D without exiting a secured area onto Runway Drive. A new section of the RVSR would also allow ground service equipment to have access from the LGA's eastern terminals to the aircraft service facilities on the west side of the airport without having to leave the same secured area.

In order to implement any RSA Enhancements and the RVSR at LGA, an area must be provided for contractor mobilization and construction equipment staging. A minimum of 10 acres with access to the airport roadway system are needed for the deck extension and RVSR construction.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENTS
NEW YORK STATE DEPARTMENT OF STATE
COASTAL ZONE MANAGEMENT PROGRAM

Coastal Assessment Responses

1. Will the proposed activity result in any of the following:
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (Policies 2, 11, 12, 20, 28, 35, 44)
Background: The proposed project to construct the deck extensions will shade an area of approximately 4.65 acres of land underwater. Each deck extension will be supported by one hundred twenty (120) 24" diameter, closed end pipe piles on a grid of approximately 35 feet x 27 feet (see Figure ZZ for more detail). Each pile would occupy 3.14 square feet of sea bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both deck the total physical alteration of land is 754 square feet or approximately 0.02 acres.

The proposed pile driving would be undertaken in two phases. The piles would settle through the upper 50 to 65 feet of soft silt under their weight. However, a vibratory hammer would be used if needed. Subsequently, a diesel impact hammer would be used to drive the piles through the underlying 10 feet layer of dense sand, silt and clay until reaching bedrock. To protect finfish and reduce sound pressure levels that might adversely affect them, the impact hammer would be equipped with cushioning material and the main pile driving phase would be preceded by a "soft start". The cushioning material consists of alternating layers of aluminum and a plastic called micarta, which serves to reduce sound pressure levels by 7 – 8 dB. The soft start involves warning strikes at 40% or less of the impact hammer's total energy to drive away finfish in the area so that will not be exposed to high decibel levels or high pressure waves that could have adverse physiological effects on fish.

Upon completion of pile driving but prior to pile cap and deck installation, the piles would be filled with concrete and rebar. Construction would then be completed with a installation of pile caps before the deck is installed on the piles. No dredging will be performed as a part of the project.

Policy 2: The RSA deck extensions would constructed in navigable waters of the United States in waters that are currently within secured areas and, therefore, not accessible to the public. The U.S. Department of Homeland Security has established a security exclusion zone around LaGuardia Airport that prohibits public access within 200 yards of the airport. These waters will continue to be inaccessible to the public after construction. .

However, the proposed deck extensions would not pose any additional navigation hazard. The proposed work would be located a minimum of 2,000 feet from the federal navigation channels in Flushing Bay and would not pose a hazard to vessels utilizing the navigation channel. Moreover, the proposed project would not pose an undue burden on recreational boaters as they are currently barred from the area. Nearby marinas, e.g. World's Fair Marina, would still be able to function as they would without the project. Recreational areas of the shoreline could still be utilized by the public. Commercial facilities e.g. the Waste Water Treatment Plant west of the airport could still receive vessels without any interruption of services. Therefore, the proposed project is consistent with Policy 2.

Policy 11: The proposed deck extensions would be located in the 100 year floodplain. The RSA deck extensions have been designed to not exacerbate flooding and/or erosion. Hydrodynamic modeling shows that the proposed pile arrangement for the RSA deck extensions would not cause scour or

sedimentation that could change water flow and alter water depths. In addition, the area occupied by the piles is 0.02 acres and the volume of water displaced by the piles would not be sufficient to cause in flooding in adjacent land areas. Therefore, the proposed project is consistent with Policy 11.

Policy 12: There are no natural protective features (beaches, dunes, barrier islands or bluffs) located within the proposed deck extension project area that could be damaged by flooding and erosion potentially caused by the proposed project. Moreover, as noted above (Policy 11), the proposed project would not exacerbate flooding or erosion in the area. Therefore, this policy is not applicable.

Policy 20: Access to the shoreline at LaGuardia Airport is not available to the public to protect their safety and to provide a secure setting for airport operations. Areas along the shoreline that are currently available for public access (e.g. southeast of the airport near the World's Fair Marina) would remain so. Therefore, the proposed project is consistent with Policy 20.

Policy 28: Ice management practices at LGA would not change as a result of the proposed project. The Port Authority is prohibited from disposing snow into Flushing Bay and Bowery Bay, except under very limited emergency situations and with prior approval from NYSDEC, snow is removed from runways and perimeter roads as soon as possible after it has fallen. Airfield anti-icing and de-icing is performed using sodium acetate on the runways and airfield roadways. Since sodium acetate dissolves completely once applied, this practice does not generate sediment and reduces the volume of waste material that must be managed by the stormwater collection system. Aviation-grade sand is sometimes used on the runways during storm events to increase friction. Snow removal from the EMAS bed, if needed, would be performed with a snow blower because heavy equipment is prohibited from accessing the EMAS bed. Snow management operations result in negligible impacts to water quality and are performed in accordance with the Airport's SPDES permit and Stormwater Pollution Prevention Plan. The current snow management practices would continue to extension of the existing decks would not change existing snow removal operations or associated water quality.

The current practices would not interfere with hydroelectric power production, cause damage to significant fish and wildlife habitats, or increase shoreline erosion or flooding. The proposed project area does not have any hydroelectric power production nor are there any hydroelectric plants in the immediate vicinity. Similarly, the closest significant fish and wildlife habitat identified by the New York State Department of State is North and South Brother Islands, which are a minimum of two miles from the proposed project site. Existing snow and ice management practices do not result in shoreline erosion or flooding. Therefore, the proposed project is consistent with Policy 28.

Policy 35: As noted in the background section, the proposed project does not involve dredging. Fill material (concrete and rebar) would be placed within the piles that would support the proposed deck extensions. Approximately 600 cubic yards of fill would be placed within the closed piles and none would be placed in open water. The volume of water displaced by the piles is insufficient to have an impact on flooding of adjacent areas. Similarly, hydrographic modeling of the proposed pile arrangement shows that there would be negligible changes in current flow, sedimentation, or erosion. Therefore, the proposed project is consistent with Policy 35.

Policy 44: The construction of the deck extensions is located close to but not within State designated tidal wetlands. The proposed project to install the decks will take place outside the littoral zone (defined by the NYSDEC as lands extending from the spring high tide line to 6 feet below the plane of mean low water). As the work would take place where water depths are more than 6 feet below low water, no work would occur in State designated tidal wetlands.

The construction of the section RVSR and the creation of the construction staging areas at Ingraham's Mountain and Parking Lot 10E would not cause physical alteration of the shoreline including land under water (i.e. littoral zone wetlands) any other tidal wetland areas, open coastal waters, or the tidal wetland adjacent area because the work takes place in upland areas. Therefore, the proposed project is consistent with Policy 44.

To summarize, based on the foregoing, the proposed project would be consistent with Policies 2, 11, 20, 28, 35 and 44 and Policy 12 would not be applicable to the project.

j. Draining of stormwater runoff or sewer overflows into coastal waters? (Policy 33)

The current decks are over open water that receive direct deposition of airborne particles that may be captured by the deck and washed off by rain events rather than falling directly in the water. The proposed project would have drainage managed such that the runoff from the decks would not cause contravention of water quality. Stormwater from the decks would be directed and connected to stormwater conveyances associated with the existing decks from where it would be released to Flushing Bay. The proposed decks would be partly covered by the proposed Engineered Materials Arresting System (EMAS), which would not be used by vehicles except in emergency situations. Therefore, materials associated with vehicle use would not be introduced to receiving waters from the EMAS. The outer portion of the deck would be used sporadically by inspection vehicles. Therefore, only minimal amounts of potential pollutants would be introduced to the extended decks.

Currently, there are no stormwater controls on Ingraham's Mountain allowing for any stormwater not captured by vegetation to runoff into the surrounding areas. The development of Ingraham's Mountain will be constructed using stormwater management controls to achieve zero net drainage from the area being developed, thereby reducing the runoff of stormwater into the surrounding areas.

Stormwater from the RVSR and Parking Lot 10E at LaGuardia Airport does not flow directly into the outfalls. The stormwater is conveyed into holding areas and ultimately pump house settling tanks equipped with pumps with high water level indicators. When the water reaches a specified level in the pump house, the pumps are activated and the stormwater is discharged to an outfall. When stormwater is discharged from the pump house to the outfall, sampling in accordance with the requirements of SPDES Permit No. NY 0008133 issued to the Port Authority, is conducted to ensure that water quality standards are not contravened.

LGA also has BMPs in place for stormwater management, specifically BMP 7 (Elimination of Non-Storm Water Discharges to Storm Drains), BMP 15 (Stormwater Pollution Prevention Education), and BMP 16 (Street Sweeping & Stormwater Facility Maintenance). There are no combined sewer system overflows

(CSOs) from LGA into receiving waters and wastewater from LGA is directed to a city-operated wastewater treatment plant (WWTP) and not a combined sewer system.

After completion of the RVSR, stormwater will be managed in the same manner as described above and LGA will continue to comply with the requirements of the SPDES Permit.

The proposed project will ensure the control of stormwater and will not allow combined sewer overflow. Therefore, the proposed project is consistent with Policy 33.

k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (Policies 36 and 39)

The proposed project will generate solid waste (primarily excess soil and construction and demolition debris) that will be managed and disposed of in accordance with local, state and federal regulations and rules. An Environmental Management Plan that will include procedures for the proper handling of waste and a response plan for spills will be prepared and implemented during the proposed project. At no time will related problems such as the "...filling of wetlands and littoral areas...and degradation of scenic resources" be allowed during the project.

The proposed project will have procedures in place to ensure proper management and disposal of solid waste and hazardous materials. Therefore, the proposed project is consistent with Policies 36 and 39.

2. Will the proposed activity <u>affect</u> or be <u>located</u> in, on, or adjacent to any of the following:

a. State designated freshwater or tidal wetland? (Policy 44)

The proposed RSA project is located in an area that is adjacent to State designated tidal wetlands. There are no State designated freshwater wetlands in the project area.

The proposed project to install the decks will take place outside the littoral zone (defined by the NYSDEC as lands from the spring mean high tide line to 6 feet below mean low water). However, as the work will take place where water depths are greater than 6 feet below mean low water, no work would occur in State designated tidal wetlands.

The RVSR is located within LaGuardia Airport, a peninsula that is surrounded by State designated tidal wetlands. However, the proposed project site is not located within the designated wetlands or the tidalwetland adjacent area. Moreover, the RVSR is separated by a minimum of 1,000 feet from the State designated wetlands by buildings, runways, taxiways, and roadways.

The work that would occur on Ingraham's Mountain would be at an elevation of approximately 65 to 85 feet above mean sea leve. Therefore, the work site is above the elevation of the tidal wetlands adjacent area, which would not be impacted.

The proposed project would not impact State designated tidal wetlands or the tidal wetland adjacent area. Therefore, the proposed project is consistent with Policy 44.

b. Federally designated flood and/or state designated erosion hazard area? (Policies 11, 12, and 17)
Policy 11 and Policy 12: See responses given for these policies in response to Question 1b.

Policy 17: Portions of LaGuardia Airport are below sea level and in a designated federal flood hazard area. The proposed deck extension is located in the currently defined 100 year floodplain as well as the 1% Advisory Base Flood Elevation (ABFE) zone. The RSA deck extensions have been designed so as not to exacerbate flooding and/or erosion. Hydrodynamic modeling shows that the proposed in-water structures associated with the RSA deck extension would not cause scour or sedimentation that could change water depths by altering current velocities and directions significantly. In addition, the area occupied by the piles is 0.02 acres and the volume of water displaced by the piles (based on an average 20 foot depth) would be approximately 18,000 cubic yards. Displacement of this volume of water is not sufficient to result in flooding on adjacent land areas.

A small portion of the RVSR would be constructed within the current 100-year and 500-year floodplains and would be in the 1% and 0.02% AFBE zones. The majority of the work would occur on paved surfaces and not increase the risk of downstream flooding and would not result in damage to natural resources. Construction of the RVSR would not be a significant encroachment in the floodplain and flooding at the site is not expected to have a substantial adverse impact on the surrounding area.

Due to the higher elevation, with work occurring from 65 feet to 85 feet above the ground surface, the construction of a construction staging area on Ingraham's Mountain would not be the 100-year or 500-year floodplain, nor would it be in the 1% or 0.02% ABFE zones

The U.S. Department of Transportation (USDOT) in Order 5650.2 sets criteria used to determine if there is a "significant encroachment" on the floodplain in those situations where it is not practicable to avoid it. A significant encroachment would not occur for the proposed project because: 1) there is a low probability of loss of human life, 2) the project has been designed to avoid or minimize future, extensive damage and costs (including damage that could interrupt service), and 3) there would be no notable adverse impacts on natural resources or on the floodplains natural and beneficial values. Based on these criteria, the proposed project would not constitute a significant encroachment on the floodplain. The proposed project would be consistent with Policy 17.

Based on the foregoing, the proposed project would be consistent with Policies 11, 12, and 17.

h. State, county, or local park? (Policies 19 and 20)
The proposed Restricted Vehicle Service Road is adjacent to the Grand Central Parkway, which is a Section 4(f) park resource that is managed by the New York State Office of Parks, Recreation & Historic Properties in conjunction with the New York City and State Departments of Transportation. The proposed RVSR alterations are contained on airport property and they would not impact the park resource, nor would they decrease access to water-related recreational resources and facilities.

Elmjack Field located adjacent to Flushing Bay is primarily used for landside, rather than water dependent recreational purposes. The Elmjack Field is located on airport property and is its use by the public is with the forebearance of the Port Authority. Elmjack Field is adjacent to Ingrahams's Mountain

and the proposed project will not alter the use of Elmjack Field and access to the park will be maintained during and after construction.

The proposed project will not interfere with public access to Elmjack Field and any water-related recreational opportunities. The proposed project will not impact the Grand Central Parkway and, therefore, a Section 4(f) evaluation is not necessary. The project will not change access to the foreshore or preclude activities currently available at the foreshore. Therefore, the proposed project is consistent with Policy 19 and Policy 20.

i. Historic resource listed on the National or State Register of Historic Places? (Policy 23)
The Marine Air Terminal, the Lent Homestead and Cemetery and the Steinway House, which are listed in the Register of Historic Places, and Hangars 1 – 5, which are eligible to listed in the Register of Historic Places, are located within the Area of Potential Effect (APE) for the project. However, the proposed project would neither directly nor indirectly impact these historic resources.

No previously reported archeological sites are located within the Project Area, although Archeological sites and areas of archaeological sensitivity have been reported within the APE. These are located along 19th Avenue, which follows the original shoreline that has been altered by residential and commercial development, as well as by fill emplacement that has substantially reduced the extent of Bowery Bay, particularly on the west side and that has filled a mud flat between the original shore and a peninsular feature immediately east of Steinway Creek.

The proposed project would avoid impacts to listed sites and archeological resources. The NY SHPO has concurred with the FAA's Determination of No Adverse Effect to Historic Resources. Therefore, the proposed project is consistent with Policy 23.

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program?

The proposed project would occur in New York City, which has an approved waterfront revitalization program. A copy of the New York City Waterfront Revitalization Program Consistency Assessment Form and responses to Policy Questions has been provided with this request for concurrence.

The proposed project is consistent with New York City's program. Therefore, the project would also be consistent with New York State's program, as there are no conflicts with any of the state policies.

For Internal Use Only:	WRP no.
Date Received:	DOS no.

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's designated coastal zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State with the concurrence of the United States Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other state agencies or the New York City Department of City Planning in their review of the applicant's certification of consistency.

A. APPLICANT

1. Name: The Port Authority of New York & New Jersey ATTN: Marc Helman
2. Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102
3. Telephone: 973 565 7564 Fax: 973 565 7649 E-mail: mhelman@panynj.gov
4. Project site owner: The Port Authority of New York & New Jersey

B. PROPOSED ACTIVITY

1. Brief description of activity:

   See Attachment A.

2. Purpose of activity:

   See Attachment A.

3. Location of activity: (street address/borough or site description):

   LaGuardia Airport
   Queens County
   Flushing, NY 11369

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   Federal Aviation Administration Approval for Airport Layout Plan changes and project funding; U.S. Army Corp of Engineers Section 10 and Section 404 Permits; NYSDEC Protection of Water and Water Quality Certification; NYSDOS Coastal Zone Management Certification Concurrence

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   Federal Aviation Administration through Passenger Facility Charges.

6. Will the proposed project require the preparation of an environmental impact statement?
   Yes _____ No ✓ If yes, identify Lead Agency:

7. Identify **city** discretionary actions, such as a zoning amendment or adoption of an urban renewal plan, required for the proposed project.

   Acquisition of New York State Property under the water by the Port Authority. Following construction the Port Authority would convey the acquired property interest to the City of New York and those interests would be incorporated into the Demised Premises of the Airport pursuant to Section 19.1 of the lease between the City and the Port Authority.

C. COASTAL ASSESSMENT

Location Questions:	**Yes**	**No**
1. Is the project site on the waterfront or at the water's edge?	✓	
2. Does the proposed project require a waterfront site?		✓
3. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?	✓	

Policy Questions	**Yes**	**No**

The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each question indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.

Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.

4. Will the proposed project result in revitalization or redevelopment of a deteriorated or under-used waterfront site? (1)		✓
5. Is the project site appropriate for residential or commercial redevelopment? (1.1)		✓
6. Will the action result in a change in scale or character of a neighborhood? (1.2)		✓

Policy Questions cont'd	Yes	No
7. Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		✓
8. Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		✓
9. Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)	✓	
10. Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)		✓
11. Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		✓
12. Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)	✓	
13. Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)	✓	
14. Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		✓
15. Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		✓
16. Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		✓
17. Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)		✓
18. Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound- East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)		✓
19. Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitat? (4.1)		✓
20. Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		✓
21. Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)	✓	
22. Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3)		✓
23. Would the action have any effects on commercial or recreational use of fish resources? (4.4)		✓
24. Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		✓
25. Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)		✓
26. Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)	✓	
27. Will any activity associated with the project generate nonpoint source pollution? (5.2)		✓
28. Would the action cause violations of the National or State air quality standards? (5.2)		✓

Policy Questions cont'd	Yes	No
29. Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		✓
30. Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)		✓
31. Would the proposed action have any effects on surface or ground water supplies? (5.4)		✓
32. Would the action result in any activities within a federally designated flood hazard area or state-designated erosion hazards area? (6)	✓	
33. Would the action result in any construction activities that would lead to erosion? (6)	✓	
34. Would the action involve construction or reconstruction of a flood or erosion control structure? (6.1)		✓
35. Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		✓
36. Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		✓
37. Would the proposed project affect a non-renewable source of sand ? (6.3)		✓
38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants? (7)	✓	
39. Would the action affect any sites that have been used as landfills? (7.1)		✓
40. Would the action result in development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)		✓
41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)	✓	
42. Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)		✓
43. Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)	✓	
44. Would the action result in the provision of open space without provision for its maintenance? (8.1)		✓
45. Would the action result in any development along the shoreline but NOT include new water-enhanced or water-dependent recreational space? (8.2)		✓
46. Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		✓
47. Does the proposed project involve publicly owned or acquired land that could accommodate waterfront open space or recreation? (8.4)		✓
48. Does the project site involve lands or waters held in public trust by the state or city? (8.5)	✓	
49. Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		✓
50. Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)		✓

Policy Questions cont'd	Yes	No
51. Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)		✓
52. Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)	✓	

D. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Contact ~~Applicant/Agent~~ Name: Marc Helman

Address: 2 Gateway Center, 14th Floor

Newark, NJ 07102 Telephone 973 565 7564

Contact ~~Applicant/Agent~~ Signature: Marc Helman Date: 1 November 2013

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENT PROGRAM
ATTACHMENT A

Project Description
The LaGuardia Airport Runway Safety Area Enhancement Program includes a series of projects divided into two functional areas at LaGuardia Airport (LGA):

(1) Constructing deck extensions to provide for Runway Safety Areas (RSAs) and Engineered Materials Arresting System (EMAS) beds at the ends of Runway 4-22 and Runway 13-31
(2) Constructing a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to eliminate runway incursions

The Program also includes the creation of construction staging areas to support the construction projects in the Runway Safety Area Enhancement Program.

The Proposed Action elements are depicted in the attached figures and are described below:

Runway Safety Area Enhancements
The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS) beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. This would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards.

Restricted Vehicle Service Road Construction
This aspect of the project consists of constructing a new section of the Airport's existing RVSR south of the Runway 22 End to avoid repeated exits and entries of service vehicles from airport secure areas onto public roadways and to reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to aircraft service facilities on the west side of the Airport without having to leave the secured area and drive on public roadways or use the runway areas (creating runway incursions) to access the eastern terminals from the west side of the Airport.

Creation of Construction Staging Areas
In order to construct the RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging, as there is insufficient existing area on Airport that is unallocated and could be used for this purpose.

To accommodate the construction of the RSA Enhancements and RVSR, a construction staging would be created in an area within the Airport leasehold known as Ingraham's Mountain, a man-made topographic feature created with material excavated for construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA) and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard.

In addition, a portion of existing Employee Parking Lot 10E, located near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily allocated to a construction staging area to support the RSA construction project.

Purpose and Need

The purpose of the project is to increase safety for aircraft and their passengers by enhancing the RSAs at the Runway 4 and 31 Ends by the end of 2015. The RSA requirement is mandated by both the Federal Aviation Administration (FAA) and by Congress. Safety would also be enhanced by creating a new section of the RVSR south of the Runway 22 End to reduce the potential for runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA. These safety enhancements would be accomplished by:

- Constructing deck extensions and installing an Engineered Materials Arresting System (EMAS) beds on the decks
- Constructing the RVSR south of the Runway 22 End and reconfiguring Runway Drive to accommodate the construction of the RVSR

The Proposed Actions are needed because the existing RSAs do not meet the FAA requirement and the current RVSR is not adequate to prevent runway incursions. In order for LaGuardia Airport to meet the FAA safety requirements the following issues must be addressed:

Runway Safety Area Enhancement

Currently, the existing decks of both runways are not long enough to provide adequate space for a full dimension RSA, a standard EMAS installation (standard RSA), or a non-standard EMAS. If the runway thresholds are kept in their existing locations, then the existing decks need to be extended to provide adequate space for RSAs.

Creation of a New Section of the Restricted Vehicle Service Road (RVSR)

To avoid the security concerns and time delays associated with repeated exits and entries of service vehicles and to reduce the risk of runway incursions and of increasing Air Traffic Control's workload, LGA needs a RVSR that is on Airport property in secured areas (i.e., airside) near the Runway 22 End. Constructing a new section of the RVSR south of the Runway 22 End would allow fuel trucks to deliver jet fuel to ramps located at the eastern Terminals B, C, and D without exiting a secured area onto Runway Drive. A new section of the RVSR would also allow ground service equipment to have access from the LGA's eastern terminals to the aircraft service facilities on the west side of the airport without having to leave the same secured area.

In order to implement any RSA Enhancements and the RVSR at LGA, an area must be provided for contractor mobilization and construction equipment staging. A minimum of 10 acres with access to the airport roadway system are needed for the deck extension and RVSR construction.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENTS
NEW YORK CITY DEPARTMENT OF CITY PLANNING
NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM

Location Question Responses

Location Question 1
Is the project site on the waterfront or at the water's edge?
LaGuardia Airport (LGA) is located on a manmade peninsula surrounded on three sides by water (Flushing Bay/East River). The deck extensions would be built in the water and would affect 754 square feet of the bay/river bottom. However, the work would not occur in a working waterfront area.

Ingraham's Mountain is located on a peninsula and is adjacent to the water's edge. However, work on Ingraham's Mountain will take place at elevations that are approximately 65 feet above sea level and no work will take in the water or at the water's edge.

The RVSR site is a minimum of 1,000 feet from the waterway separated from the water's edge by buildings, runways, taxiways and roadways. A portion of Parking Lot 10E will be cordoned off as a staging area but no other alteration will be performed. No work will take place in the waterway or at the water's edge for these aspects of the project.

Location Question 3
Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?
The proposed project to construct the deck extensions would alter a total of approximately 4.65 acres of land underwater. Each deck extension will be supported on one hundred twenty (120) 24" diameter piles, typically on a grid of 35 feet x 27 feet. Each pile would occupy 3.14 square feet of bay/river bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both decks, the total impact is approximately 754 square feet or 0.02 acres. The Port Authority will undertake mitigation efforts for the 0.02 acres of bay/river bottom that will be impacted at a site that is as close to the impacted waterways as is practicable given Federal Aviation Administration (FAA) restrictions on projects that could be potential wildlife attractants.

The construction of the Restricted Vehicle Service Road and the construction of the staging area will not alter the shoreline, land underwater or coastal waters.

Policy Question Responses

Policy Question 9 (Policy 2)
Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites?

There are piers present at LGA that are used for navigational aids and for mooring vessels involved in maintaining waterside security for the airport. However, the proposed project site is not located in a Significant Maritime and Industrial Area although the importance of the airport in the local and regional economy merits its consideration as a water-dependent activity.

The deck extension project will add 182 feet to the length of runway decks currently located in the waterway in order to meet FAA and Congressional mandates for construction of Runway Safety Areas. The deck extensions will not change the current functions of the runways or the runway decks.

The piers located at the end of Runway 22 for navigational aids and the pier located along side Runway 22 for maintenance vehicles to reach the navigational aid would not be impacted by the proposed project to extend the decks.

The proposed RVSR is separated from existing piers by buildings, runways, taxiways, a parking lot and roadways.

As the proposed project will not change the function of the existing waterfront structures, the proposed project is consistent with Policy 2.

Policy Question 12 (Policy 2.3, 3.2)
Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads?

The deck extension involves the construction of an additional 182 feet beyond the existing deck to provide a Runway Safety Area in compliance with the FAA and Congressionally mandated requirements. The project will not alter the current use of the decks or the runway. The decks are located in an area where the waters are currently in a U.S. Department of Homeland Security exclusion zone and, therefore, are not accessible to the public as navigable recreational waters.

As the runway thresholds will remain the same, there will be no intrusion upon navigation and the Federal Navigation Channel by aircraft vertical or horizontal take-off and loading cones. The RSA deck extensions would intrude into navigable waters of the United States. However, there would not be additional navigation hazards because the waters adjacent to the ends of the existing runways are not available for navigation because of the presence of lighting piers and the U.S. Department of Homeland Security exclusion zone. The exclusion zone is marked with buoys.

The proposed deck extensions would support the airport's water-dependent function as part of the regional economy by protecting both property (aircraft) and lives (passengers and aircrew) in the event of an overrun or undershoot by either cargo or passenger aircraft.

The RVSR and the creation of the construction staging areas will not involve the construction of piers, docks, or bulkheads and would have no impact on navigation.

As the proposed project will not change the current use of the decks, and would support the airport's role in the regional economy, the proposed project is consistent with Policy 2.3. As the proposed project will not conflict with recreational, commercial and ocean-going freight vessels, the proposed project is consistent with Policy 3.2

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Policy Question 13 (Policy 2.3, 3.1, 4, 5.3, 6.3)
Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters?
The proposed project area is adjacent to, but not within, portions of the East River Long Island Sound Special Natural Waterfront Area. The proposed project site is approximately one mile from the nearest designated Significant Coastal Fish and Wildlife Habitat (North and South Brother Islands) and is separated from this site by Rikers Island.

The construction of the deck extensions would require the installation of closed end piles that would be driven to bedrock and then filled with concrete prior to the placement of pile caps and decking. The project would not require dredging nor would the deck extensions require the direct placement of dredged or fill materials into coastal waters, marshes, estuaries, or wetlands except for the piles themselves. Furthermore, the proposed project site is not a source of non-renewable sand for beach nourishment.

The piles would eliminate existing benthic habitat in each pile footprint. Each deck extension would be supported on one hundred twenty (120) 24" piles on a grid of 35 feet x 27 feet. Each pile would occupy 3.14 square feet of sea bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both decks, the total benthic habitat lost for both RSA deck extensions combined would be approximately 754 square feet or 0.02 acres. However, the new piles would create additional surface area of approximately 37,680 square feet area for the attachment of benthic organisms beneath the RSA deck extensions.

The proposed deck extensions would also result in approximately 4.65 acres of shading of existing open water. The water depth in the Project Area is approximately 20 feet, but sunlight only penetrates through a portion of the water column due to existing turbidity levels. This area would represent diminished habitat value in the upper 3 to 6 feet of the water column, primarily as foraging habitat for fish.

As the proposed deck extensions would have impacts on benthic habitat, the Port Authority is identifying mitigation projects that would be submitted as part of permit applications to the U.S. Army Corps of Engineers and the New York State Department of Environmental Conservation as compensation for unavoidable impacts to the affected project areas.

The construction of the RVSR and the construction staging area would not take place in coastal waters. Nor would this or any aspect of the project have an impact on navigation (see response to Policy Question 9).

The proposed Ingraham's Mountain Construction Staging Area and its access road would eliminate approximately 9 acres of existing upland habitat, which is vegetated by non-native and invasive plants as well as common early native and non-native species typically associated with disturbed habitats in southeastern New York State. Although approximately 9 acres of the existing habitat would be cleared, the remaining habitat in perimeter areas of the property would be left undisturbed. It is anticipated that some the displaced species would relocate to the undisturbed areas, while others would relocate to locations in the general surrounding area that could accommodate them. Accordingly, the existing

communities and associated vegetation would persist and continue to be present at Ingraham's Mountain, both during and after construction.

The RVSR would not impact habitat areas.

Based on the foregoing, the proposed project is consistent with Policies 2.3, 3.1, 4, 5.3 and 6.3

Policy Question 21 (Policy 4.2)
Would the action involve any activity in or near a tidal or freshwater wetland?
The proposed RSA project is located adjacent to areas of the airport with State designated tidal wetlands.

The deck extension project will take place outside the littoral zone (defined by the NYSDEC as lands from mean high tide line to 6 feet below mean low water). As the work would take place in areas with depths more than 6 feet below low water, no work would occur in State designated tidal wetlands.

The RVSR is located within LaGuardia Airport, which his surrounded on three sides by State designated tidal wetlands. However, the proposed project site is not located in the designated wetlands nor the tidal wetland adjacent area. The RVSR site is separated by a minimum of 1,000 feet from the State designated tidal wetlands by buildings, runways, taxiways, and roadways.

A portion of Ingraham's Mountain is located within the tidal wetland adjacent area. However, the proposed work at this site would take place at elevations of 65 to 85 feet above the sea level. Therefore, the State designated tidal wetlands and the tidal wetland adjacent areas would not be impacted.

Moreover, as noted in response to Policy Question 13 (see above), the Port Authority will propose mitigation for impacts to benthic habitat. The proposed mitigation is likely to include creation or restoration of tidal wetlands and tidal wetland adjacent areas at a site or sites in the watershed of LGA.

The proposed project would not impact State designated tidal wetlands and is likely to include a mitigation proposal to create/enhance tidal wetlands. Therefore, the proposed project is consistent with Policy 4.2.

Policy Question 26 (Policy 5.1)
Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters?
The current decks are over open waters that receive direct deposition of airborne pollutants, which are captured by the deck and washed off by rain events rather than falling directly in the water. The proposed project would have drainage managed such that the runoff from the decks would not cause contravention of water quality. Stormwater from the decks would be directed and connected to stormwater conveyances associated with the existing decks from where it would be released to Flushing Bay. The proposed decks would be partly covered by the proposed Engineered Materials Arrestor System (EMAS), which would not be used by vehicles except in emergency situations. Therefore,

materials associated with vehicle use would not be introduced to receiving waters from the EMAS. The outer portion of the deck would be used sporadically by inspection vehicles. Therefore, only minimal amounts of potential pollutants would be introduced to the extended decks.

Currently there are no stormwater controls on Ingraham's Mountain allowing for any stormwater not captured by the vegetation to runoff into the surrounding areas. The development of Ingraham's Mountain will be constructed using stormwater management controls to achieve zero net drainage from the area being developed thereby reducing the runoff of stormwater into the surrounding areas.

Stormwater from the RVSR at LaGuardia Airport does not flow directly into the outfalls. The stormwater is conveyed into holding areas and ultimately pump houses equipped with pumps with high level indicator. When the water reaches a specified level in the pump house, the pumps are activated and the stormwater is discharged to an outfall. When stormwater is discharged from the pump house to the outfall sampling, in accordance with the requirements of SPDES Permit No. NY 0008133 issued to the Port Authority, is conducted to ensure that water quality standards are not contravened.

LGA also has BMPs in place for stormwater management, specifically BMP 7 (Elimination of Non-Storm Water Discharges to Storm Drains), BMP 15 (Stormwater Pollution Prevention Education), and BMP 16 (Street Sweeping & Stormwater Facility Maintenance). There are no combined sewer system overflows (CSOs) from LGA into receiving waters and wastewater from LGA is directed to a city-operated wastewater treatment plant (WWTP) and not a combined sewer system. After completion of the RVSR project, stormwater will be managed in the same manner as described above and LGA will continue to comply with the requirements of the SPDES Permit.

The water surrounding LGA Airport is currently brackish and the current volume of fresh (storm) water being discharged into the brackish water is not sufficient to impact salinity or the fish habitat. The proposed work is either within existing paved areas that currently discharge to the LGA stormwater system or areas that are currently open water and receive precipitation directly. Therefore, there would be no increase in freshwater discharge as a result of the proposed project.

The proposed project would ensure the control of stormwater and would manage direct and indirect discharges. Therefore, the proposed project is consistent with Policy 5.1.

Policy Question 32 (Policy 6)
Would the action result in any activities within a federally designated flood hazard area or state designated erosion hazards area?
Portions of LaGuardia Airport are below sea level and in a designated federal hazard area.

The proposed deck extension is located in the currently mapped 100 year floodplain and in the 1% Advisory Base Flood Elevation proposed by the Federal Emergency Management Agency (FEMA). The RSA deck extensions have been designed so as to not exacerbate flooding and/or erosion but cannot be constructed at a higher elevation because it is necessary that they meet the existing deck elevations. Hydrodynamic modeling shows that the proposed in-water structures (piles) for the RSA deck extension would not cause changes in current velocities or directions that would result in scour or sedimentation

that could change water depths. In addition, the area that would be occupied by the piles is 0.02 acres and the volume of water displaced would not be sufficient to result in flooding of adjacent land areas.

A small portion of the RVSR would be constructed within the current 100-year and 500-year floodplains. The majority of the work would occur on paved surfaces and would not increase the risk of downstream flooding. Construction of the RVSR would not be a significant encroachment in the floodplain.

The U.S. Department of Transportation (USDOT) in Order 5650.2 sets criteria used to determine if there is a "significant encroachment" on the floodplain in those situations where it is not practicable to avoid it. A significant encroachment would not occur for the proposed project because: 1) there is a low probability of loss of human life, 2) the project has been designed to avoid or minimize future, extensive damage and costs (including damage that could interrupt service), and 3) there would be no notable adverse impacts on natural resources or on the floodplains natural and beneficial values. Based on these criteria, the proposed project would not constitute a significant encroachment on the floodplain.

Due to the higher elevation, with work that would occur from 65 feet to 85 feet above the ground surface, the construction staging area proposed for Ingraham's Mountain would not be the 100-year or 500-year floodplain.

Based on the foregoing, the proposed project is consistent with Policy 6.

Policy Question 33 (Policy 6)
Would the action result in any construction activities that would lead to erosion?
The deck extension is expected to cause small, localized changes to the erosion and sedimentation patterns. Model results indicate that the tidal flux through Rikers Island Channel would be reduced by 0.1 percent and that there would be no detectable impacts to the tidal flux through Flushing Bay. Based on these model results, the deck extension would have negligible impacts to Flushing Bay. As with the existing deck, there would be minor scour effects in the immediate vicinity of each pile. Based on the modeled current speeds, pile configuration, and sediment composition a maximum scour depth of 1.5 feet is estimated with a maximum diameter of approximately 8 feet. In general, the local pile scour at the future deck extension is expected to be similar to the existing pile scour.

The development of Ingraham's Mountain and the RVSR project will expose soil and would have the potential to cause erosion. A project specific Stormwater Pollution Prevention Plan (SWPPP) will be prepared and the plan will include measures to be implemented during construction to minimize erosion from the sites. Post construction stormwater management measures will also be implemented to minimize erosion due to stormwater runoff after the construction of the staging area on Ingraham's Mountain and the RVSR is completed.

Based on the foregoing, the proposed project is consistent with Policy 6.

Policy Question 38 (Policy 7)
Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants?
The deck extensions would not generate waste as not waste is associated with the placement of piles in the water. The construction of the deck extensions would require that stormwater management be in compliance with LGA's SPDES Permit.

The soil and other materials removed from Ingraham's Mountain will be disposed in accordance with Solid Waste Regulations. The creation of the RVSR will generate solid waste consistent with road construction projects.

As measures would be taken to minimize environmental degradation from solid waste and hazardous substances by complying with Local, New York State and Federal regulations and following procedures outlined in an Environmental Management Plan, the proposed project is consistent with Policy 7.

Policy Question 41 (Policy 7.3)
Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility?
The components of the proposed project would generate solid waste consistent with that generated by many construction projects, e.g. soil, rock, construction debris. The disposal of this solid waste would be managed in accordance with local, state and federal regulations. The Environmental Management Plan for the project will include procedures for the management and disposal of solid waste expected to be generated as part of the deck extension, the creation of the RVSR, and the construction staging areas, including requirements for the transport of the solid waste to avoid coastal areas. If hazardous waste is encountered during construction, it would also be managed in accordance with applicable regulation. At no time will a waste facility be created as part of this project. Therefore, the proposed project is consistent with Policy 7.3.

Policy Question 43 (Policy 8)
Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation?
The proposed Restricted Vehicle Service Road is adjacent to the Grand Central Parkway, which is a Section 4(f) park resource that is managed by the New York State Office of Parks, Recreation & Historic Properties in conjunction with the New York City and State Departments of Transportation. The proposed RVSR alterations are contained on airport property and they would not impact the park resource, nor would they decrease access to water-related recreational resources and facilities.

Elmjack Field located adjacent to Flushing Bay is primarily used for landside, rather than water dependent recreational purposes and is a privately owned property. Elmjack Field is located on airport property and its use by the public is with the forebearance of the Port Authority. Elmjack Field is adjacent to Ingrahams's Mountain and the proposed project would not alter the use of Elmjack Field and access to the park would be maintained during and after construction.

The proposed project would not interfere with public access to Elmjack Field and any water-related recreational opportunities. The proposed project would not impact the Grand Central Parkway and, therefore, a Section 4(f) evaluation is not necessary. The project would not change access to the shore or preclude activities currently available at the shore. Therefore, the proposed project is consistent with Policy 8.

Policy Question 48 (Policy 8.5)
Does the project site involve lands or waters held in public trust by the state or city?
The Airport property is owned by the City of New York and leased to the Port Authority through 2050. The boundaries of the Airport property and Port Authority's leasehold extend into the water to the bulkhead line. The deck extensions would be built beyond the bulkhead line on land under water owned by the State of New York. The Port Authority would acquire the property interests needed to construct the deck extensions from New York State. Once construction is completed, the Port Authority would convey the acquired property interests to New York City, and those interests would be incorporated into the Demised Premises of the Airport pursuant to Section 19.1 of the lease between the City and the Port Authority. In a letter to New York State's Office of General Services dated July 19, 2013, the Port Authority requested the underwater land rights to build the portions of the extensions that exceed the limits of these easements.

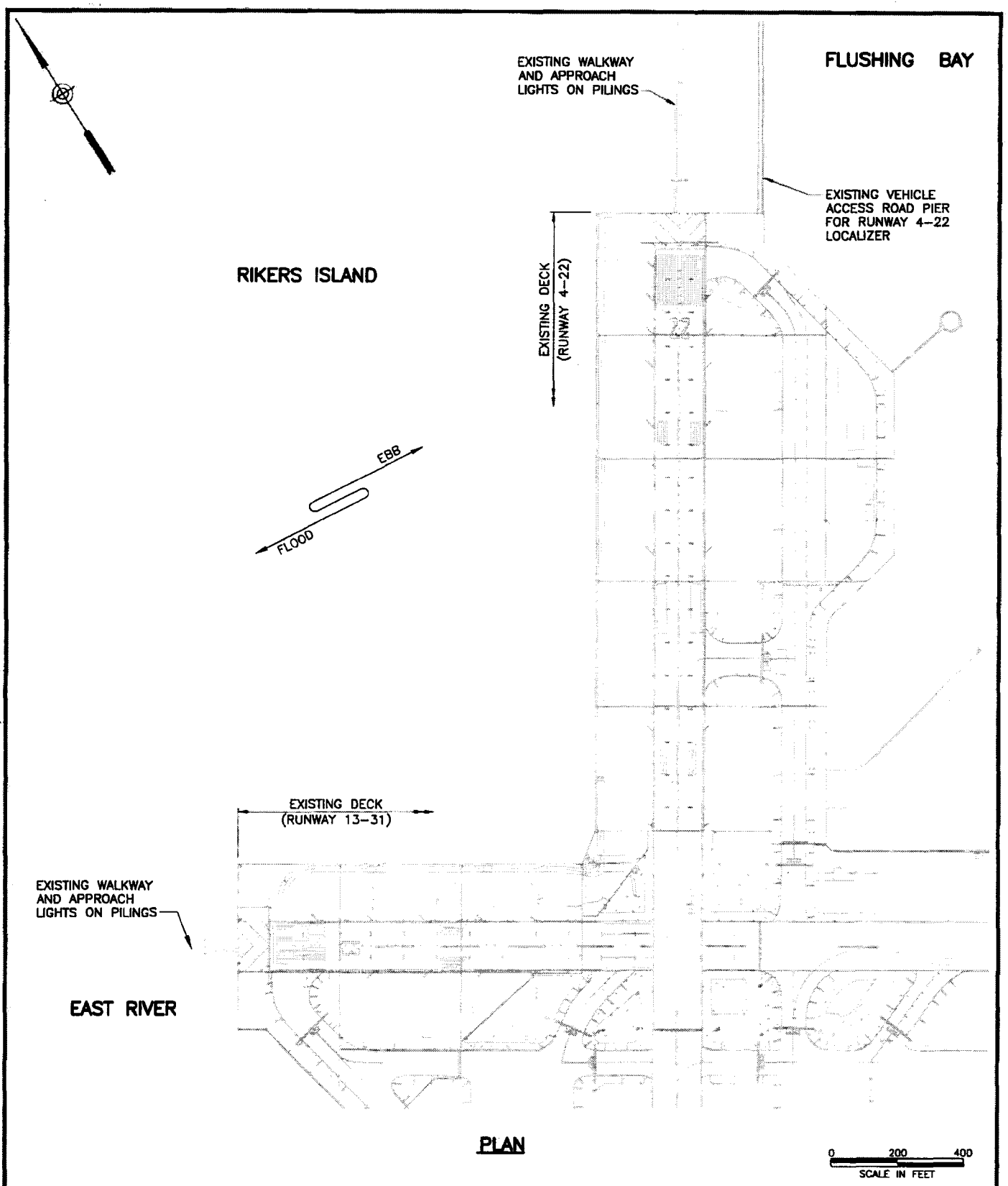
Based on the foregoing, the proposed project is consistent with Policy 8.5

Policy Question 52 (Policy 10)
Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York?
The Marine Air Terminal, the Lent Homestead and Cemetery, and the Steinway House, which are listed in the Register of Historic Places, and Hangars 1 – 5, which are eligible to listed in the Register of Historic Places are located within the Area of Potential Effect (APE). However, the proposed project would neither directly nor indirectly impact these historic resources.

No previously reported archeological sites are located within the Project Area, although archeological sites and areas of archaeological sensitivity have been reported within the APE. These are located along 19th Avenue, which follows the original shoreline that has been altered by residential and commercial development, as well as by fill emplacement that has substantially reduced the extent of Bowery Bay, particularly on the west side and that has filled a mud flat between the original shore and a peninsular feature immediately east of Steinway Creek.

The proposed project would avoid impacts to listed sites and archeological resources. The New York State Office of Parks, Recreation & Historic Properties has concurred with the FAA's Determination of No Adverse Effect to Historic Resources.

As the proposed project will avoid impacts to listed sites, as well as avoid impacts to archeological resources, the proposed project is consistent with Policy 10.



PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline: **STRUCTURAL**	MM-DD-YYYY (Date)	1 of 8
		EXISTING CONDITIONS PLAN	LGA-124.185 (Contract Number)	Workorder Number
A. Krutovkly (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 (PID Number)	Drawing Number **PD-1**

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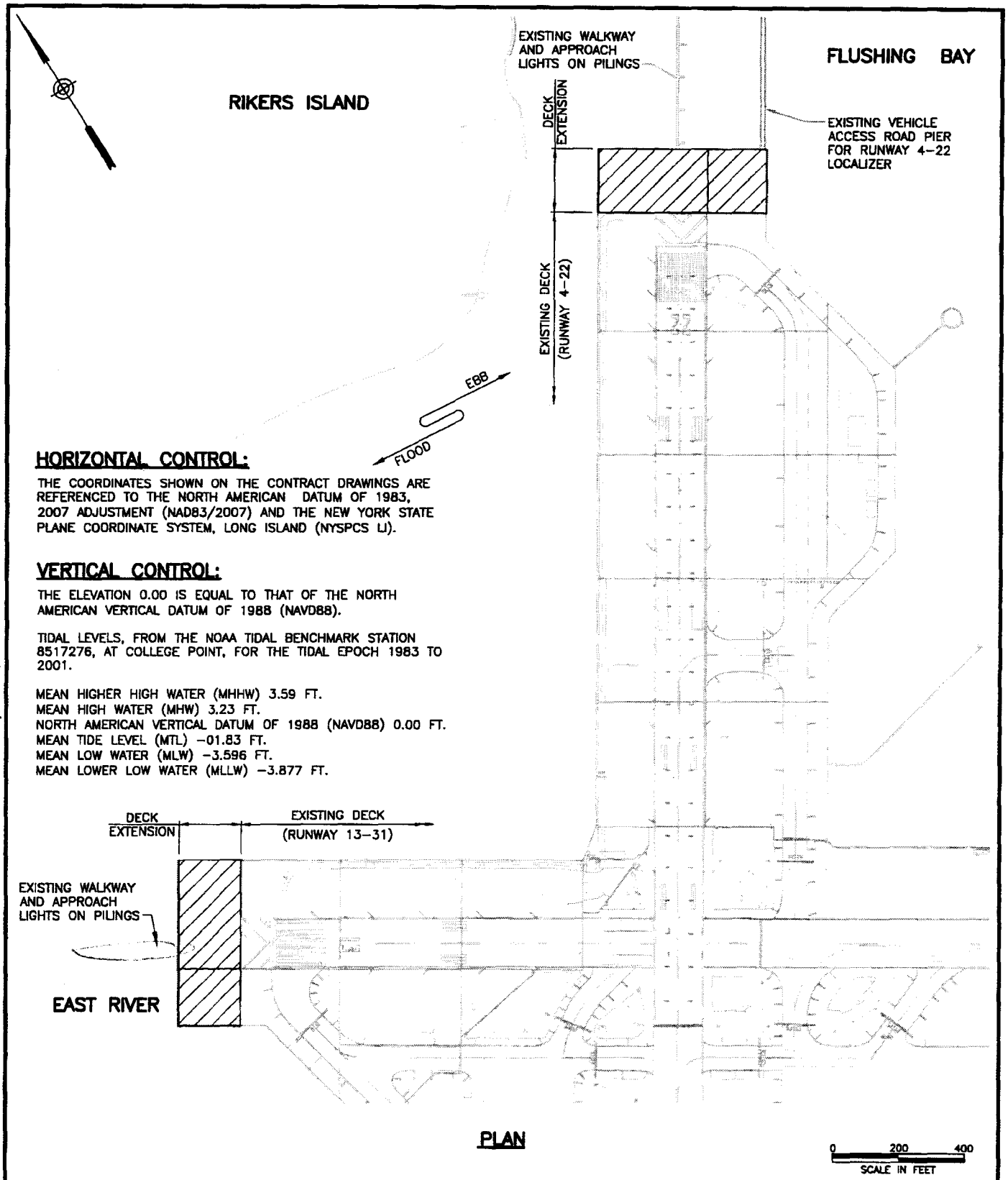

HORIZONTAL CONTROL:

THE COORDINATES SHOWN ON THE CONTRACT DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983, 2007 ADJUSTMENT (NAD83/2007) AND THE NEW YORK STATE PLANE COORDINATE SYSTEM, LONG ISLAND (NYSPCS LI).

VERTICAL CONTROL:

THE ELEVATION 0.00 IS EQUAL TO THAT OF THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

TIDAL LEVELS, FROM THE NOAA TIDAL BENCHMARK STATION 8517276, AT COLLEGE POINT, FOR THE TIDAL EPOCH 1983 TO 2001.

MEAN HIGHER HIGH WATER (MHHW) 3.59 FT.
MEAN HIGH WATER (MHW) 3.23 FT.
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) 0.00 FT.
MEAN TIDE LEVEL (MTL) -01.83 FT.
MEAN LOW WATER (MLW) -3.596 FT.
MEAN LOWER LOW WATER (MLLW) -3.877 FT.

PLAN

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline: STRUCTURAL	MM-DD-YYYY (Date)	2 of 8
		PROPOSED CONDITIONS PLAN	LGA-124.185 (Contract Number)	Workorder Number: -
A. Krutovkiy (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS		12725000 (PID Number)	Drawing Number: PD-2

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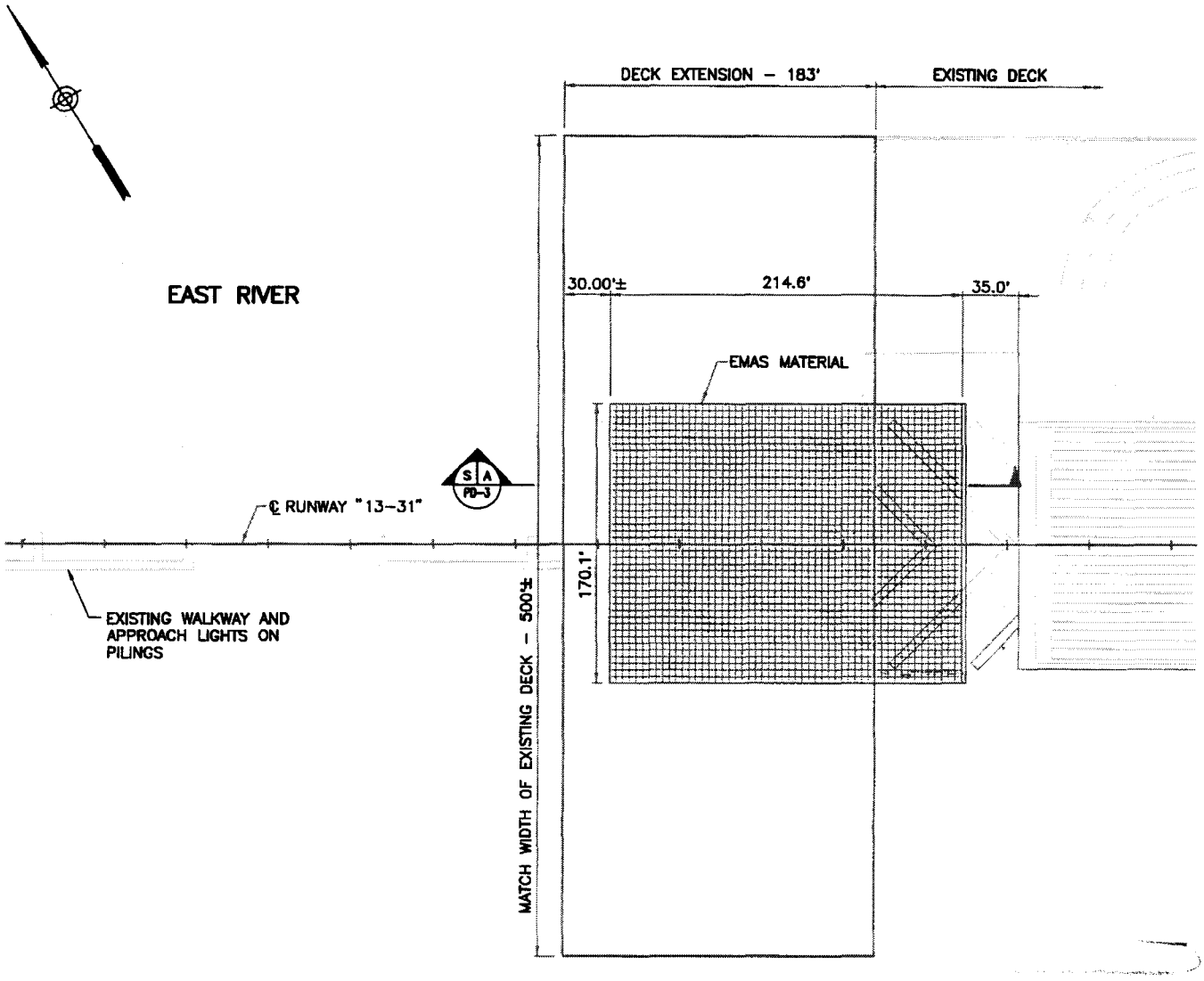
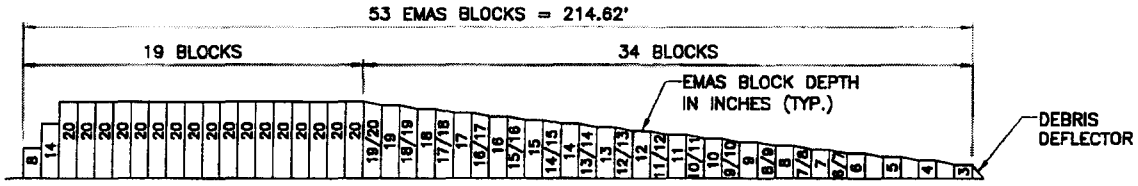


PLAN



S A PD-3 SECTION N.T.S.

0 50 100 SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline: STRUCTURAL	MM–DD–YYYY Date	3 of 8
A. Krutovkiy (Designed by) B. Boscaino (Drawn by) A. DaVito (Checked by)	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS	EMAS LAYOUT PLAN AND SECTION RUNWAY 13–31	LGA–124.185 Contract Number; 12725000 PID Number	Workorder Number –; Drawing Number PD-3

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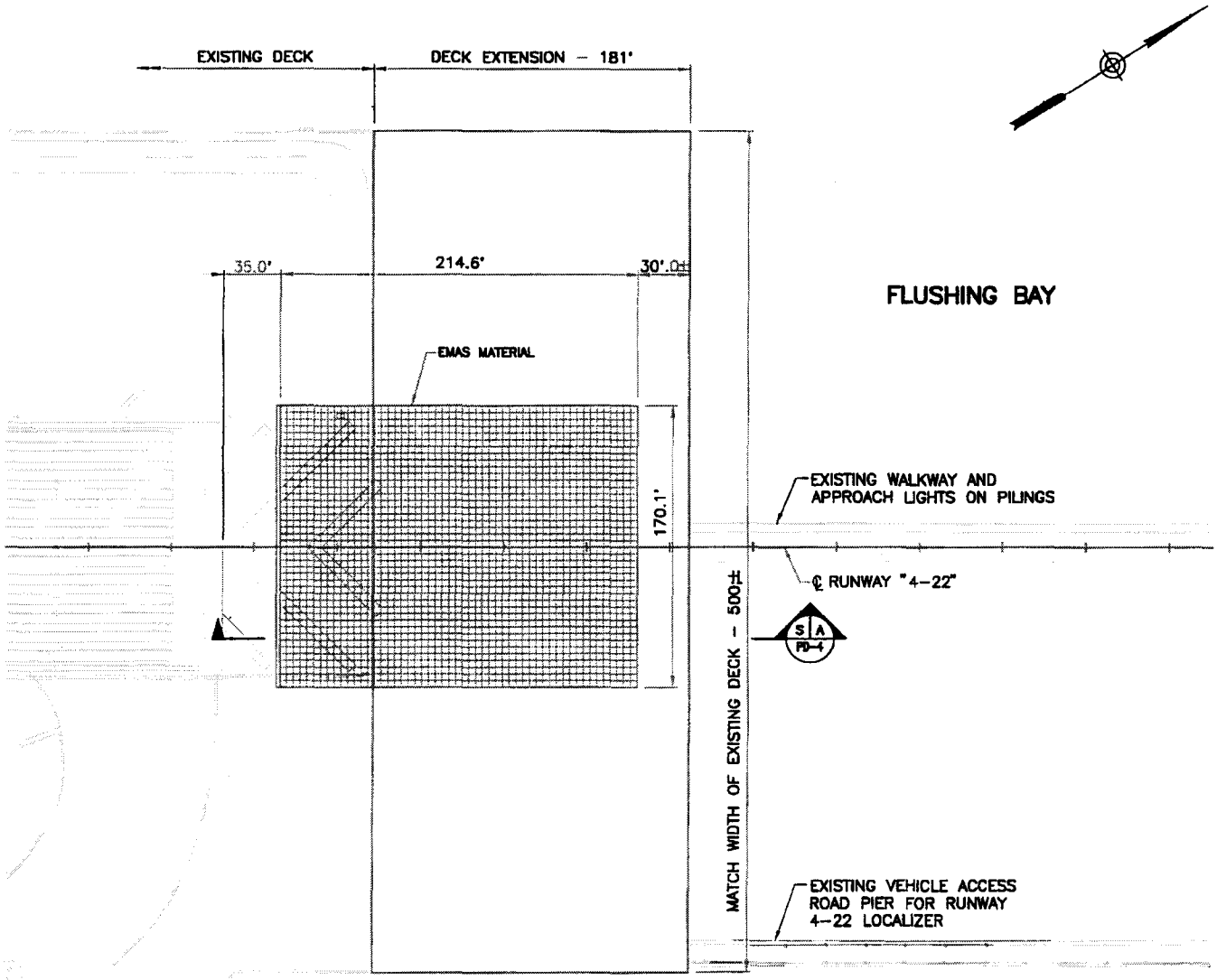
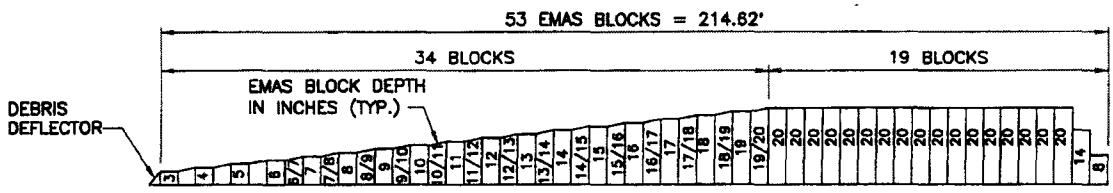


PLAN



S A PD-4 SECTION
N.T.S.

0 50 100
SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	4 of 8
A. Krutovkly B. Boscaino A. DeVito	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**	**EMAS LAYOUT PLAN AND SECTION RUNWAY 4-22**	LGA-124.185 Contract Number	Workorder Number -
Designed by Drawn by Checked by			12725000 PID Number	Drawing Number **PD-4**

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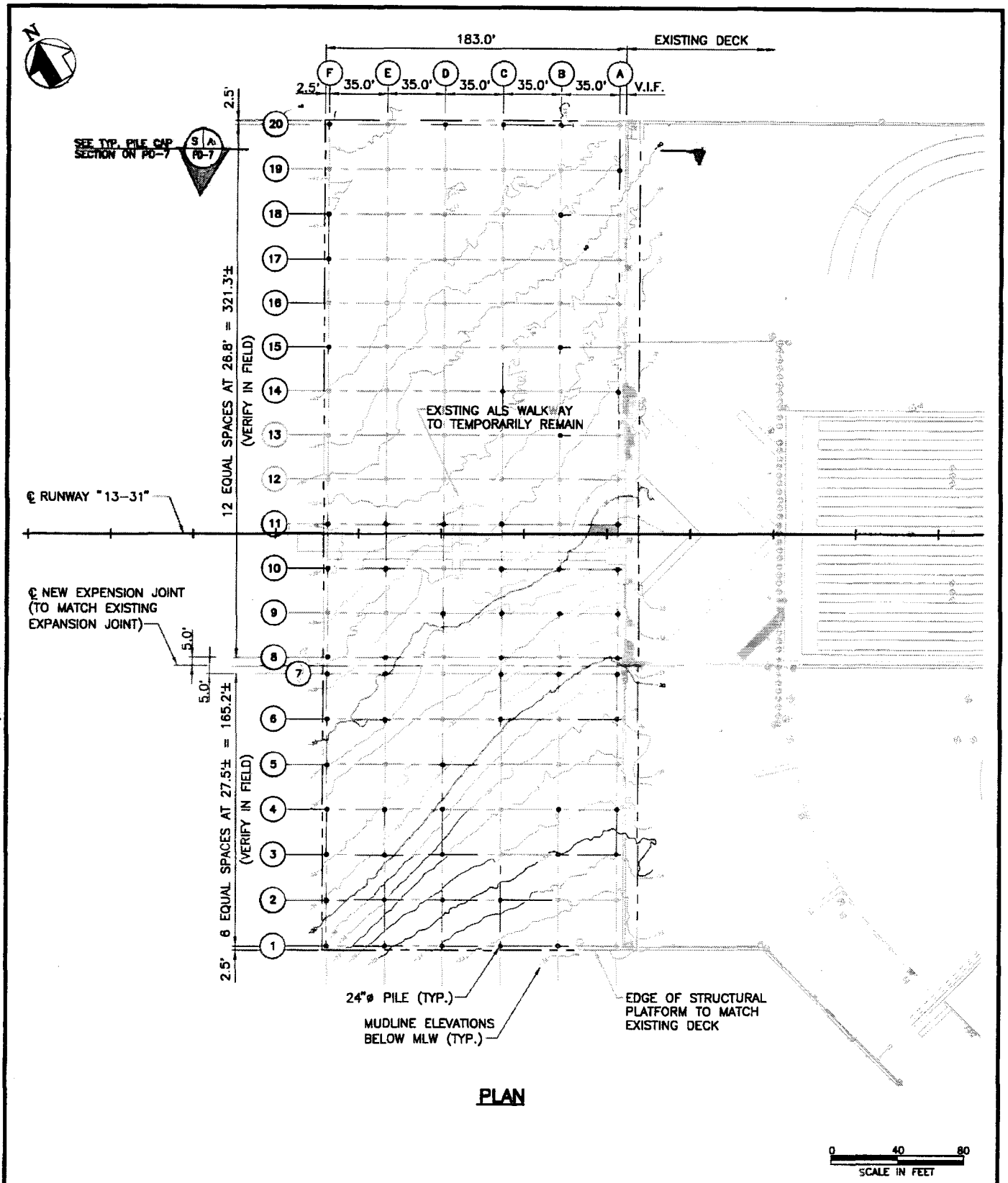

PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	5 of 8
		PILE LAYOUT PLAN RUNWAY 13-31	LGA-124.185 Contract Number	Workorder Number -
A. Krutovkiy B. Boscaino A. DeVito	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 PID Number	Drawing Number **PD-5**
Designed by Drawn by Checked by				

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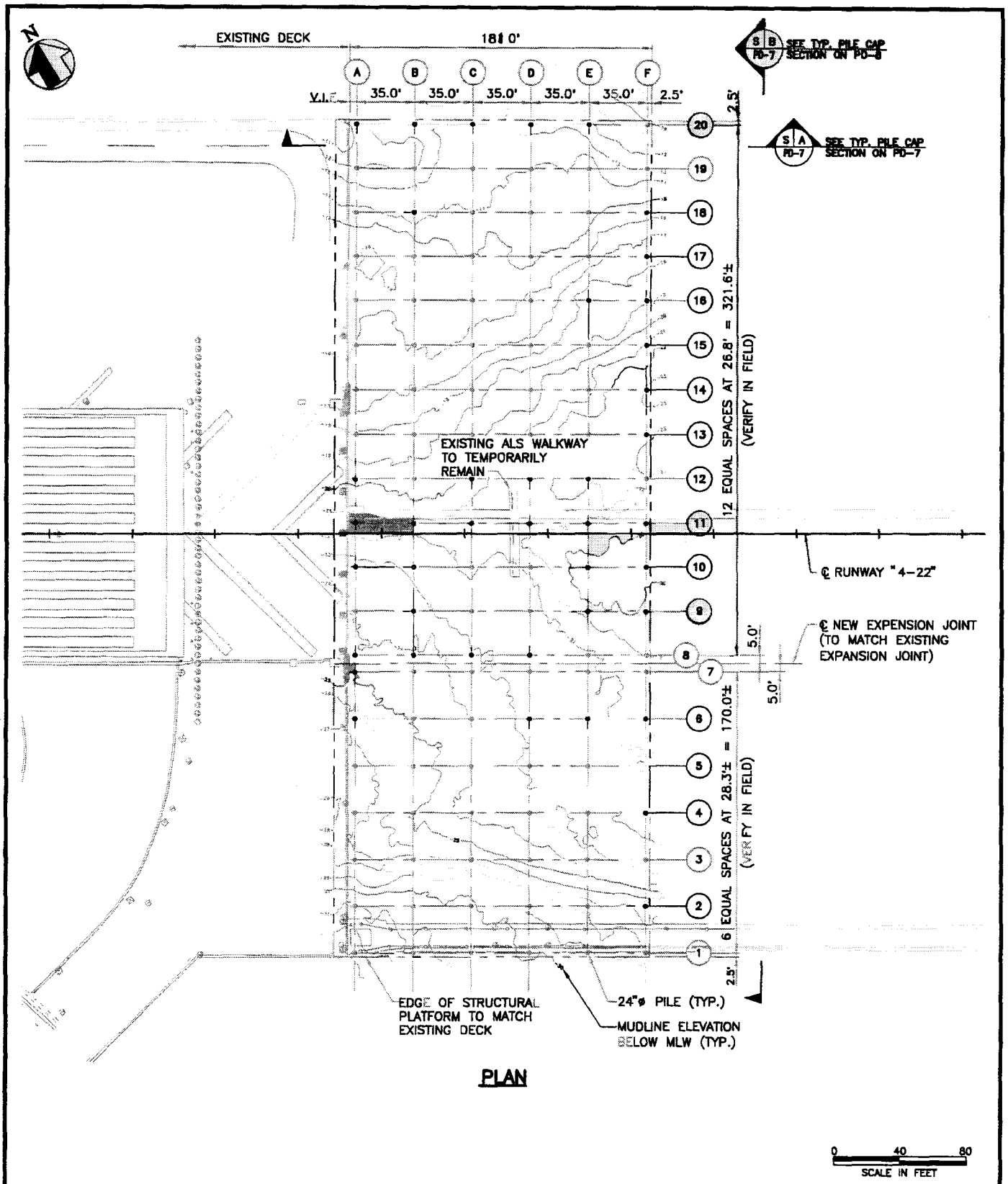

PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	8 of 8
		PILE LAYOUT PLAN RUNWAY 4-22	LGA-124.185 Contract Number	Workorder Number -
A. Krutovkly Designed by · B. Boscaino Drawn by · A. DeVito Checked by	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 PID Number	Drawing Number **PD-6**

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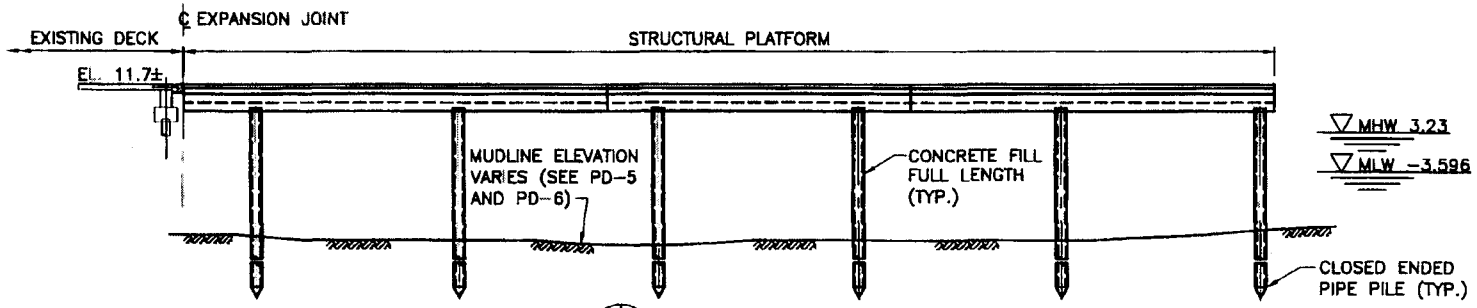
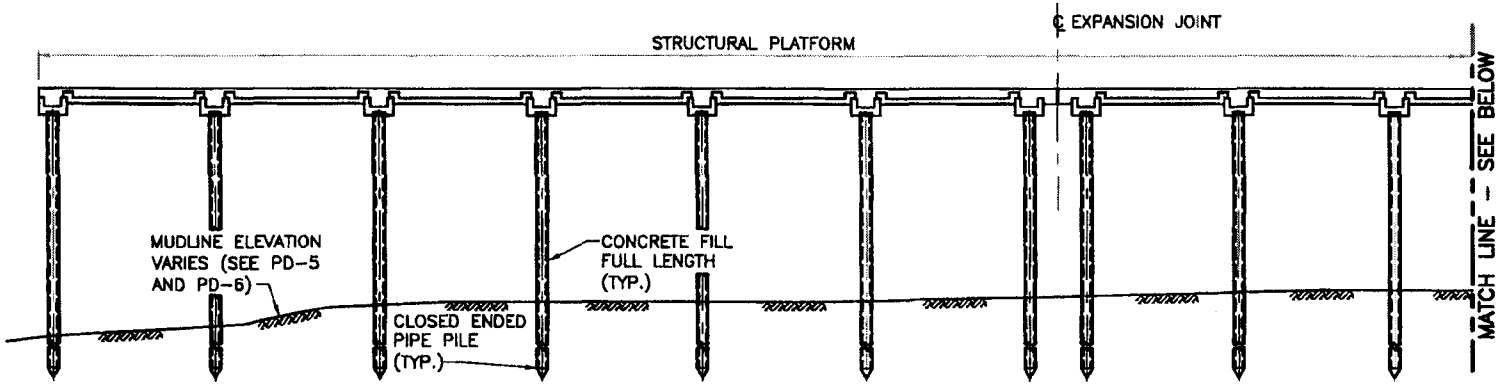
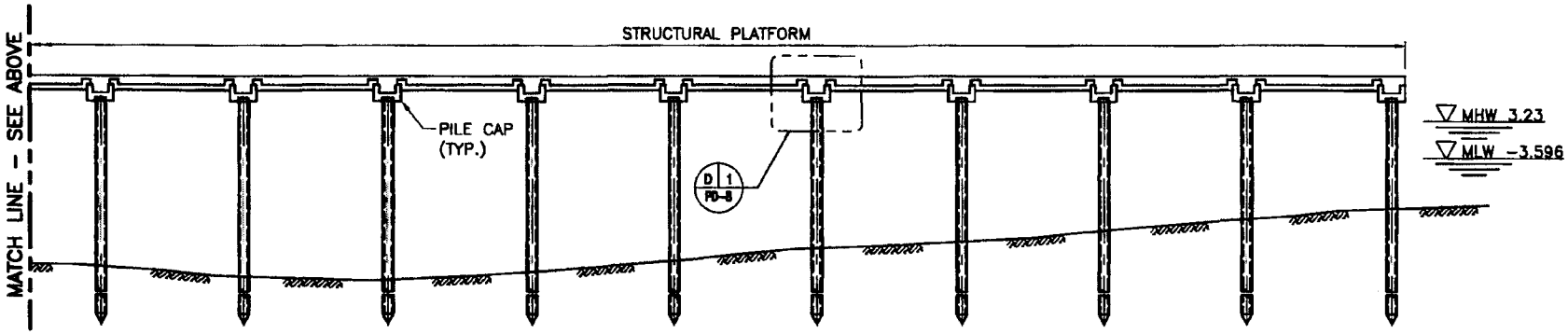


S A TYPICAL PILE CAP SECTION
PD-5 & PD-6 (PARALLEL TO THE RUNWAY)





S B TYPICAL PILE CAP SECTION
PD-5 & PD-6 (PERPENDICULAR TO THE RUNWAY)

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline: STRUCTURAL	MM-DD-YYYY (Date)	7 of 8
A. Krutovskiy (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	RUNWAY SAFETY AREA IMPROVMENTS PERMIT DRAWINGS	TYPICAL PILE CAP SECTIONS	LGA-124.185 (Contract Number) 12725000 (PID Number)	Workorder Number; Drawing Number PD-7

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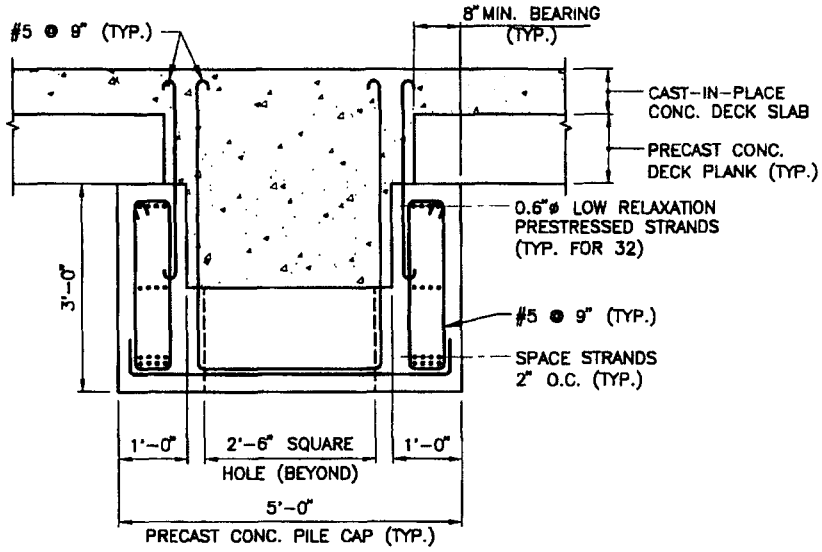
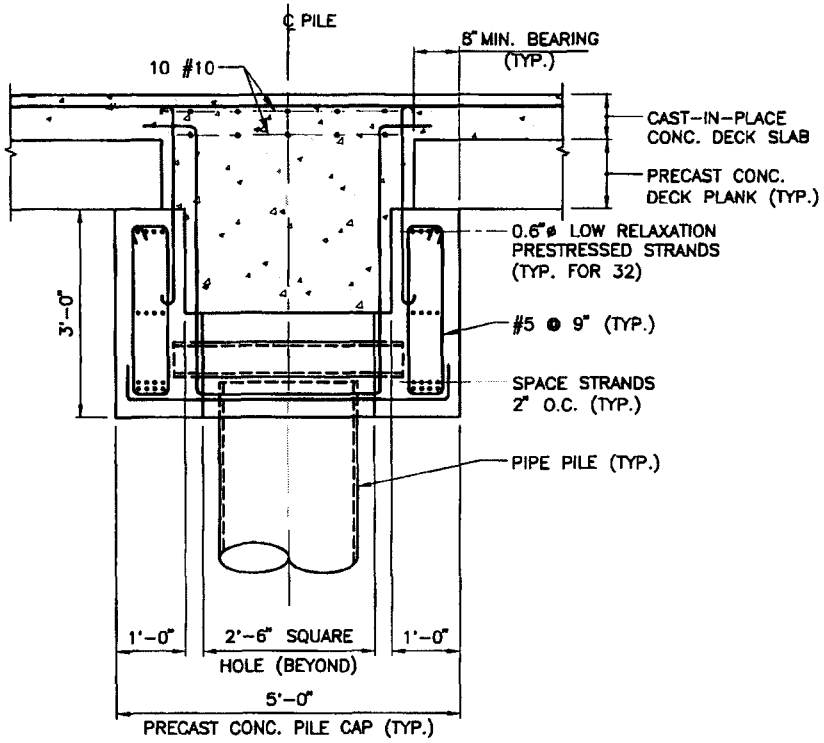


D 1 PD-7 TYPICAL PILE CAP SECTION



D 1 PD-7 TYPICAL PILE CAP SECTION THROUGH PILE

0 1 2 3
SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline STRUCTURAL	MM-DD-YYYY Date	8 of 8
A. Krutovskiy B. Boscaino A. DeVito	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS	TYPICAL PILE CAP SECTIONS	LGA-124.185 Contract Number	Workorder Number
Designed by Drawn by Checked by			12725000 PID Number	Drawing Number PD-8

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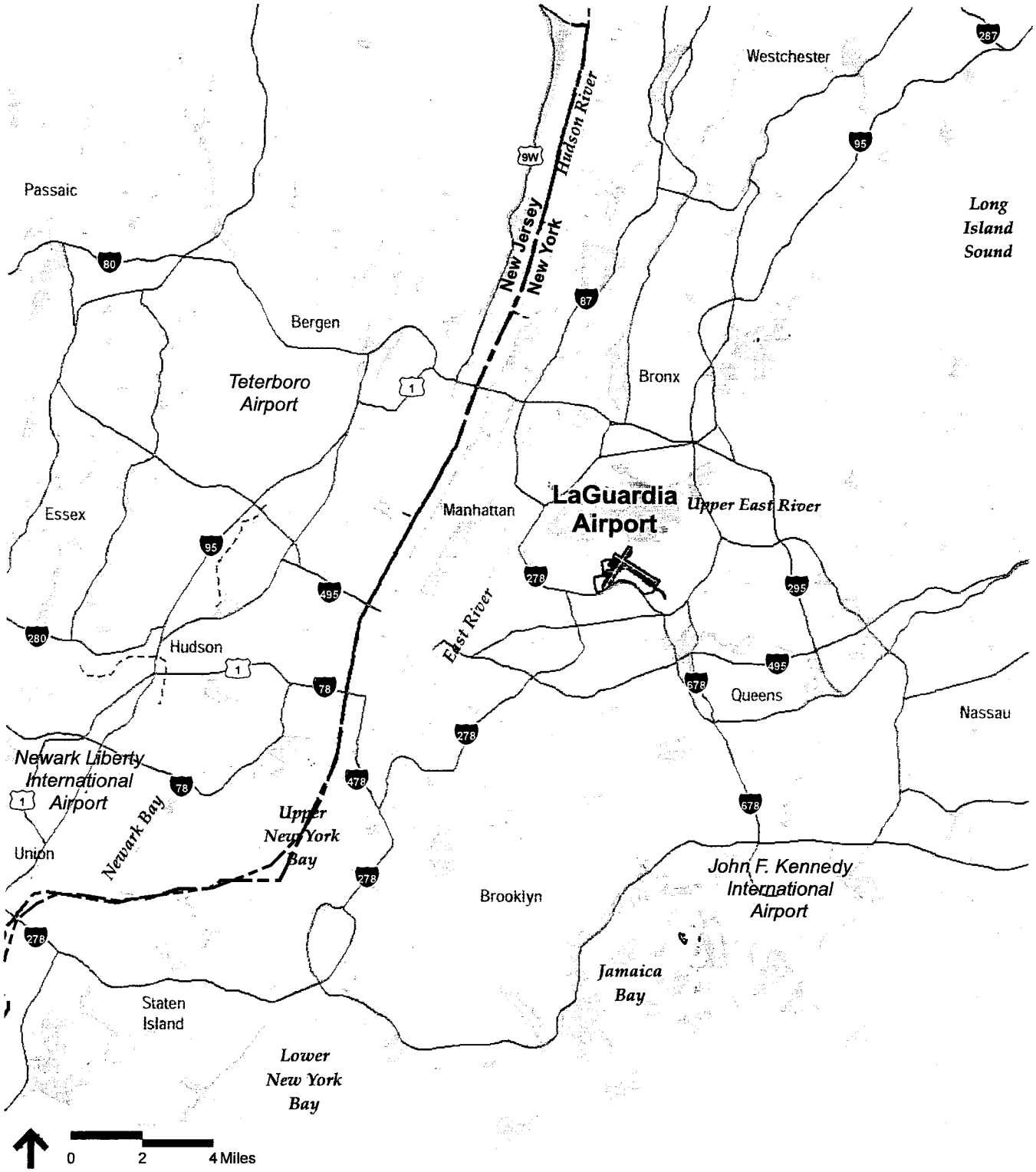


Sources: ESRI StreetMap

Legend

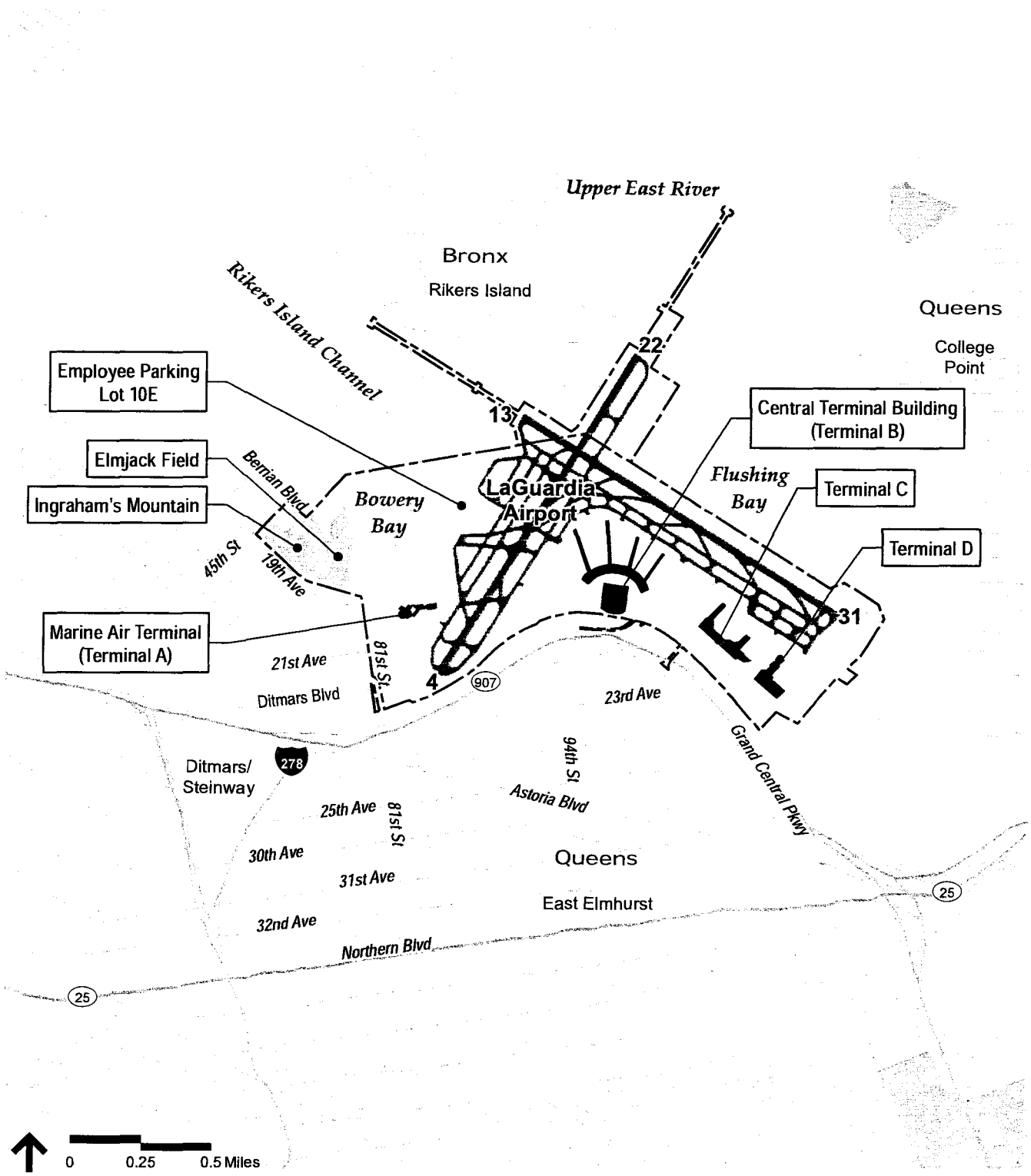
- Borough/County
- Highway
- State Boundary
- Park or Recreational Area
- Port Authority of NY and NJ Airports

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-1

Project Location



Sources: ESRI StreetMap

Legend

- LaGuardia Airport
- Highway
- Local Roadway
- Airport Facilities
- Park or Recreational Area

College Point	Neighborhood
Queens	Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-2
Project Vicinity

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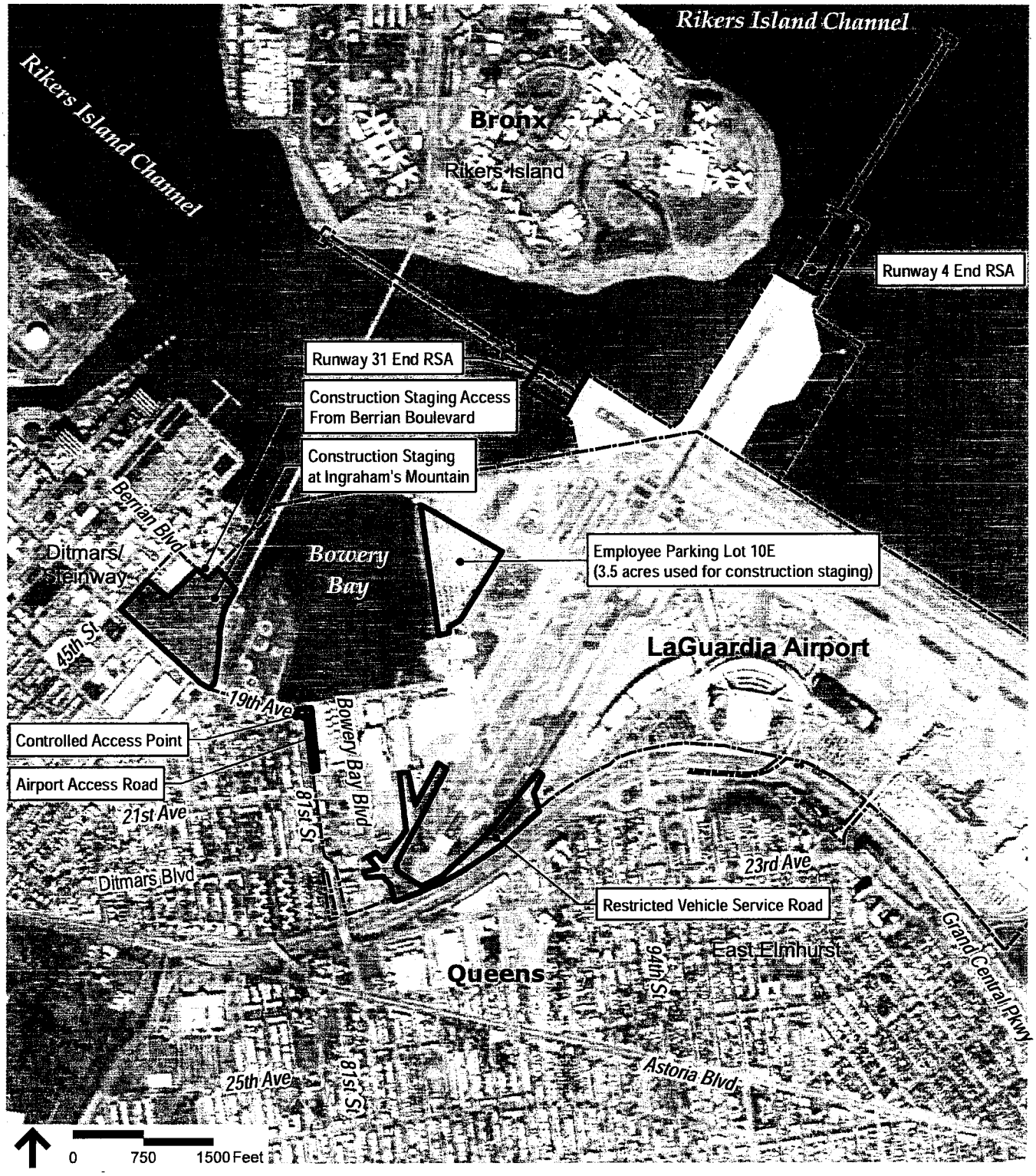


Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

East Elmhurst Neighborhood

Queens Borough

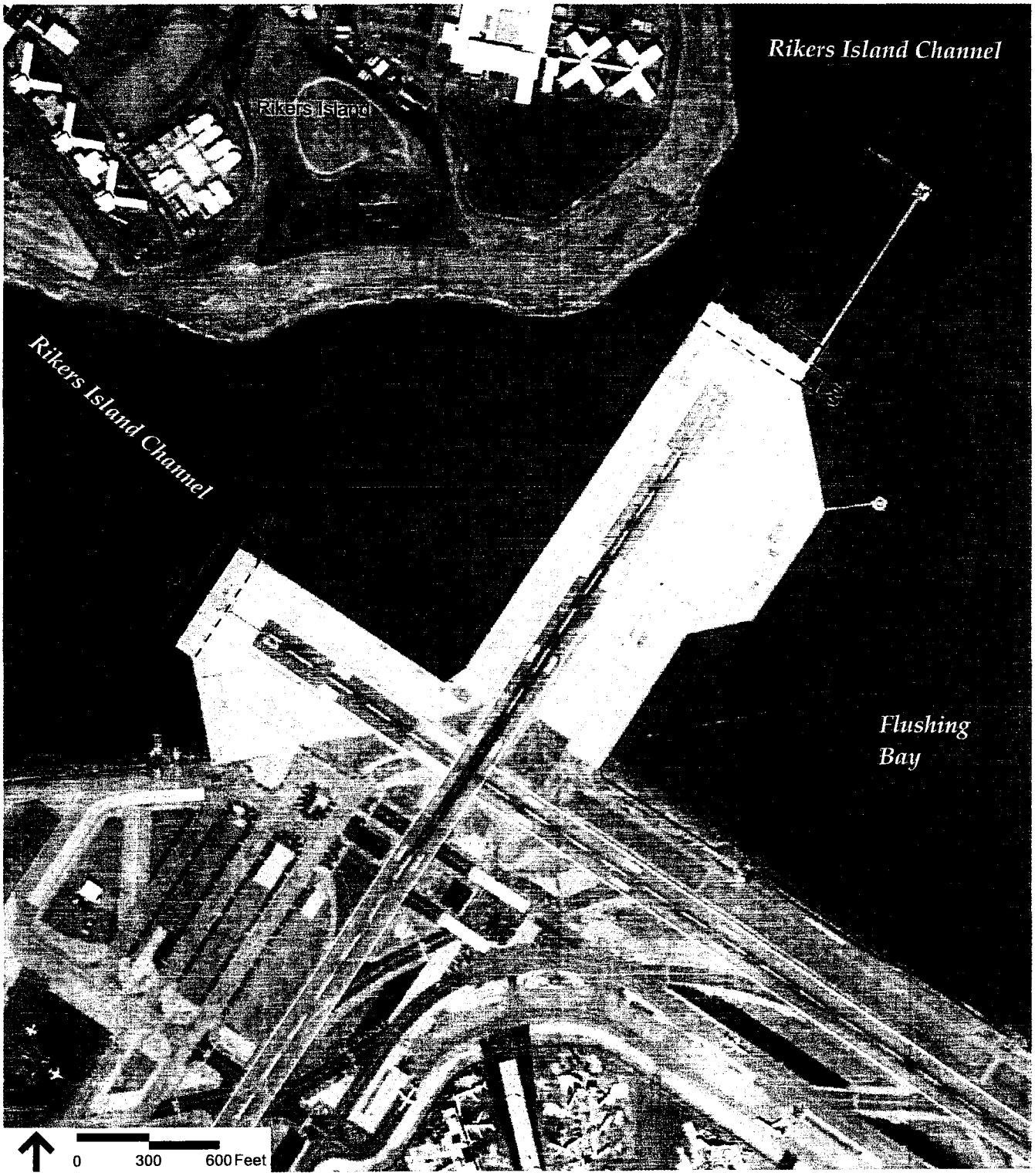
THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-3
Project Area

\\nynjdata\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Project Area-letter.mxd

\\vhbiproj\NewYorkCity\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Ends of RSA-Existing.mxd



Source: ArcGIS Bing Aerial Service

Legend

Runway End Safety Areas

THE PORT AUTHORITY OF NY & NJ
LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 2-2
Ends of Runways 4 and 31
Existing Runway Safety Areas

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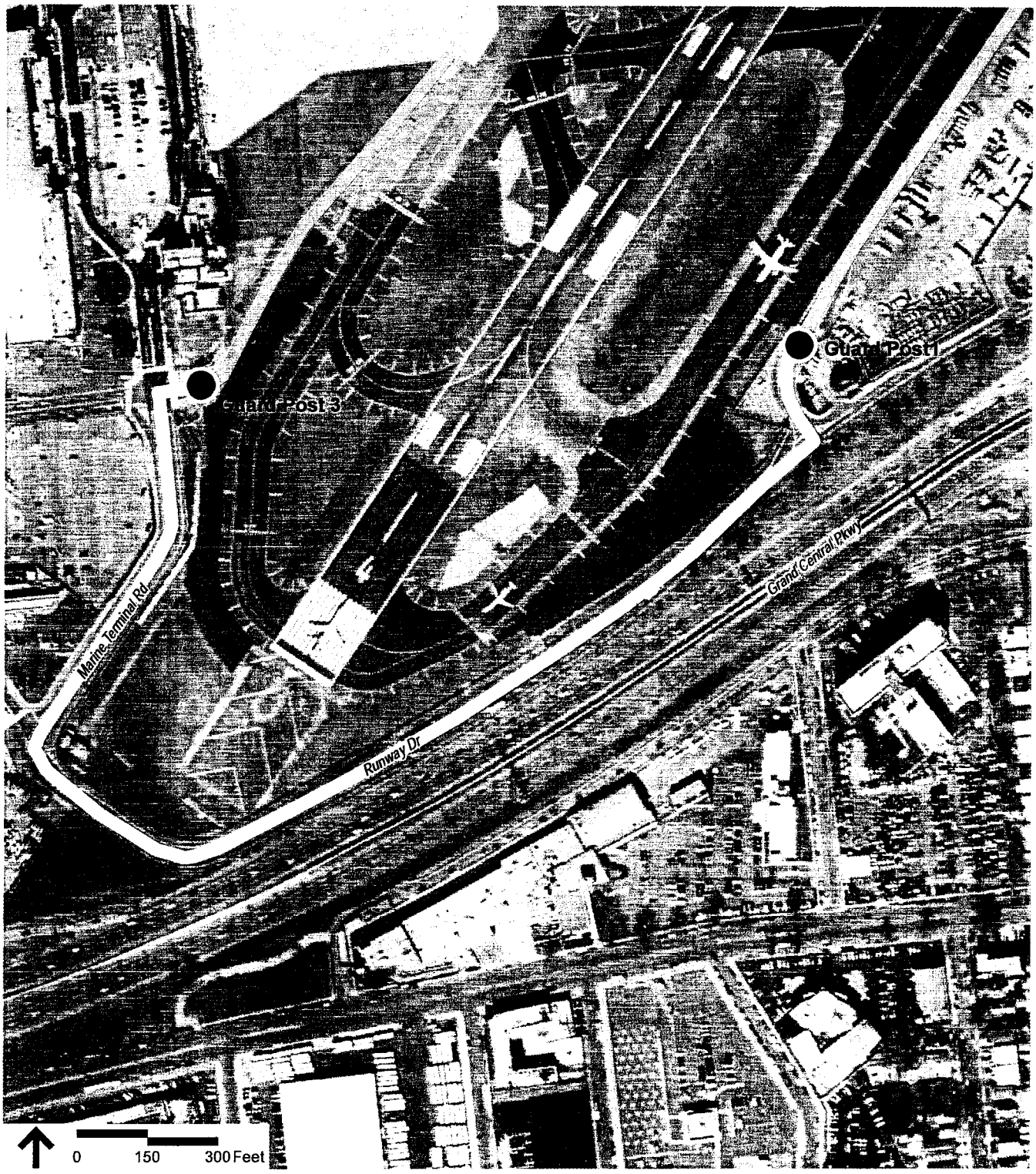


Source: ArcGIS Bing Aerial Service

Legend

Existing Service Vehicle Route on Public Roads

Existing Restricted Vehicle Service Roads

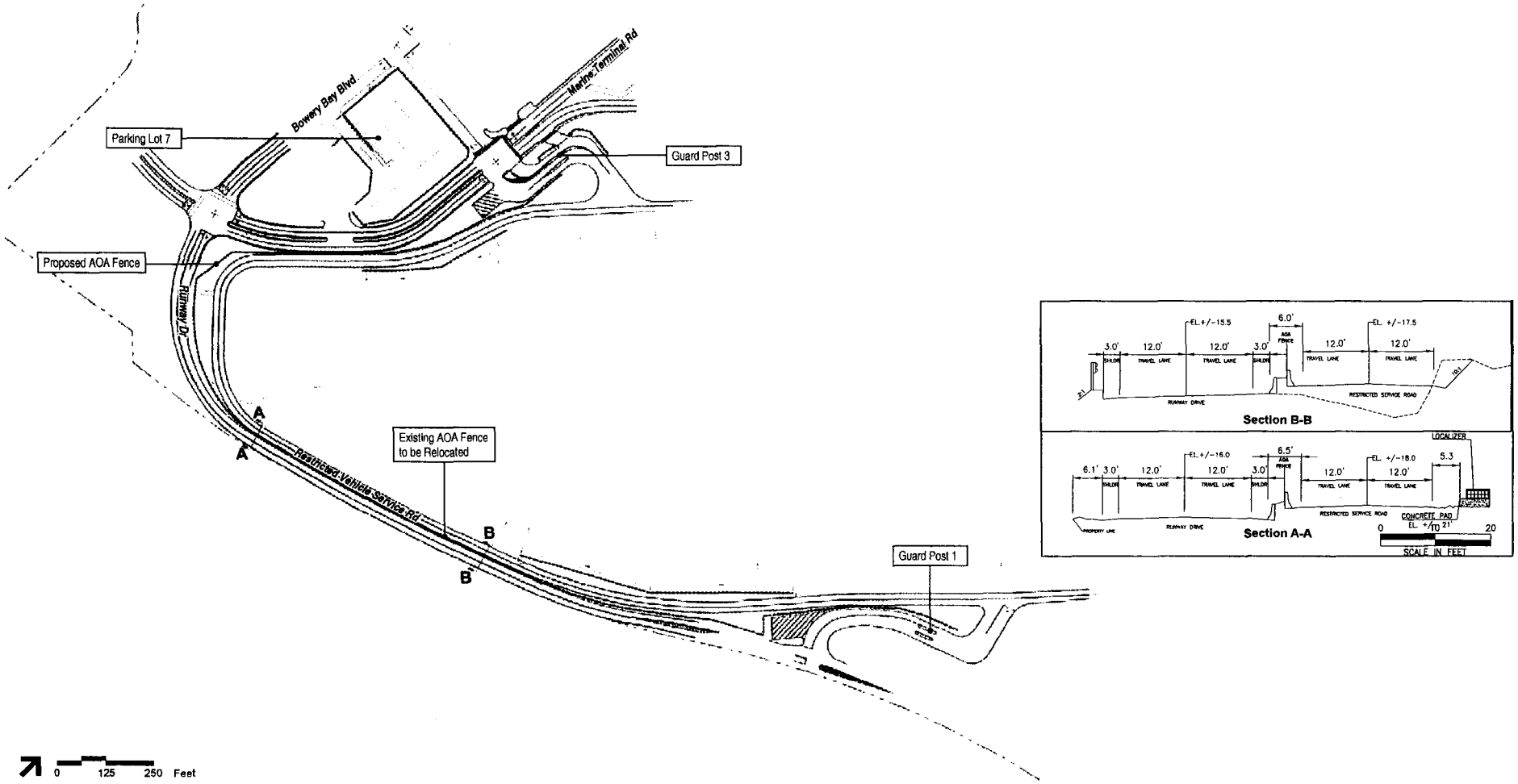
Guard Post

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 2-3

Existing Service Vehicle Route



Source: Port Authority of New York and New Jersey, 2013

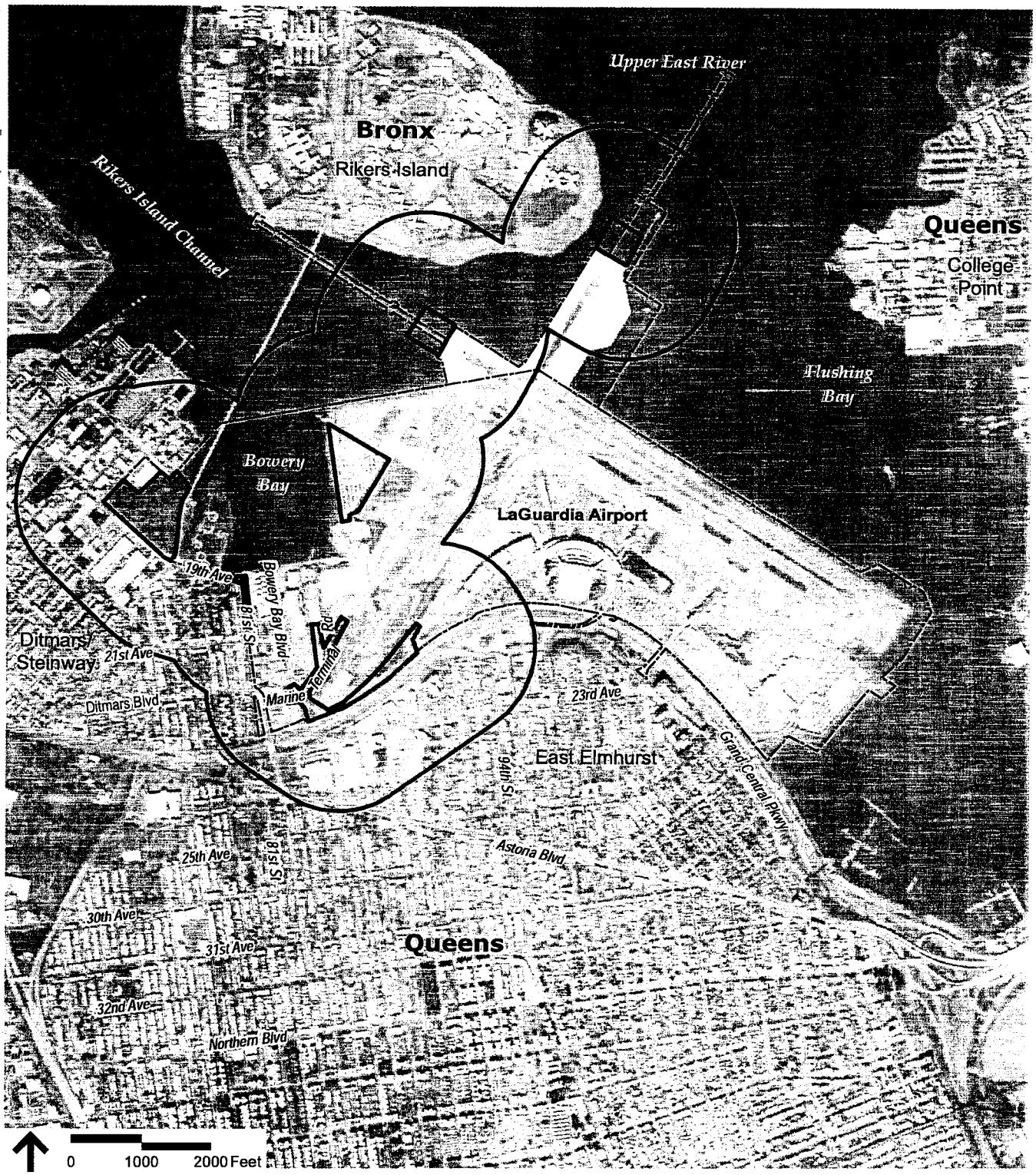
Legend

- Proposed Restricted Vehicle Service Road
- On-Airport Public Roads
- Airport Boundary

EL = Elevation
H = Height
AOA = Airport Operations Area

THE PORT AUTHORITY OF NY & NJ
LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 3-9
RVSR Alternative 1:
At-Grade Road
(Proposed Action)



Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Direct Impacts APE

Indirect Impacts APE

College Point Neighborhood

Queens Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 4-4

Section 106 Area of Potential Effect

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THE PORT AUTHORITY OF NY & NJ

Engineering Department

REGISTERED MAIL
RETURN RECIPT REQUESTED

August 16, 2013

Mr. Jeffrey Zappieri
Supervisor, Consistency Review Unit
New York State Department of State
Division of Coastal Resources
1 Commerce Plaza, Suite 1010
Albany, NY 12231-0001

SUBJECT: LGA AIRPORT – RUNWAY SAFETY AREA ENHANCEMENTS: NOTIFICATION OF 1) ENVIRONMENTAL ASSESSMENT ISSUANCE & 2) INTENT TO FILE COASTAL ZONE MANAGEMENT PLAN CERTIFICATION AND REQUEST FOR CONCURRENCE

Dear Mr. Zappieri:

I am writing to inform you that the Port Authority of NY & NJ (Port Authority) is preparing to undertake runway safety area (RSA) enhancements at LaGuardia Airport (LGA), located in the Borough of Queens, Queens County, New York. This is a major safety initiative that is being undertaken to comply with both Federal Aviation Administration (FAA) and Congressional mandates to improve RSAs to FAA design standards by the end of 2015. The proposed work was discussed at an interagency meeting last February at which your agency was represented.

The proposed project would involve extending existing decks at the north end of Runway 4-22 and west end of Runway 13-31 to support Engineered Materials Arrestor System (EMAS) beds, construction of a new section of LGA's restricted vehicle service road (RVSR) to reduce runway incursions, and creation of a construction staging area at the airport.

Shortly, you will receive a Draft Environmental Assessment (EA) prepared under the direction of the FAA, the lead federal agency for the National Environmental Policy Act (NEPA) environmental review process, for the project. The Draft EA, scheduled for issuance on August 22, 2013, provides an overview and detailed information about the proposed actions, alternatives, and project impacts.

In addition, the Port Authority will file Coastal Zone Management Plan and Waterfront Revitalization Plan Consistency Certifications with your office and the New York City Department of City Planning (NYCDCP), respectively, and along with requests for concurrences. We anticipate that this will occur in September of this year.

Two Gateway Center
Newark, NJ 07102

THE PORT AUTHORITY OF NY & NJ

If you have any questions or require additional information, please contact the undersigned by e-mail at mhelman@panynj.gov or by telephone at (973) 565 - 7564.

Very truly yours,

Marc Helman

Marc Helman
Supervisor, Permits and Governmental Approvals
Environmental Engineering Unit

cc: Michael Marrella, NYCDCP

February 6, 2013

Jeff Zappieri
New York Department of State
One Commerce Place, Suite 1010
99 Washington Avenue
Albany, New York 12231-0001

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Zappieri,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\docs\letters\20130206_AgencyCoord-Letters_VHB\20130206_AgencyCoord_NYDOS_VHB.docx

VHB Engineering, Surveying
and Landscape Architecture, P.C.
Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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New York State Office of General Services

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ANDREW M. CUOMO
GOVERNOR

STATE OF NEW YORK
EXECUTIVE DEPARTMENT
OFFICE OF GENERAL SERVICES
MAYOR ERASTUS CORNING 2ND TOWER
THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA
ALBANY, NEW YORK 12242

ROANN M. DESTITO
COMMISSIONER

August 13, 2013

Mr. Thomas L. Bosco
General Manager
Hangar #7, Third Floor
Port Authority of New York and New Jersey
Flushing New York 11371

Dear Mr. Bosco:

We are in receipt of your letter to RoAnn M. Destitio, New York State Commissioner of General Services, dated July 19, 2013.

We will be glad to assist the Port Authority of NY & NJ in the process of obtaining an easement through lands underwater of the People of the State of New York for the purpose of extending runway decking.

Please feel free to contact myself, at 518-486-1479, or Thomas Pohl, Esq., at 518-486-1611 for assistance.

Thank you for your interest in the Lands Underwater Program which is administered by the Office of General Services.

Sincerely,

John M. Hernick

John M. Hernick, L.S.
Public Lands Surveyor Examiner
Bureau of Land Management

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THE PORT AUTHORITY OF NY & NJ

LAGUARDIA AIRPORT
FLUSHING, NY 11371-0677

(718) 533-3400

July 19, 2013

Ms. RoAnn M. Destito
Commissioner
Office of General Services
41st Floor, Corning Tower
Empire State Plaza
Albany, NY 12242

Dear Commissioner Destito:

The Port Authority of New York and New Jersey is required by The Federal Aviation Administration, pursuant to 14 CFR 139 Certification of Airports to improve the runway safety areas at LaGuardia Airport. The improvements, which must be complete by December 31, 2015, include the construction of a concrete deck extension at each of the approach ends of Runways 13 and 22, and a 40-knot Engineered Materials Arresting System bed on each extension. As shown in the attached plan, the proposed deck extensions would be approximately 182 ft. long by 500 ft. wide.

As you may know, the Port Authority built the existing runway decks on underwater land easements, which the State of New York granted to New York City, which in turn passed them on to the Port Authority. Portions of the proposed deck extensions (yellow hatched areas) lie outside of the existing easements. We therefore request the underwater land rights to build the portions of the extensions that exceed the limits of these easements.

Should you require additional information, please contact Frederika Patterson, Manager, Properties & Commercial Development at (718) 533-3409.

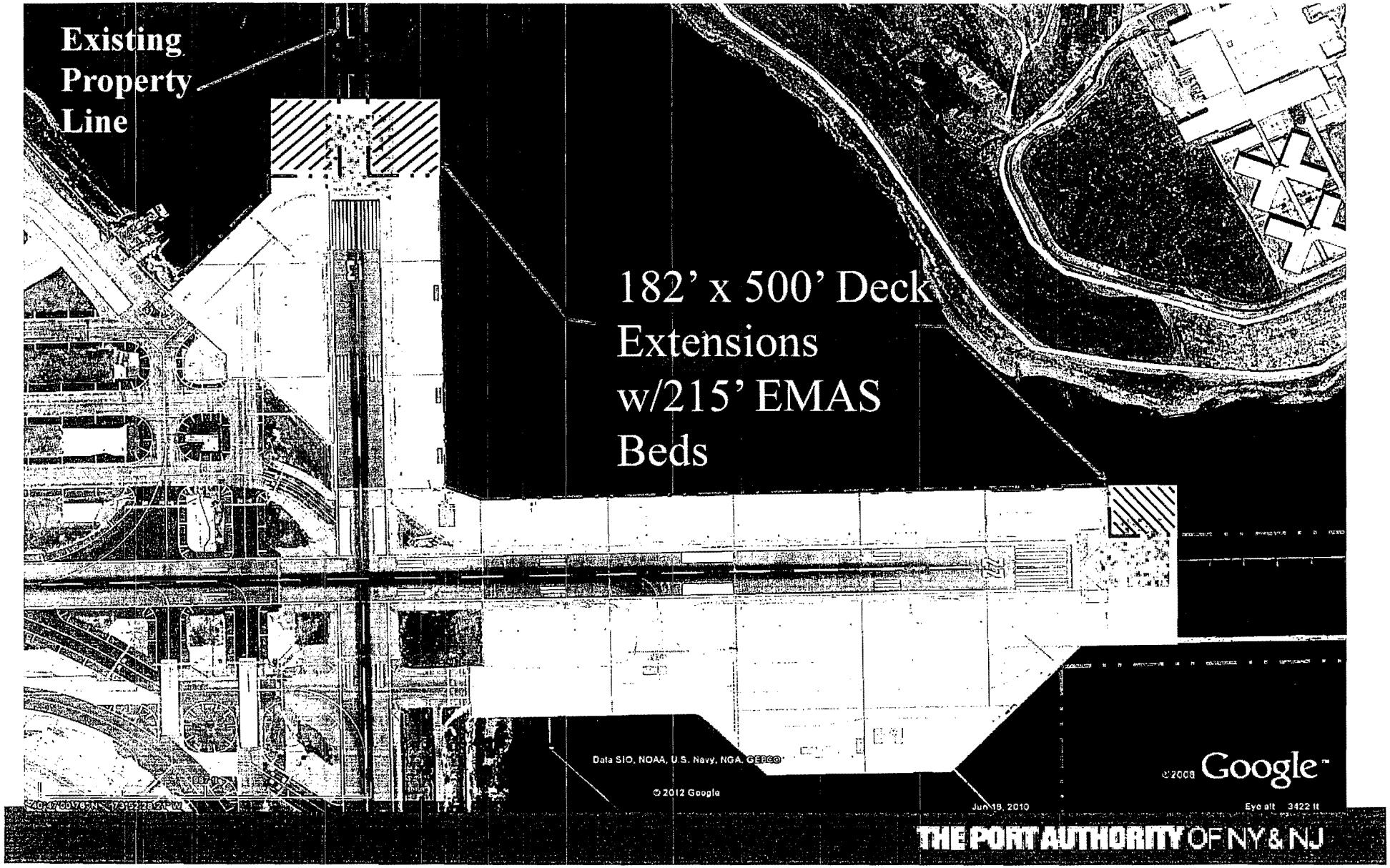
Sincerely,

Thomas L. Bosco
General Manager
LaGuardia Airport

Attachment

cc: Charles Scheifer, Office of General Services

Runway Deck Extensions For Emas Construction



THE PORT AUTHORITY OF NY & NJ

New York State Office of Parks, Recreation & Historic Preservation

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Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

www.nysparks.com

June 27, 2013

Steven M. Urlass
Federal Aviation Administration
New York Airports District Office
600 Old Country Road, Suite 446
Garden City, NY 11530

Re: FAA
LaGuardia Airport Runway Safety Area Improvements
Queens County
13PR02511

Dear Mr. Urlass,

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the submitted documents in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental quality Review Act (New York Environmental Conservation Law Article 8).

We have reviewed your letter dated June 27, 2013 and understand that all historic properties nearby are more than 90 feet from the proposed construction. As such, we can now concur that the proposed work will have No Adverse Effect upon historic resources.

If you have any questions, I can be reached at (518) 237-8643, ext. 3282.

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@parks.ny.gov

cc: M. Jenet – FAA, E. Knoesel – PANYNJ (via e-mail)

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U. S. Department
of Transportation

**Federal Aviation
Administration**

New York Airports District Office
600 Old Country Rd, Suite 446
Garden City, New York 11530
Telephone: 516-227-3800
Fax: 516-227-3813

June 27, 2013

Ms. Beth A. Cumming
Historic Site Restoration Coordinator
New York State Office of Parks, Recreation & Historic Preservation
New York State Division for Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Re: LaGuardia Airport Runway Area Safety Enhancement Environmental Assessment
13PR02511

Dear Ms. Cumming:

In your letter of June 3, 2013 concerning the Section 106 review for the Runway Area Safety Enhancement project at LaGuardia Airport, you stated that SHPO has proposed a determination of No Adverse Effect, with the condition that a construction protection plan be prepared and implemented when any of the proposed work is within 90 feet of resources determined to be eligible for listing on the State and National Registers of Historic Places (Hangars 1, 2, 3, 4 and 5) or listed on the State and National Registers (the Marine Air Terminal).

Based on information provided by the Port Authority, we wish to clarify that none of the elements of the proposed project are within 90 feet of these resources. As shown on the attached graphic, the nearest work to the Marine Air Terminal (intersection reconfiguration associated with the Restricted Vehicle Service Road) is approximately 800 feet from the terminal. The nearest work to Hangar 5, relocation of Guard Post #1, is approximately 500 feet from the hangar. The nearest work to the Marine Air Terminal, reconstruction of the intersection of Marine Terminal Road south of the terminal loop, is approximately 600 feet from the structure.

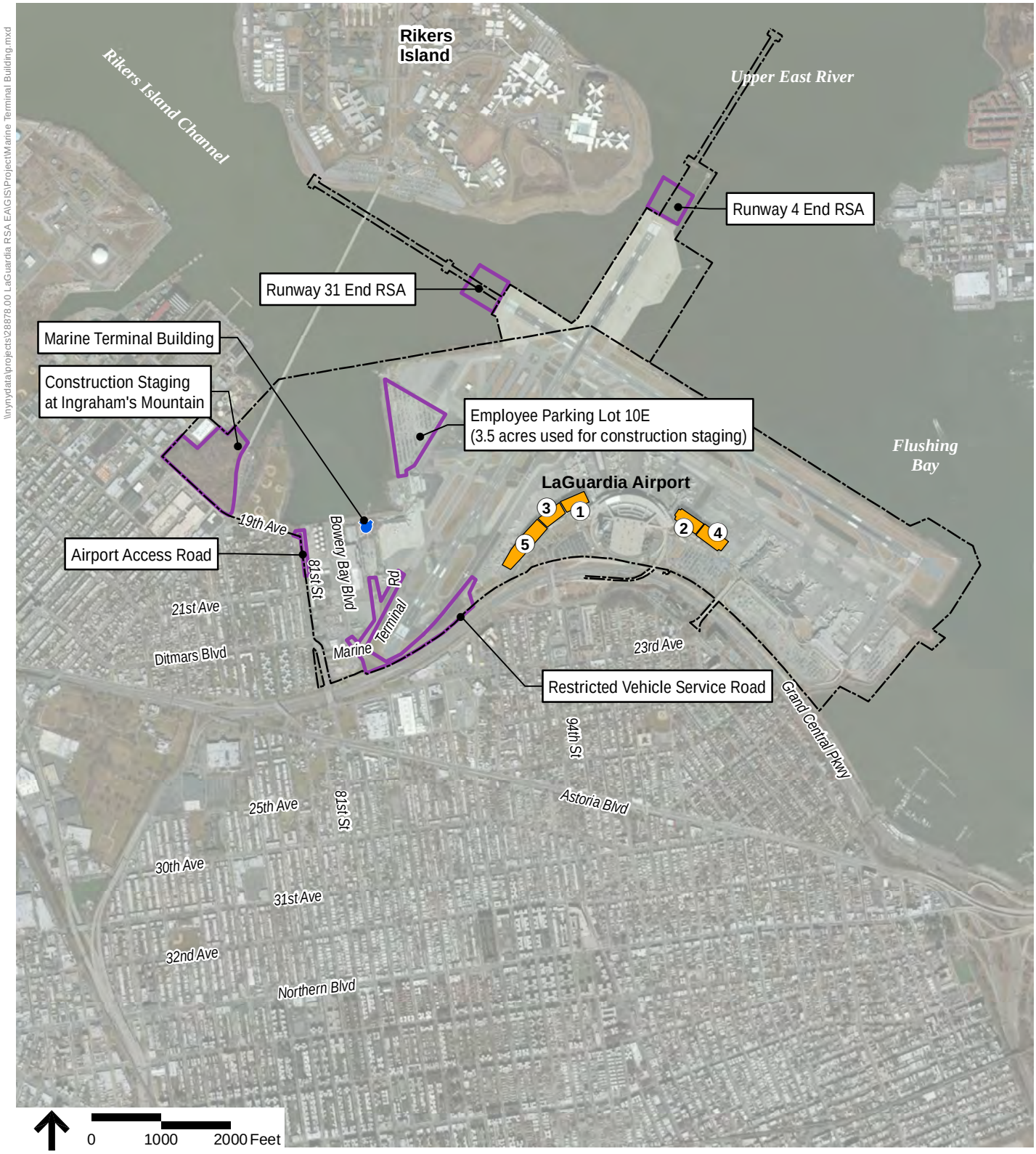
As no work is proposed within 90 feet of historic resources as part of the Runway Area Safety Enhancement project, we request that the SHPO determination be revised to concur that the proposed project will have No Adverse Effect, without the condition of a construction protection plan.

We appreciate your assistance in this matter. Should you have any questions or need additional information, please call Ms. Marie Jenet of my staff at 516-227-3811 or marie.jenet@faa.gov.

Sincerely yours,

Steven M. Urlass, Manager
New York Airports District Office

cc: E. Knoesel, PANYNJ
bcc: C. Lurie, VHB



Source: ArcGIS Bing Aerial Service

Legend

- LaGuardia Airport
- Project Areas
- Marine Terminal Building
- # Hangars

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Area Safety Enhancements
Environmental Assessment

Figure 1
Project Location: Marine Terminal Building/Hangars 1-5

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Andrew M. Cuomo
Governor

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Commissioner

New York State Office of Parks, Recreation and Historic Preservation

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518-237-8643

www.nysparks.com

June 3, 2013

Steven M. Urlass
Federal Aviation Administration
New York Airports District Office
600 Old Country Road, Suite 446
Garden City, NY 11530

Re: FAA
LaGuardia Airport Runway Safety Area Improvements
Queens County
13PR02511

Dear Mr. Urlass,

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the submitted documents in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental quality Review Act (New York Environmental Conservation Law Article 8).

At this time we respectfully disagree with your determination. Based upon our records and you investigations, we concur that there are no archeological concerns. However, we note that hangers 1, 2, 3, 4 and 5 are eligible for listing on the State and National Registers of Historic Places. In addition the Marine Air Terminal located in close proximity to the proposed work is listed on the State and National Registers of Historic Places.

We agree that the proposed work is unlikely to directly impact the characteristics that make these properties eligible or listed on the National Register provided that a construction protection plan is put in place when any of the proposed work is within 90 feet of these historic resources. This plan should be developed in accordance with the requirements stipulated in the New York City Department of Buildings "Technical Policy Procedure Notice #10/88".

As such, the SHPO proposes a determination of No Adverse Effect with the condition of a construction protection plan as stated above. If you have any questions, I can be reached at (518) 237-8643, ext. 3282.

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@parks.ny.gov

cc: M. Jenet – FAA, E. Knoesel – PANYNJ (via e-mail)

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U. S. Department
of Transportation

**Federal Aviation
Administration**

New York Airports District Office
600 Old Country Rd, Suite 446
Garden City, New York 11530
Telephone: 516-227-3800
Fax: 516-227-3813

May 1, 2013

Dr. Ruth Pierpont
New York State Office of Parks, Recreation & Historic Preservation
New York State Division for Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Area Improvements Environmental Assessment

Dear Dr. Pierpont:

As you may know, the Port Authority of New York and New Jersey is preparing an Environmental Assessment (EA) for proposed Runway Safety Improvements at LaGuardia Airport in Queens, New York. Because implementation of this undertaking will require actions to be taken by the FAA, an EA is being prepared pursuant to the National Environmental Policy Act (NEPA) and is subject to compliance with Section 106 of the National Historic Preservation Act and its implementing regulations. Accordingly, this letter is intended to initiate consultation with the New York State Historic Preservation Office (SHPO) on this matter.

The EA will evaluate measures to increase safety for aircraft and passengers by enhancing the Runway Safety Areas (RSAs) at the North End of Runway 4-22 and West End of Runway 13-31 by 2015 per Congressional mandate.[1] The mandate calls for all commercial airports to improve their RSAs by 2015. The project also includes relocating the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and provide a safe on-airport route for fuel trucks and other vehicles. At the conclusion of the NEPA process following issuance of the FAA's decision document, we anticipate that one of the alternatives identified in the EA will be able to be implemented.

The enclosed Phase IA Cultural Resources Assessment contains figures that depict the location of the various project elements and the limits of the project area. The area of potential effect (APE) includes all areas subject to direct impact during the implementation of the project. According to

1 The FAA requires that commercial service airports, regulated under 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, provide standard RSAs where possible. In November 2005, Congress mandated that all commercial airports improve their RSAs by 2015.

information provided to FAA by the Port Authority and its consultant, no eligible or listed properties on the National or State Registers of Historic Places or the New York City Landmarks Preservation Commission listing are present within the proposed project's direct impact areas. Also, no indirect impact areas have been defined. At this juncture, the Port Authority does not believe that indirect impacts would extend outside of the direct impact areas. The attached Phase 1A Cultural Resources Assessment provides information on the APE, the identification of historic properties within the APE, and the rationale for the determination of no historic properties affected.

Please review the information provided on this undertaking. We are specifically requesting the NYSHPO's comments on the proposed APE and the Phase IA Cultural Resources Assessment. We appreciate your assistance in this matter. Should you have any questions or need additional information, please call Ms. Marie Jenet of my staff at 516-227-3811 or marie.jenet@faa.gov.

Sincerely yours,

Steven M. Urlass, Manager
New York Airports District Office

Encl.: OPRHP Project Review Cover Form
Phase IA Cultural Resources Report

cc: E. Knoesel, PANYNJ

Phase IA Cultural Resources Assessment LaGuardia Airport Runway Safety Improvements

Prepared for **Port Authority of New York & New Jersey**
New York, NY

Prepared by **Vanasse Hangen Brustlin, Inc.**
Carol S. Weed, M.A., R.P.A.
Nicole Benjamin-Ma
Rita Walsh, M.A.
Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858

MARCH 2013

April 9, 2013

Dr. Ruth Pierpont
New York State Division for Historic Preservation
New York State Office of Parks, Recreation & Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Dr. Pierpont,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Improvements program at LaGuardia Airport in Queens, New York. As the Federal Aviation Administration (FAA) is the lead federal agency for the undertaking, the Proposed Action is subject to the National Environmental Policy Act (NEPA) and requires preparation of an Environmental Assessment (EA). This proposed action is separate, with independent utility, from the Central Terminal Building (CTB) Redevelopment Project. As you know, your office has requested information on that project, and I am sending that information to you under separate cover. The Proposed Action also is subject to Section 106 of the National Historic Preservation Act (Section 106). Per 36 CFR 800.8(c); the FAA intends to use the NEPA process for Section 106 purposes including the identification of consulting parties, identification of historic properties, and assessment of effects. These actions will be done in a manner consistent with 36 CFR 800.

The purpose of the Proposed Action is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the north end of Runway 4-22 and and west end of Runway 13-31 ends by 2015 per the Congress' mandate[1] that all commercial airports improve their RSAs by 2015, and by relocating the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and provide a safe on-airport route for fuel trucks and other vehicles.

1 The FAA requires that commercial service airports, regulated under 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, provide standard RSAs where possible. In November 2005, Congress mandated that all commercial airports improve their RSAs by 2015.

RSAs provide a cleared and graded around runways to reduce the risk of injury to persons and damage to aircraft should the aircraft undershoot, overshoot, or veer off the runway. RSAs also provide additional safety during less-than-ideal weather conditions, in the event that an aircraft overruns the existing runway during landing or an aborted take-off. The RSAs at the Runway 4 and 31 Ends are currently undersized. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and at the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 180 feet long. The Proposed Action would increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards.

RSA construction would require that existing Employee Parking Lot 10E, located in proximity to the Runway 4 and 31 Ends, be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is a paved impervious surface. Additional construction staging would be conducted on an area within the airport leasehold know colloquially as Ingraham's Mountain, a partially man-made topographic feature located within the airport boundary, approximately 0.2 miles from the Airport. Access to the Ingraham's Mountain construction staging area would require a new gravel road on the airport property between Bowery Bay Boulevard and 19th Avenue and a new unpaved two-track road from Berrian Boulevard to Ingraham's Mountain.

The Proposed Action also includes constructing a new restricted vehicle service road (RVSR) south of the Runway 22 End to avoid repeated exits and entries of service vehicles and reduce the risk of runway incursions. The proposed RVSR would allow jet fuel trucks to remain on the airport and avoid impacting public traffic on the existing landside Runway Drive roadway, and would allow ground service equipment to have access from the Airport's eastern terminals to the aircraft service facilities on the west side of the Airport without having to leave the Airport.

The enclosed Phase IA cultural resources report contains figures that depict the location of the various project elements and the limits of the project area.The area of potential effect (APE) includes all areas subject to direct impact during the implementation of the project. Per 36 CFR 800.16(d), as amended, the APE is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." Historic properties may be affected by direct actions such as construction or indirect actions such as light changes.

The project would require construction of two RSAs, the construction staging area at Ingraham's Mountain and its associated access roadways, and the RVSR. No eligible or listed properties on the National or State Registers of Historic Places or the New York City Landmarks Preservation Commission listing are present within these direct impact areas. No indirect impact areas have been defined; At this juncture, we do not believe that indirect impacts would extend outside of the direct impact areas. The attached Phase 1A cultural Resources Report provides information on the APE, the identification of historic properties within the APE, and the rationale for the determination of no historic properties affected.

The FAA respectfully invites you to participate in the preparation of the EA, to review our assessment of existing conditions and project impacts, and provide guidance in the event that mitigation measures might be needed. In the unlikely event that eligible properties are determined to be affected by this runway safety project, the FAA will work with your office to develop a Memorandum of Agreement.

If you have any questions or comments, please do not hesitate to contact me via phone at 212.435.3747, by e-mail at eknoesel@panynj.gov, or at the address noted above.

Sincerely,

Edward Knoesel
Manager, Environmental Services
Aviation Department

Encl.: OPRHP Project Review Cover Form
Phase IA Cultural Resources Report

cc: T. Bock, PANYNJ
T. Bosco, PANYNJ
K. Bleach, PANYNJ
M. Jenet, FAA

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island Resource Center, PO Box 189, Waterford, NY 12188-0189 (Mail)
Delaware Avenue, Cohoes 12047 (Delivery) **(518) 237-8643**

PROJECT REVIEW COVER FORM

Rev. 5-05

Please complete this form and attach it to the top of ***any and all information submitted to this office*** *for review.*
Accurate and complete forms will assist this office in the timely processing and response to your request.

This information relates to a previously submitted project.

PROJECT NUMBER ____**PR**_____

COUNTY _____

☐ If you have checked this box and noted the previous Project Review (PR) number assigned by this office you do not need to continue unless any of the required information below has changed.

---

2. This is a new project. ☒ If you have checked this box you will need to complete ALL of the following information.

Project Name LaGuardia Airport Runway Safety Improvements Project

Location Queens, New York
You MUST include street number, street name and/or County, State or Interstate route number if applicable

City/Town/Village Flushing, Newtown
List the correct municipality in which your project is being undertaken. If in a hamlet you must also provide the name of the town.

County Queens
If your undertaking* covers multiple communities/counties please attach a list defining all municipalities/counties included.

TYPE OF REVIEW REQUIRED/REQUESTED (Please answer both questions)

A. Does this action involve a permit approval or funding, now or ultimately from any other governmental agency?

☐ **No** ☒ **Yes**

If Yes, list agency name(s) and permit(s)/approval(s)

Agency involved	Type of permit/approval	State	Federal
Federal Aviation Administration		☐	☐
		☐	☐
		☐	☐

B. Have you consulted the NYSHPO web site at **http://nysparks.state.ny.us to determine the preliminary presence or absence of previously identified cultural resources within or adjacent to the project area? If yes: ☒ **Yes** ☐ **No**

Was the project site wholly or partially included within an identified archeologically sensitive area? ☒ **Yes** ☐ **No**

Does the project site involve or is it substantially contiguous to a property listed or recommended for listing in the NY State or National Registers of Historic Places? ☐ **Yes** ☒ **No**

CONTACT PERSON FOR PROJECT

Name Edward Knoesel **Title** Manager, Environmental Services

Firm/Agency Port Authority of New York & New Jersey

Address 233 Park Ave. South, 9th Floor **City** New York **STATE** NY **Zip** 10003

Phone (212) 435-3747 **Fax** (_____)_____ **E-Mail** eknoesel@panynj.gov

****http://nysparks.state.ny.us** then select **HISTORIC PRESERVATION** then select **On Line Resources**

The Historic Preservation Review Process in New York State

In order to insure that historic preservation is carefully considered in publicly-funded or permitted undertakings*, there are laws at each level of government that require projects to be reviewed for their potential impact/effect on historic properties. At the federal level, Section 106 of the National Historic Preservation Act of 1966 (NHPA) directs the review of federally funded, licensed or permitted projects. At the state level, Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980 performs a comparable function. Local environmental review for municipalities is carried out under the State Environmental Quality Review Act (SEQRA) of 1978.
regulations on line at:
http://nysparks.state.ny.us then select **HISTORIC PRESERVATION** then select **Environmental Review**

Project review is conducted in two stages. First, the Field Services Bureau assesses affected properties to determine whether or not they are listed or eligible for listing in the New York State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures.

ALL PROJECTS SUBMITTED FOR REVIEW SHOULD INCLUDE THE FOLLOWING MATERIAL(S).

[x] **Project Description**: Please see accompanying Phase IA cultural resources report

Attach a full description of the nature and extent of the work to be undertaken as part of this project. Relevant portions of the project applications or environmental statements may be submitted.

[x] **Maps Locating Project**

Include a map locating the project in the community. The map must clearly show street and road names surrounding the project area as well as the location of all portions of the project. Appropriate maps include tax maps, Sanborn Insurance maps, and/or USGS quadrangle maps.

[x] **Photographs**

Photographs may be black and white prints, color prints, or color laser/photo copies; standard (black and white) photocopies are NOT acceptable.

-*If the project involves rehabilitation*, include photographs of the building(s) involved. Label each exterior view to a site map and label all interior views.

-*If the project involves new construction*, include photographs of the surrounding area looking out from the project site. Include photographs of any buildings (more than 50 years old) that are located on the project property or on adjoining property.

NOTE: Projects submissions will not be accepted via facsimile or e-mail.

**Undertaking* is defined as an agency's purchase, lease or sale of a property, assistance through grants, loans or guarantees, issuing of licenses, permits or approvals, and work performed pursuant to delegation or mandate.

Project Summary

SHPO Project Review Number: Unassigned

Involved State and Federal Agencies: Federal Aviation Administration, Port Authority of New York & New Jersey, NYS Department of Environmental Conservation permits are also required (State Pollutant Discharge Elimination System permits for stormwater from construction, sanitary).

Phase of Survey: Phase IA cultural resources assessment

Location Information
Location: Borough of Queens
Minor Civil Division: Flushing and Newtown
County: Queens

Survey Area (Metric & English)
Length: variable;
Width: variable
Depth (when appropriate): variable
Number of Acres Surveyed: not applicable
Number of Square Meters and Feet Excavated: not applicable
Percentage of Site Excavated: not applicable

USGS 7.5 Minute Quadrangle Maps: Central Park

Archaeological Survey Overview
Number & Interval of Shovel Tests: none
Number & Size of Units: not applicable
Width of Plowed Strips: not applicable
Survey Transect Interval: not applicable

Results of Archaeological Survey
Number & Name of Archaeological Sites identified: none
Number & Name of Historic Sites identified: none
Number & Name of Sites Recommended for Phase II/Avoidance: none

Report Author(s): Carol S. Weed, Nicole Benjamin-Ma, Rita Walsh

Date of Report: March 2013

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1 Introduction

The Port Authority of New York and New Jersey (Port Authority) is proposing to undertake a Runway Safety Improvements program (the project) at LaGuardia Airport in Queens, New York. The project components are located within the Airport boundary both west and east of Bowery Bay (Figures 1 and 2). As the Federal Aviation Administration (FAA) is the lead federal agency for the undertaking, the Proposed Action is subject to the National Environmental Policy Act (NEPA) and requires preparation of an Environmental Assessment (EA). The Proposed Action also is subject to Section 106 of the National Historic Preservation Act (Section 106). Per 36 CFR 800.8(c); the FAA intends to use the NEPA process for Section 106 purposes. The identification of consulting parties, identification of historic properties, and assessment of effects would be done in a manner consistent with 36 CFR 800.

1.1 Project Description

The purpose of the Proposed Action is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the north end of Runway 4-22 and west end of Runway 13-31 ends by 2015 per the Congress' mandate[1] that all commercial airports improve their RSAs by 2015, and by relocating the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and provide a safe on-airport route for fuel trucks and other vehicles.

RSAs provide a cleared and graded area around runways to reduce the risk of injury to persons and damage to aircraft should the aircraft undershoot, overshoot, or veer off the runway. RSAs also provide additional safety during less-than-ideal weather conditions, in the event that an aircraft overruns the existing runway during landing or an aborted take-off. The RSAs at the Runway 4 and 31 Ends are currently undersized. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and at the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 180 feet long. The Proposed Action would increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards.

RSA construction would require that existing Employee Parking Lot 10E, located in proximity to the Runway 4 and 31 Ends, be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee

1 The FAA requires that commercial service airports, regulated under 14 Code of Federal Regulations (CFR) Part 139, Certification of Airports, provide standard RSAs where possible. In November 2005, Congress mandated that all commercial airports improve their RSAs by 2015.

Parking Lot 10E is a paved impervious surface. Additional construction staging would be located in an area in the Airport's leasehold colloquially known as Ingraham's Mountain, a partially man-made topographic feature approximately 0.2 miles from the Airport. Access to the Ingraham's Mountain construction staging area would require a new on-airport road between Bowery Bay Boulevard and 19th Avenue and an unpaved two-track road from Berrian Boulevard on to Ingraham's Mountain.

The Proposed Action also includes constructing a restricted vehicle service road (RVSR) south of the Runway 22 End to avoid repeated exits and entries of service vehicles, and reduce the risk of runway incursions. A RVSR south of the Runway 22 end would allow jet fuel trucks to remain on the airport, and would allow ground service equipment to have access from the Airport's eastern terminals to the aircraft service facilities on the west side of the Airport without having to leave the Airport.

The area of potential effect (APE) includes all areas subject to direct impact during the preparation of and implementation of the project. Per 36 CFR 800.16(d), as amended, the APE is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." Historic properties may be affected by direct actions such as construction impacts or indirect actions such as light changes in adjacent areas.

In the case of the Proposed Action, only direct impact areas were considered as there would be no permanent light changes and only temporary noise changes resulting from construction. The direct impact APE for the Proposed Action includes the two RSAs, the construction staging area at Ingraham's Mountain and the associated access roadways, and the RVSR (Figure 2). The analysis also considered the zone immediately adjacent to the direct impact areas. These were evaluated by either walkover or site file research in order to determine if there would be the potential for temporary construction effects.

1.2 Summary of Project Methods, Results, and Recommendations

A project drive-over was conducted on January 22, 2013, that included the senior author, Carol S. Weed, Senior Archaeologist of Vanasse Hangen Brustlin, Inc. (VHB). On January 24, 2013, C. Weed also completed a walkover of the route of the proposed Airport Construction Access Road between Bowery Bay Boulevard and 19th Street and the commercial and residential settings along 19th Avenue and 45th Street. Photographs of project areas were taken by C. Weed, David Kennedy, VHB Wetland Scientist, and Eric Zamft, a VHB Project Manager, at various times in January and February. Setting and buildings/structures photographs were subsequently reviewed by Nicole Benjamin-Ma, VHB Historic Preservation Planner, and Rita Walsh, VHB Senior Historic Preservation Planner. N. Benjamin-Ma and R. Walsh prepared the necessary building descriptions based on the photographs.

The background and literature research was conducted in November and December, 2012, and on-line map research was completed in January and February 2013. The source repositories included NY OPRHP, the on-line New York City PLUTO GIS with its listing of New York City Landmarks Preservation Commission (NYC LPC) historic resources; the New York City Public Library, Map Collection; University of New Hampshire, Diamond

Library, on-line historic map coverage; and the Department of Commerce, Coastal & Geodetic Survey. The research was completed by the senior author.

No eligible or listed properties on the National or State Registers of Historic Places or the New York City Landmarks Preservation Commission landmarks listing are present within direct impact areas. NRHP-listed historic properties are present within ¼-mile of direct impact areas and previously reported archaeological sites also are present within the ¼-mile zone. These include the Lent House and Cemetery, the Steinway House, and the Marine Air Terminal. None of these historic properties would be affected.

The Grand Central Parkway, a Section 4(f)[2] park resource, is immediately adjacent to the proposed RVSR right-of-way. The Proposed Action for the RVSR would not affect the Grand Central Parkway. The Port Authority Electrical and Maintenance Building is a 1940s building that is adjacent to the Airport Construction Access Road connecting 19th Avenue to Bowery Bay Boulevard (Photograph 4). It is immediately south of the southwest corner of the roadway. The Port Authority Electrical and Maintenance Building would not be impacted by the project. No further cultural resources work is recommended for either the Grand Central Parkway or for the Port Authority Electrical and Maintenance Building.

As defined by NY OPRHP, parts of the project lie within an area of archaeological sensitivity. The sensitivity assignment is based on the presence of Native American, pre-contact and contact-era sites and historic resources. These resources are confined to original landforms and are not occurring in made-land settings. The proposed RVSR would be constructed within the right-of-way of Runway Drive on made-land. No further archaeological investigation is recommended for the RVSR. The Airport Construction Access Road between 19th Avenue and Bowery Bay Boulevard would lie on made-land. No further cultural resources evaluation in this area is recommended. The Construction Staging Access Road from Berrian Boulevard to the construction staging area on Ingraham's Mountain would follow an existing unpaved two-track road. This road would be widened and its surface prepared to accommodate construction vehicles and equipment. Approximately 4 inches (10 centimeters) of existing surface would be stripped and the modified surface would be topped with an 18-inch (46-centimeter) thick crushed aggregate layer. On top of Ingraham's Mountain, a 9.5-acre level area would be created to accommodate construction staging. The surface within the flattened area would be leveled through the removal of between 7.5 and 17.5 feet (2.3 and 5.3 meters) of fill.

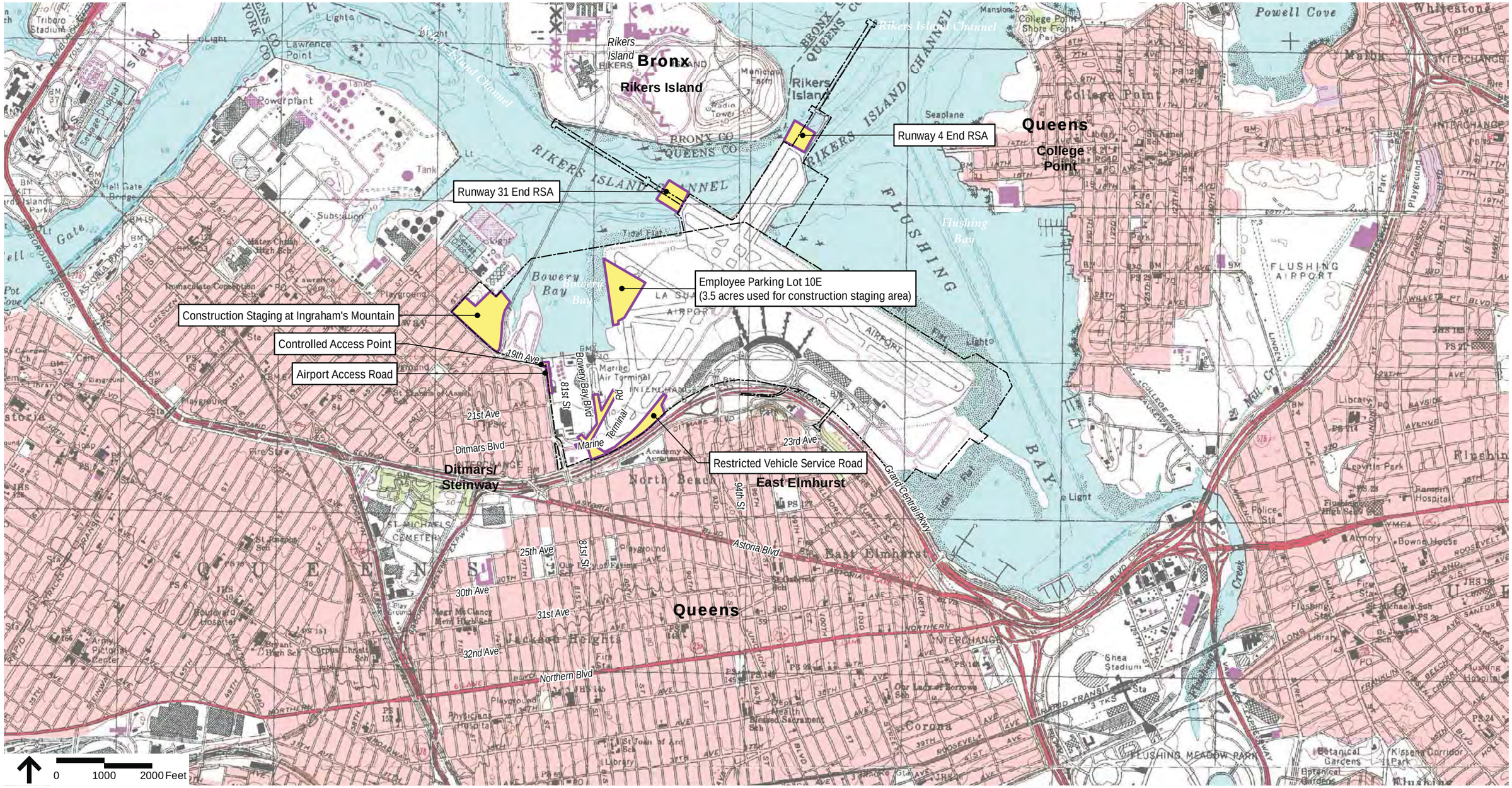
Ingraham's Mountain is comprised of underlying natural landforms that have been covered in a thick mantle of fill. The made-land overlies three historic landforms. From south-to-north, these landforms were the shoreline, a mudflat and a peninsula. Based on historic maps, the original shoreline was at elevations of less than 20 feet to 20 feet, the mud flat was at elevations less than 20 feet, and the peninsula feature ranged in elevation from less than 20 to 60 plus feet. Based on the historic map data and the depths of proposed excavation it is unlikely that the pre-fill land forms would be breached by the proposed actions at Ingraham's Mountain. Therefore, no further cultural resources evaluation of these two actions is recommended.

2 Section 4(f) of the Department of Transportation (DOT) Act of 1966

The RSAs are being constructed on decks which would be over the waters of the Rikers Island channel and Bowery Bay. The historical and current nautical charts for the area show no shipwrecks within the RSA footprints (Nautical Chart 2013). No further cultural resources evaluations of these RSA areas are recommended.

In summary, and based on the available information summarized in the following chapters, VHB's authors recommend no further cultural resources work for the following:

- Within the direct impact areas for the project. These direct impact areas include the two RSAs, the RVSR, and the Ingraham's Mountain construction staging area and its associated road segments.
- The existing Employee Parking Lot 10E, as there would be no subsurface impact and it is on made-land.



Source: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure 1
Project Area

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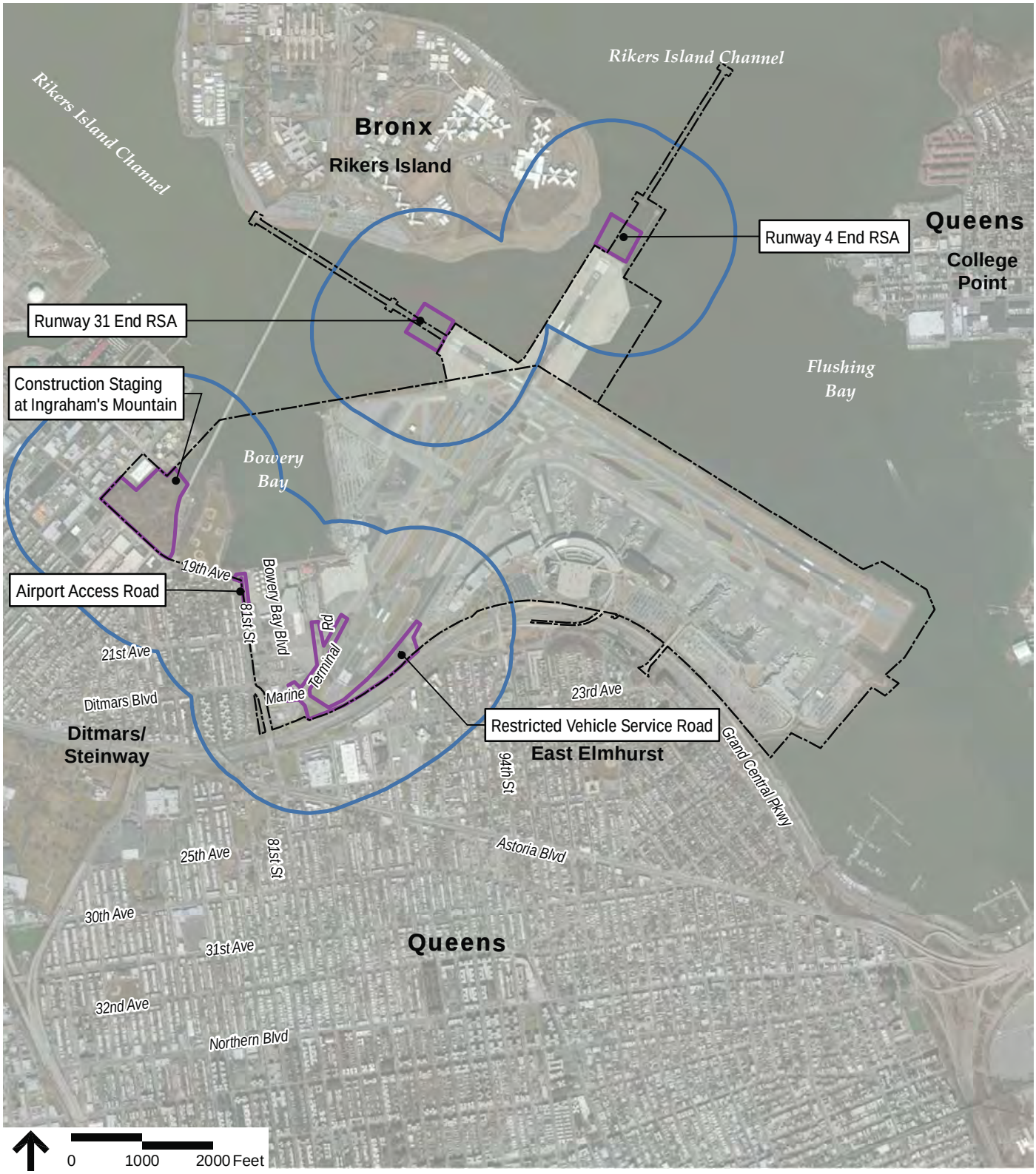

Sources: ArcGIS Bing Aerial Service

Legend

- LaGuardia Airport
- Direct Impact Areas
- Indirect Impact Areas

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure 2

Area of Potential Effect

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2 Project Location and Environmental Context

The Proposed Action is located within the Airport property in the vicinity of Runway 4 and 31 ends, south of Runway 22 end, as well as an area west of the airfield referred to as Ingraham's Mountain. LaGuardia Airport is bounded on the north and east by Flushing Bay, on the northwest by the Rikers Island channel, on the west by Bowery Bay, and on the south by the Grand Central Parkway. Port Authority property encompasses all of the airport and an area west of Bowery Bay that includes four distinct parcels. These are, from east to west, a maintenance yard, Elmjack Field, a secondary maintenance yard, and Ingraham's Mountain. Of these, the easternmost maintenance yard and Ingraham's Mountain would be disturbed by the Proposed Action. Ingraham's Mountain is separated from the other three areas to its east by Hazen Street. All four areas are bounded on their south sides by 19th Avenue. The easternmost maintenance yard is bounded on its east by Bowery Bay and its north by the Rikers Island Channel. Ingraham's Mountain is bounded on the north side by property owned by others and on its west side by 45th Street.

2.1 Geology and Soils

The Borough of Queens encompasses part of the western end of Long Island. Separated from Manhattan by the East River, Long Island is classified within the Atlantic Plain Physiographic Region, in the Embayed Section of the Coastal Plain. The Atlantic Coastal Plain encompasses Long Island, a small portion of Staten Island, and all of southern New Jersey. The Coastal Plain is the flattest of the nation's physiographic provinces. It stretches over 2200 miles in length from Cape Cod to the Mexican border and southward another 1000 miles to the Yucatan Peninsula (United State Geological Survey [USGS] 2010b).

Long Island in general incorporates materials created during two Wisconsinan progressions as terminal moraine and outwash plain deposits (Isachsen et al. 2000:193; also in Isachsen et al 2000, Figure 12.21B). To a large extent, the glacial terminal moraines were comprised of materials brought forward by the Wisconsinan glaciers from New England and New York sources. Also included, however, are Cretaceous-era materials that originated in strata underlying Long Island. The terminal moraines (Harbor Hill along the island's north shore,

and Ronkonkoma forming the island's central spine) are composed of unconsolidated till while the two outwash plans are dominated by layers of sand and gravel (Isachsen et al. 2000:193).

These sedimentary layers have been mined through the historic period though both the boroughs of Brooklyn (west of Queens) and Queens proper have been the sites of fewer sand/gravel operations than the counties further east on the island (Munsell 1886). While the land immediately underlying LaGuardia Airport is made-land, the soils underlying part of Ingraham's Mountain and 19th Avenue include from south to north Miami stony loam, Galveston clay, and Alton stony loam (Bonsteel et al. 1903). These soils directly correlate with the original landforms (shoreline, tidal mud flat, and peninsula). The Alton and Miami soils are moraine related. The Galveston clay, in its upper reach, is eel grass embedded mucks underlain by clay.

2.2 Hydrology

Historically, there were two streams cutting south-to-north to either side of Ingraham's Mountain. The creek on the east side of the mountain is Steinway Creek. The creek on the west side is unnamed. Both formerly emptied into Bowery Bay and the Flushing channel. Both are now channelized and there is no surface expression of either.

2.3 Flora and Fauna

Today's biotic communities are significantly modified from those used by the Native Americans and the pre-industrial colonists. Archaeologists working sites on Long Island and the southern New England coast (Bernstein 1993, Cammisa et al. 1995, Gwynne 1985, Ritchie 1959) have recovered diverse fish (bass, cod, blue-fish and menhaden), eel, oyster, clam, crab, and scallop remains in addition to terrestrial and aquatic mammals and various avian species (prairie hen, buntings, plovers, and ducks). Gwynne (1985) and Bernstein (1993) both advance the hypothesis that the environment at Contact was capable of sustaining substantial Native populations in the absence of horticultural products. In the immediate project vicinity, archaeological sites interpreted by Parker and others as Native American base camps were present along the original shoreline and also on the first valley terrace to the south (Parker 1922, Ritchie 1980, Bernstein 1993, Kurlansky 2006).

These same species were exploited in the historic period but gradually industrial-level whaling and fishing and agricultural pursuits began to erode the native bases. By the mid-1850s, whaling was no longer viable though fishing fleets were still maintained and shellfish harvesting was common. The oyster industry was severely impacted by over-harvesting and industrial pollution in Flushing Bay and its near vicinity (Kurlansky 2006). By the early 1900s, the resident populations in Flushing and Newtown were relying on commercial foodstuff sources though many residents still maintained house gardens. This pattern remains in effect today.

3 Background and Literature

The background and literature review included a site file check and an on-line literature review of published sources. These included review of USDA soil and hydrological information. Other sources included several articles in *The Bulletin: Journal of the New York State Archaeological Association* (Cammisa et al. 1995, Gwynne 1985); information culled from earlier cultural resources management reports (Merwin 2006, Pickman et al. 2003); and summary volumes concerning major excavations along the southern New England and Long Island coasts (Bernstein 1993, Ritchie 1980).

The background review was begun by Carol Weed in 2012 at OPRHP and it continued elsewhere in January and February 2013.

3.1 Results: Document Reviews

No previously reported archaeological sites are located within terrestrial or off-shore direct impact areas. Four archaeological sites, however, are reported within one-mile of the direct impact areas. These are NY OPRHP sites 08101.000102 and 08101.000103 and New York State Museum (NYSM) sites 04532 and 04533. The site plotting on the NY OPRHP sites is precise enough to say with certainty that they are outside of any direct impact location. NYSM sites 04532 and 04533 were defined during studies completed by A.C. Parker and summarized by him in 1922. Site NYSM 04532 is reported as "on Riker and Titus Estates on Bowery Road to Steinway and N.Beach" (Anonymous 2009a). This is a burial site. Site NYSM 04533 is a shell midden and its location is reported as "on Jackson prop. on Poor Bowery at N. Beach" (Anonymous 2009b). Poor Bowery is the popular name assigned to the Lent Cemetery but it likely refers to the larger area in the vicinity of Bowery Bay Road. NY OPRHP now plots the sites in the general vicinity of 19th Avenue.

Based on the literature review, there is no evidence for Paleoindian occupations in the general area. Therefore, it is likely that the Native American sites that have been identified date to the Archaic and Woodland eras or represent the remnants of early Historic Period Native occupations. On Long Island's north shore, Archaic occupations are marked by evidence suggesting a robust use of a variety of maritime/terrestrial resources. The base camps are sited near secondary and tertiary streams elevated above high tide zones and sufficiently to the island interior to obtain relief from Canadian storm lines.

Both exploitation strategies and siting choices change in the Woodland era. There is active selection for base camp siting in coastal or estuarine zones, rather than along interior rivers and/or above the high tide lines. Bragdon (1996) has proposed a "tripartite settlement model" for the latter half of the Woodland: estuarine/salt marsh; riverine; and interior uplands. Long Island would fall within the estuarine/salt marsh environment, in which maize horticulture represented a minor contribution to the food economy because of other dependable food sources. Bragdon's model suggests periodic relocation occurred within territories defined by each estuarine zone, without establishing traditional village sites, and described as "conditional sedentism" (Bragdon 1996).

Three NRHP-listed properties are present within one mile of the project direct impact areas. These are the Lent Homestead and Cemetery (NY OPRHP 90NR01565), Steinway House (NY OPRHP 90NR01587), and the Marine Air Terminal (NY OPRHP 90NR01580). The closest of these to Proposed Action is the Lent Homestead and Cemetery. The property's north property line abuts the 19th Avenue right-of-way boundary. While 19th Avenue would be used for construction traffic, it is commonly used in the same way. There would be no impact to the eligible property from the common use of the existing road. The Marine Air Terminal is separated from Bowery Bay Boulevard by Hanger 7 and there is no line of sight to direct impact areas from it. The Steinway House is located on 41st Street, four blocks west of 45th Street. The line of sight between the Steinway House and Ingraham's Mountain is obscured by existing industrial, commercial, and residential buildings.

The historic maps reviewed indicate that the historic period settlement of the area followed the typical pattern: early farmsteads replaced relatively early by planned residential and commercial development along street grids. The communities of Steinway and Newtown were established in the vicinity of the Lent House and its associated cemetery. Through time, the two hamlets have blended imperceptibly together. They now are a mix of residential single- and multi-family homes, commercial enterprises including airport support facilities, and light industry.

4 Field Methods and Results

Carol Weed completed a walkover of the area between Bowery Bay Boulevard and 45th Street on January 24, 2013. On January 24, 2013, she was accompanied by David Kennedy and Eric Zamft. C. Weed did not go to the top of Ingraham's Mountain however D. Kennedy, who was completing an existing conditions assessment for the project of that setting, provided extensive photographic coverage of the locale. As part of a drive-over tour of the project direct impact areas, C. Weed and E. Zamft also reviewed existing conditions along the proposed RVSR. A photographic summary of the walkover conditions are presented on Photographs 1 through 16.

4.1 Results: Existing Conditions, Above-Ground Resources

No eligible or listed properties on the National or State Registers of Historic Places (NRHP; NY State Register) or the New York City Landmarks Preservation Commission (LPC) landmarks listing are present within the direct impact areas.

The RVSR is immediately adjacent to the Grand Central Parkway which is a Section 4(f) property that is managed by the NY OPRHP in conjunction with the New York City and State Departments of Transportation. The proposed RVSR alterations are contained on airport property and they would not impact the park resource.

Three NRHP-listed properties are present within one mile of the project direct impact areas. Of these, only the Lent Homestead and Cemetery are within sight of any project direct impact area. The property's north property line abuts the 19th Avenue right-of-way boundary (Photograph 10). While 19th Avenue would be used for construction traffic, it is commonly used in the same way. There would be no impact to the eligible property from the common use of the existing road.

The zones immediately adjacent to but outside of direct impact areas were reviewed for the presence of buildings or structures that meet the age criteria for inclusion on the National Register of Historic Places and that might be affected by project actions. These project actions included temporary noise or light changes resulting from construction actions or permanent changes to the setting of an adjacent eligible property. One building that meets the NRHP age limit of 50 years is immediately adjacent to the south side of the Airport Construction Access Road that connects 19th Avenue (public street) to Bowery Bay Boulevard (on Airport

property). The 1940s Port Authority Electrical and Maintenance Building would not be impacted by the Proposed Action. This building is sited within an industrial area which is actively used by industrial, commercial, and personal vehicles daily. This two-story mid-century Modern building is rectangular in plan, with a flat roof (Photograph 4). It is faced with beige brick, highlighted by dark brown brick linking the tripartite aluminum sash windows on each story and framing the recessed center entrance. The proposed Airport Construction Access Road and its use would not alter the functional setting of the building.

4.2 Results: Existing Conditions, Terrestrial and Off-Shore Archaeological Resources

As noted in Chapter 3, four previously reported archaeological sites are in the general area but none are confirmably located within terrestrial or off-shore direct impact areas. Because of the presence of archaeological sites, the NY OPRHP classifies the area along 19th Avenue as archaeologically sensitive. For that reason, the focus of archaeological attention was on determining if original landforms might still be present in any direct impact area.

Based on an examination of Department of Commerce Coastal & Geodetic Survey (C&GS) maps dated 1877, 1922, 1931, 1936, 1937, and 1941 and United States Geological Survey coverage dated 1891, 1897, and 1900, 19th Avenue follows the original shoreline. The original shoreline, however, has been altered by residential and commercial development and fill emplacement. These impacts reduced Bowery Bay significantly in size on its west side and resulted in the filling of a tidal mud flat between the original shore and a peninsular feature immediately east of Steinway Creek and north of the mainland shore. The fill episodes appear to have begun prior to the creation of Ingraham's Mountain in 1936. The historic map coverage reviewed indicates filling was occurring as early as 1900 when the configuration of the tidal mud flat changes from that illustrated in 1891 and 1897.

In 1891, the peninsula's elevation was 60 feet. A building symbol is present on the east side of the peninsula resting on the 60 foot contour (USGS 1891). On subsequent mapping, the building symbol is no longer shown and the peninsula is now linked to the mainland. The elevation of the newly linked area is unclear, but the mountain is presently mapped as about 87.5 feet high. The downcutting on the mountain's top to create the construction staging area would lower the landform about 7.5 and 17.5 feet below present ground surface to a standard elevation of 67 feet. Thus, it is seems likely that any archaeological features or deposits that might be preserved under the fill would still be at least 7 feet beneath the newly created surface.

As regards possible off-shore cultural resources, the C&GS maps show the presence of a single shipwreck off the shore of LaGuardia (Nautical Chart 2000). Based on current project maps, this shipwreck lies outside of the footprint of both RSAs.

Photograph 1. Looking southeast at the salt/s and storage garages south of the proposed Construction Airport Access Road (Field Photograph P1010060).

Photograph 2. Looking southeast toward Bowery Bay Road from the southwest corner of the proposed Construction Airport Access Road (Field Photograph P1010067).

Photograph 3. Looking northwest at the southwest corner of the proposed Construction Airport Access Road (Field Photograph P1010061).

Photograph 4. Looking southwest at the Port Authority of New York & New Jersey Electrical and Maintenance Facility building located immediately south of the proposed Construction Airport Access Road at its southwest corner (Field Photograph P1010066).

Photograph 5. Looking north at proposed Airport Construction Access Road which will lie between the fuel farm fence (right) and the sound barrier wall (left) (Field Photograph P1010065).

Photograph 6. Looking west/southwest at the sound barrier wall and the adjacent chain link fence. The proposed Airport Construction Access Road will breach the slope just north of the sound barrier wall near the location of the person in the photograph (Field Photograph P1010070).

Photograph 7. Looking west/southwest from the Port Authority of New York and New Jersey maintenance yard toward 19th Avenue (Field Photograph P1010001).

Photograph 8. Looking southwest at the apartment buildings on the south side of 19th Avenue (Field Photograph P1010007).

Photograph 9. Looking east along 19th Avenue from the east side of the Hazen Street intersection (Field Photograph P1010046).

Photograph 10. Looking south at the south side of 19th Avenue just east of the Hazen Street intersection (Field Photograph P1010036).

Photograph 11. Looking west/northwest along 19th Avenue at the Hazen Street intersection (Field Photograph P1010045).

Photograph 12. Looking north along the east side of 45th Street from near its intersection with 19th Avenue toward Berrian Boulevard (Field Photograph P1160636).

Photograph 13. Looking west along Berrian Boulevard toward its intersection with 45th Street. The existing access road is to frame left (Field Photograph Berrian-7).

Photograph 14. Looking south/southwest at the existing access road ascending Ingraham's Mountain from Berrian Boulevard (Field Photograph Berrian-1).

Photograph 15. The existing Ingraham's Mountain access road on the feature's summit (Field Photograph 2013-01-24 057).

5 Conclusions and Recommendations

On the basis of contextual and background research, supported by a walkover of the area between Bowery Bay Boulevard and 45th Street, VHB recommends no further archaeological work within the terrestrial or off-shore direct impact areas for the Proposed Action. These direct impact areas include the two RSAs, the RVSR, and the Ingraham's Mountain construction staging area and its associated road segments.

A portion of the existing Employee parking Lot 10E would be used for construction staging. There would be no subsurface impact to the parking lot. Therefore, VHB recommends no additional cultural resource consideration of this site.

There are no previously recorded buildings or structures within the direct impact areas. The Grand Central Parkway, a Section 4(f) park resource, is immediately adjacent to the proposed RVSR right-of-way. The proposed action for the RVSR would not affect the Grand Central Parkway. The Port Authority Electrical and Maintenance Building, south of the Airport Construction Access Road connecting 19th Avenue to Bowery Bay Boulevard would not be affected by the Proposed Action. No further cultural resources work is recommended for either the Grand Central Parkway or the Port Authority Electrical and Maintenance Building.

These conclusions support a finding that there are no historic properties present within the APE for the LGA Runway Safety Areas Improvement program and associated program elements.

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New York City Department of City Planning

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THE PORT AUTHORITY OF NY & NJ

Engineering Department

UPS OVERNIGHT DELIVERY

November 1, 2013

Mr. Michael Marrella
Director, Waterfront and Open Space Division
New York City Department of City Planning
22 Reade Street
New York, NY 10007-1216

SUBJECT: LGA AIRPORT – RUNWAY SAFETY AREA ENHANCEMENTS: WATERFONT REVITALIZATION PLAN CERTIFICATION AND REQUEST FOR CONCURRENCE

Dear Mr. Marrella:

The Port Authority of NY & NJ (Port Authority) hereby submits a Waterfront Revitalization Plan Certification and request for concurrence for the LaGuardia Airport (LGA) runway safety area (RSA) enhancements project. The project site is located in Flushing Bay/East River at the Borough of Queens, Queens County, New York. This project is a major safety initiative that the Port Authority proposes to undertake to comply with both Federal Aviation Administration (FAA) and Congressional mandates to improve RSAs so that they meet FAA design standards by the end of 2015. The proposed work was discussed at an interagency meeting last February at which your agency was represented.

The proposed project would involve extending existing decks at the north end of Runway 4-22 and west end of Runway 13-31 to support Engineered Materials Arrestor System (EMAS) beds, construction of a new section of LGA's restricted vehicle service road (RVSR) to reduce runway incursions, and creation of a construction staging area at the airport.

The proposed project was the subject of a Draft Environmental Assessment (EA) prepared under the direction of the FAA, the lead federal agency for the National Environmental Policy Act (NEPA) environmental review process, for the project. Copies of the Draft EA issued on August 22, 2013 were provided to your office for review and comment. The Draft EA provided an overview and detailed information about the proposed actions, alternatives, and project impacts.

Enclosed, in addition to a New York City Waterfront Revitalization Plan Consistency Assessment Form (NYCWRPCAF) and policy evaluation, you will find a Federal Consistency Assessment Form (FCAF) and policy evaluation, project diagrams, and pertinent figures from the Draft EA to assist in your review of the project. Consistency concurrence is required for this

Two Gateway Center
Newark, NJ 07102

project because the FAA will provide funding for part of the project and also must approve a change in the Airport Layout Plan to allow the deck extensions to be built.

In addition, the Port Authority is in the process of preparing applications to be submitted to the U.S. Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC) for authorizations necessary to undertake the project. Copies of the application packages will be sent to your office when they are submitted to USACE and NYSDEC. Please note that Jessica Fain, of your staff, has participated in discussions with the Port Authority, NYSDEC, and the New York City Department of Parks and Recreation regarding potential mitigation sites and proposals that will comprise a necessary and important part of these permit applications.

If you have any questions or require additional information, please contact the undersigned by e-mail at mhelman@panynj.gov or by telephone at (973) 565 - 7564.

Very truly yours,

Marc Helman

Marc Helman
Supervisor, Permits and Governmental Approvals
Environmental Engineering Unit

cc: Jeff Zappieri, NYSDOS

Enclosures:
1) NYCWRPCAF & policy evaluation
2) FCAF & policy evaluation
3) Project Diagrams
4) Pertinent EA Figures

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. APPLICANT (please print)

1. Name: The Port Authority of New York & New Jersey ATTN: Marc Helman

2. Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102

3. Telephone: Area Code (973) 565 - 7564

B. PROPOSED ACTIVITY

1. Brief description of activity:

See Attachment A

2. Purpose of activity:

See Attachment A

3. Location of activity:

Queens County	Flushing 11369	LaGuardia Airport
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: Approval of change to Airport Layout Plan (ALP) and potential federal funding through the use of Passenger Facility Charges (PFC); Dept. of the Army Section 10/404 Permit

5. Federal application number, if known:

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known: A Stormwater Pollution Prevention Plan (SWPPP) as required by the State Pollution Discharge Elimination Permit (SPDES) permit issued by the NYS Dept of Environmental Conservation; NYSDEC Protection of Waters Permit and Section 401 Water Quality Certification required

C. COASTAL ASSESSMENT Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following:	YES	NO
a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43)	☐	☑
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44)	☑	☐
c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)	☐	☑
d. Reduction of existing or potential public access to or along coastal waters? (19, 20)	☐	☑
e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10)	☐	☑
f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29)	☐	☑
g. Siting of a facility essential to the generation or transmission of energy? (27)	☐	☑
h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)	☐	☑
i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)	☐	☑
j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)	☑	☐
k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)	☑	☐
l. Adverse effect upon land or water uses within the State's small harbors? (4)	☐	☑

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:	YES	NO
a. State designated freshwater or tidal wetland? (44)	☑	☐
b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17,)	☑	☐
c. State designated significant fish and/or wildlife habitat? (7)	☐	☑
d. State designated significant scenic resource or area? (24)	☐	☑
e. State designated important agricultural lands? (26)	☐	☑
f. Beach, dune or barrier island? (12)	☐	☑
g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)	☐	☑
h. State, county, or local park? (19, 20)	☑	☐
i. Historic resource listed on the National or State Register of Historic Places? (23)	☑	☐

3. Will the proposed activity require any of the following:	YES	NO
a. Waterfront site? (2, 21, 22)	☐	☑
b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)	☐	☑
c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16)	☐	☑
d. State water quality permit or certification? (30, 38, 40)	☐	☑
e. State air quality permit or certification? (41, 43)	☐	☑

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program? (see policies in local program document)	☑	☐

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

~~Applicant/Agent's~~ Contact Name: Marc Helman

Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102

Telephone: Area Code (973) 565 - 7564

~~Applicant/Agent's~~ Contact Signature: Marc Helman Date: 1 November 2013

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the New York State Department of State, Office of Coastal, Local Government and Community Sustainability, Attn: Consistency Review Unit, 1 Commerce Plaza - Suite 1010, Albany, New York 12231.

a. Copy of original signed form.
b. Copy of the completed federal agency application.
c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENT PROGRAM
ATTACHMENT A

Project Description
The LaGuardia Airport Runway Safety Area Enhancement Program includes a series of projects divided into two functional areas at LaGuardia Airport (LGA):

(1) Constructing deck extensions to provide for Runway Safety Areas (RSAs) and Engineered Materials Arresting System (EMAS) beds at the ends of Runway 4-22 and Runway 13-31
(2) Constructing a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to eliminate runway incursions

The Program also includes the creation of construction staging areas to support the construction projects in the Runway Safety Area Enhancement Program.

The Proposed Action elements are depicted in the attached figures and are described below:

Runway Safety Area Enhancements
The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS) beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. This would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards.

Restricted Vehicle Service Road Construction
This aspect of the project consists of constructing a new section of the Airport's existing RVSR south of the Runway 22 End to avoid repeated exits and entries of service vehicles from airport secure areas onto public roadways and to reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to aircraft service facilities on the west side of the Airport without having to leave the secured area and drive on public roadways or use the runway areas (creating runway incursions) to access the eastern terminals from the west side of the Airport.

Creation of Construction Staging Areas
In order to construct the RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging, as there is insufficient existing area on Airport that is unallocated and could be used for this purpose.

To accommodate the construction of the RSA Enhancements and RVSR, a construction staging would be created in an area within the Airport leasehold known as Ingraham's Mountain, a man-made topographic feature created with material excavated for construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA) and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard.

In addition, a portion of existing Employee Parking Lot 10E, located near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily allocated to a construction staging area to support the RSA construction project.

Purpose and Need

The purpose of the project is to increase safety for aircraft and their passengers by enhancing the RSAs at the Runway 4 and 31 Ends by the end of 2015. The RSA requirement is mandated by both the Federal Aviation Administration (FAA) and by Congress. Safety would also be enhanced by creating a new section of the RVSR south of the Runway 22 End to reduce the potential for runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA. These safety enhancements would be accomplished by:

- Constructing deck extensions and installing an Engineered Materials Arresting System (EMAS) beds on the decks
- Constructing the RVSR south of the Runway 22 End and reconfiguring Runway Drive to accommodate the construction of the RVSR

The Proposed Actions are needed because the existing RSAs do not meet the FAA requirement and the current RVSR is not adequate to prevent runway incursions. In order for LaGuardia Airport to meet the FAA safety requirements the following issues must be addressed:

Runway Safety Area Enhancement

Currently, the existing decks of both runways are not long enough to provide adequate space for a full dimension RSA, a standard EMAS installation (standard RSA), or a non-standard EMAS. If the runway thresholds are kept in their existing locations, then the existing decks need to be extended to provide adequate space for RSAs.

Creation of a New Section of the Restricted Vehicle Service Road (RVSR)

To avoid the security concerns and time delays associated with repeated exits and entries of service vehicles and to reduce the risk of runway incursions and of increasing Air Traffic Control's workload, LGA needs a RVSR that is on Airport property in secured areas (i.e., airside) near the Runway 22 End. Constructing a new section of the RVSR south of the Runway 22 End would allow fuel trucks to deliver jet fuel to ramps located at the eastern Terminals B, C, and D without exiting a secured area onto Runway Drive. A new section of the RVSR would also allow ground service equipment to have access from the LGA's eastern terminals to the aircraft service facilities on the west side of the airport without having to leave the same secured area.

In order to implement any RSA Enhancements and the RVSR at LGA, an area must be provided for contractor mobilization and construction equipment staging. A minimum of 10 acres with access to the airport roadway system are needed for the deck extension and RVSR construction.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENTS
NEW YORK STATE DEPARTMENT OF STATE
COASTAL ZONE MANAGEMENT PROGRAM

Coastal Assessment Responses

1. Will the proposed activity result in any of the following:
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (Policies 2, 11, 12, 20, 28, 35, 44)
Background: The proposed project to construct the deck extensions will shade an area of approximately 4.65 acres of land underwater. Each deck extension will be supported by one hundred twenty (120) 24" diameter, closed end pipe piles on a grid of approximately 35 feet x 27 feet (see Figure ZZ for more detail). Each pile would occupy 3.14 square feet of sea bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both deck the total physical alteration of land is 754 square feet or approximately 0.02 acres.

The proposed pile driving would be undertaken in two phases. The piles would settle through the upper 50 to 65 feet of soft silt under their weight. However, a vibratory hammer would be used if needed. Subsequently, a diesel impact hammer would be used to drive the piles through the underlying 10 feet layer of dense sand, silt and clay until reaching bedrock. To protect finfish and reduce sound pressure levels that might adversely affect them, the impact hammer would be equipped with cushioning material and the main pile driving phase would be preceded by a "soft start". The cushioning material consists of alternating layers of aluminum and a plastic called micarta, which serves to reduce sound pressure levels by 7 – 8 dB. The soft start involves warning strikes at 40% or less of the impact hammer's total energy to drive away finfish in the area so that will not be exposed to high decibel levels or high pressure waves that could have adverse physiological effects on fish.

Upon completion of pile driving but prior to pile cap and deck installation, the piles would be filled with concrete and rebar. Construction would then be completed with a installation of pile caps before the deck is installed on the piles. No dredging will be performed as a part of the project.

Policy 2: The RSA deck extensions would constructed in navigable waters of the United States in waters that are currently within secured areas and, therefore, not accessible to the public. The U.S. Department of Homeland Security has established a security exclusion zone around LaGuardia Airport that prohibits public access within 200 yards of the airport. These waters will continue to be inaccessible to the public after construction. .

However, the proposed deck extensions would not pose any additional navigation hazard. The proposed work would be located a minimum of 2,000 feet from the federal navigation channels in Flushing Bay and would not pose a hazard to vessels utilizing the navigation channel. Moreover, the proposed project would not pose an undue burden on recreational boaters as they are currently barred from the area. Nearby marinas, e.g. World's Fair Marina, would still be able to function as they would without the project. Recreational areas of the shoreline could still be utilized by the public. Commercial facilities e.g. the Waste Water Treatment Plant west of the airport could still receive vessels without any interruption of services. Therefore, the proposed project is consistent with Policy 2.

Policy 11: The proposed deck extensions would be located in the 100 year floodplain. The RSA deck extensions have been designed to not exacerbate flooding and/or erosion. Hydrodynamic modeling shows that the proposed pile arrangement for the RSA deck extensions would not cause scour or

sedimentation that could change water flow and alter water depths. In addition, the area occupied by the piles is 0.02 acres and the volume of water displaced by the piles would not be sufficient to cause in flooding in adjacent land areas. Therefore, the proposed project is consistent with Policy 11.

Policy 12: There are no natural protective features (beaches, dunes, barrier islands or bluffs) located within the proposed deck extension project area that could be damaged by flooding and erosion potentially caused by the proposed project. Moreover, as noted above (Policy 11), the proposed project would not exacerbate flooding or erosion in the area. Therefore, this policy is not applicable.

Policy 20: Access to the shoreline at LaGuardia Airport is not available to the public to protect their safety and to provide a secure setting for airport operations. Areas along the shoreline that are currently available for public access (e.g. southeast of the airport near the World's Fair Marina) would remain so. Therefore, the proposed project is consistent with Policy 20.

Policy 28: Ice management practices at LGA would not change as a result of the proposed project. The Port Authority is prohibited from disposing snow into Flushing Bay and Bowery Bay, except under very limited emergency situations and with prior approval from NYSDEC, snow is removed from runways and perimeter roads as soon as possible after it has fallen. Airfield anti-icing and de-icing is performed using sodium acetate on the runways and airfield roadways. Since sodium acetate dissolves completely once applied, this practice does not generate sediment and reduces the volume of waste material that must be managed by the stormwater collection system. Aviation-grade sand is sometimes used on the runways during storm events to increase friction. Snow removal from the EMAS bed, if needed, would be performed with a snow blower because heavy equipment is prohibited from accessing the EMAS bed. Snow management operations result in negligible impacts to water quality and are performed in accordance with the Airport's SPDES permit and Stormwater Pollution Prevention Plan. The current snow management practices would continue to extension of the existing decks would not change existing snow removal operations or associated water quality.

The current practices would not interfere with hydroelectric power production, cause damage to significant fish and wildlife habitats, or increase shoreline erosion or flooding. The proposed project area does not have any hydroelectric power production nor are there any hydroelectric plants in the immediate vicinity. Similarly, the closest significant fish and wildlife habitat identified by the New York State Department of State is North and South Brother Islands, which are a minimum of two miles from the proposed project site. Existing snow and ice management practices do not result in shoreline erosion or flooding. Therefore, the proposed project is consistent with Policy 28.

Policy 35: As noted in the background section, the proposed project does not involve dredging. Fill material (concrete and rebar) would be placed within the piles that would support the proposed deck extensions. Approximately 600 cubic yards of fill would be placed within the closed piles and none would be placed in open water. The volume of water displaced by the piles is insufficient to have an impact on flooding of adjacent areas. Similarly, hydrographic modeling of the proposed pile arrangement shows that there would be negligible changes in current flow, sedimentation, or erosion. Therefore, the proposed project is consistent with Policy 35.

Policy 44: The construction of the deck extensions is located close to but not within State designated tidal wetlands. The proposed project to install the decks will take place outside the littoral zone (defined by the NYSDEC as lands extending from the spring high tide line to 6 feet below the plane of mean low water). As the work would take place where water depths are more than 6 feet below low water, no work would occur in State designated tidal wetlands.

The construction of the section RVSR and the creation of the construction staging areas at Ingraham's Mountain and Parking Lot 10E would not cause physical alteration of the shoreline including land under water (i.e. littoral zone wetlands) any other tidal wetland areas, open coastal waters, or the tidal wetland adjacent area because the work takes place in upland areas. Therefore, the proposed project is consistent with Policy 44.

To summarize, based on the foregoing, the proposed project would be consistent with Policies 2, 11, 20, 28, 35 and 44 and Policy 12 would not be applicable to the project.

j. Draining of stormwater runoff or sewer overflows into coastal waters? (Policy 33)

The current decks are over open water that receive direct deposition of airborne particles that may be captured by the deck and washed off by rain events rather than falling directly in the water. The proposed project would have drainage managed such that the runoff from the decks would not cause contravention of water quality. Stormwater from the decks would be directed and connected to stormwater conveyances associated with the existing decks from where it would be released to Flushing Bay. The proposed decks would be partly covered by the proposed Engineered Materials Arresting System (EMAS), which would not be used by vehicles except in emergency situations. Therefore, materials associated with vehicle use would not be introduced to receiving waters from the EMAS. The outer portion of the deck would be used sporadically by inspection vehicles. Therefore, only minimal amounts of potential pollutants would be introduced to the extended decks.

Currently, there are no stormwater controls on Ingraham's Mountain allowing for any stormwater not captured by vegetation to runoff into the surrounding areas. The development of Ingraham's Mountain will be constructed using stormwater management controls to achieve zero net drainage from the area being developed, thereby reducing the runoff of stormwater into the surrounding areas.

Stormwater from the RVSR and Parking Lot 10E at LaGuardia Airport does not flow directly into the outfalls. The stormwater is conveyed into holding areas and ultimately pump house settling tanks equipped with pumps with high water level indicators. When the water reaches a specified level in the pump house, the pumps are activated and the stormwater is discharged to an outfall. When stormwater is discharged from the pump house to the outfall, sampling in accordance with the requirements of SPDES Permit No. NY 0008133 issued to the Port Authority, is conducted to ensure that water quality standards are not contravened.

LGA also has BMPs in place for stormwater management, specifically BMP 7 (Elimination of Non-Storm Water Discharges to Storm Drains), BMP 15 (Stormwater Pollution Prevention Education), and BMP 16 (Street Sweeping & Stormwater Facility Maintenance). There are no combined sewer system overflows

(CSOs) from LGA into receiving waters and wastewater from LGA is directed to a city-operated wastewater treatment plant (WWTP) and not a combined sewer system.

After completion of the RVSR, stormwater will be managed in the same manner as described above and LGA will continue to comply with the requirements of the SPDES Permit.

The proposed project will ensure the control of stormwater and will not allow combined sewer overflow. Therefore, the proposed project is consistent with Policy 33.

k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (Policies 36 and 39)

The proposed project will generate solid waste (primarily excess soil and construction and demolition debris) that will be managed and disposed of in accordance with local, state and federal regulations and rules. An Environmental Management Plan that will include procedures for the proper handling of waste and a response plan for spills will be prepared and implemented during the proposed project. At no time will related problems such as the "...filling of wetlands and littoral areas...and degradation of scenic resources" be allowed during the project.

The proposed project will have procedures in place to ensure proper management and disposal of solid waste and hazardous materials. Therefore, the proposed project is consistent with Policies 36 and 39.

2. Will the proposed activity <u>affect</u> or be <u>located</u> in, on, or adjacent to any of the following:

a. State designated freshwater or tidal wetland? (Policy 44)

The proposed RSA project is located in an area that is adjacent to State designated tidal wetlands. There are no State designated freshwater wetlands in the project area.

The proposed project to install the decks will take place outside the littoral zone (defined by the NYSDEC as lands from the spring mean high tide line to 6 feet below mean low water). However, as the work will take place where water depths are greater than 6 feet below mean low water, no work would occur in State designated tidal wetlands.

The RVSR is located within LaGuardia Airport, a peninsula that is surrounded by State designated tidal wetlands. However, the proposed project site is not located within the designated wetlands or the tidalwetland adjacent area. Moreover, the RVSR is separated by a minimum of 1,000 feet from the State designated wetlands by buildings, runways, taxiways, and roadways.

The work that would occur on Ingraham's Mountain would be at an elevation of approximately 65 to 85 feet above mean sea leve. Therefore, the work site is above the elevation of the tidal wetlands adjacent area, which would not be impacted.

The proposed project would not impact State designated tidal wetlands or the tidal wetland adjacent area. Therefore, the proposed project is consistent with Policy 44.

b. Federally designated flood and/or state designated erosion hazard area? (Policies 11, 12, and 17)
Policy 11 and Policy 12: See responses given for these policies in response to Question 1b.

Policy 17: Portions of LaGuardia Airport are below sea level and in a designated federal flood hazard area. The proposed deck extension is located in the currently defined 100 year floodplain as well as the 1% Advisory Base Flood Elevation (ABFE) zone. The RSA deck extensions have been designed so as not to exacerbate flooding and/or erosion. Hydrodynamic modeling shows that the proposed in-water structures associated with the RSA deck extension would not cause scour or sedimentation that could change water depths by altering current velocities and directions significantly. In addition, the area occupied by the piles is 0.02 acres and the volume of water displaced by the piles (based on an average 20 foot depth) would be approximately 18,000 cubic yards. Displacement of this volume of water is not sufficient to result in flooding on adjacent land areas.

A small portion of the RVSR would be constructed within the current 100-year and 500-year floodplains and would be in the 1% and 0.02% AFBE zones. The majority of the work would occur on paved surfaces and not increase the risk of downstream flooding and would not result in damage to natural resources. Construction of the RVSR would not be a significant encroachment in the floodplain and flooding at the site is not expected to have a substantial adverse impact on the surrounding area.

Due to the higher elevation, with work occurring from 65 feet to 85 feet above the ground surface, the construction of a construction staging area on Ingraham's Mountain would not be the 100-year or 500-year floodplain, nor would it be in the 1% or 0.02% ABFE zones

The U.S. Department of Transportation (USDOT) in Order 5650.2 sets criteria used to determine if there is a "significant encroachment" on the floodplain in those situations where it is not practicable to avoid it. A significant encroachment would not occur for the proposed project because: 1) there is a low probability of loss of human life, 2) the project has been designed to avoid or minimize future, extensive damage and costs (including damage that could interrupt service), and 3) there would be no notable adverse impacts on natural resources or on the floodplains natural and beneficial values. Based on these criteria, the proposed project would not constitute a significant encroachment on the floodplain. The proposed project would be consistent with Policy 17.

Based on the foregoing, the proposed project would be consistent with Policies 11, 12, and 17.

h. State, county, or local park? (Policies 19 and 20)
The proposed Restricted Vehicle Service Road is adjacent to the Grand Central Parkway, which is a Section 4(f) park resource that is managed by the New York State Office of Parks, Recreation & Historic Properties in conjunction with the New York City and State Departments of Transportation. The proposed RVSR alterations are contained on airport property and they would not impact the park resource, nor would they decrease access to water-related recreational resources and facilities.

Elmjack Field located adjacent to Flushing Bay is primarily used for landside, rather than water dependent recreational purposes. The Elmjack Field is located on airport property and is its use by the public is with the forebearance of the Port Authority. Elmjack Field is adjacent to Ingrahams's Mountain

and the proposed project will not alter the use of Elmjack Field and access to the park will be maintained during and after construction.

The proposed project will not interfere with public access to Elmjack Field and any water-related recreational opportunities. The proposed project will not impact the Grand Central Parkway and, therefore, a Section 4(f) evaluation is not necessary. The project will not change access to the foreshore or preclude activities currently available at the foreshore. Therefore, the proposed project is consistent with Policy 19 and Policy 20.

i. Historic resource listed on the National or State Register of Historic Places? (Policy 23)
The Marine Air Terminal, the Lent Homestead and Cemetery and the Steinway House, which are listed in the Register of Historic Places, and Hangars 1 – 5, which are eligible to listed in the Register of Historic Places, are located within the Area of Potential Effect (APE) for the project. However, the proposed project would neither directly nor indirectly impact these historic resources.

No previously reported archeological sites are located within the Project Area, although Archeological sites and areas of archaeological sensitivity have been reported within the APE. These are located along 19th Avenue, which follows the original shoreline that has been altered by residential and commercial development, as well as by fill emplacement that has substantially reduced the extent of Bowery Bay, particularly on the west side and that has filled a mud flat between the original shore and a peninsular feature immediately east of Steinway Creek.

The proposed project would avoid impacts to listed sites and archeological resources. The NY SHPO has concurred with the FAA's Determination of No Adverse Effect to Historic Resources. Therefore, the proposed project is consistent with Policy 23.

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program?

The proposed project would occur in New York City, which has an approved waterfront revitalization program. A copy of the New York City Waterfront Revitalization Program Consistency Assessment Form and responses to Policy Questions has been provided with this request for concurrence.

The proposed project is consistent with New York City's program. Therefore, the project would also be consistent with New York State's program, as there are no conflicts with any of the state policies.

For Internal Use Only:	WRP no.
Date Received:	DOS no.

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's designated coastal zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State with the concurrence of the United States Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other state agencies or the New York City Department of City Planning in their review of the applicant's certification of consistency.

A. APPLICANT

1. Name: The Port Authority of New York & New Jersey ATTN: Marc Helman
2. Address: 2 Gateway Center, 14th Floor, Newark, NJ 07102
3. Telephone: 973 565 7564 Fax: 973 565 7649 E-mail: mhelman@panynj.gov
4. Project site owner: The Port Authority of New York & New Jersey

B. PROPOSED ACTIVITY

1. Brief description of activity:

   See Attachment A.

2. Purpose of activity:

   See Attachment A.

3. Location of activity: (street address/borough or site description):

   LaGuardia Airport
   Queens County
   Flushing, NY 11369

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   Federal Aviation Administration Approval for Airport Layout Plan changes and project funding; U.S. Army Corp of Engineers Section 10 and Section 404 Permits; NYSDEC Protection of Water and Water Quality Certification; NYSDOS Coastal Zone Management Certification Concurrence

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   Federal Aviation Administration through Passenger Facility Charges.

6. Will the proposed project require the preparation of an environmental impact statement?
   Yes _____ No ✓ If yes, identify Lead Agency:

7. Identify **city** discretionary actions, such as a zoning amendment or adoption of an urban renewal plan, required for the proposed project.

   Acquisition of New York State Property under the water by the Port Authority. Following construction the Port Authority would convey the acquired property interest to the City of New York and those interests would be incorporated into the Demised Premises of the Airport pursuant to Section 19.1 of the lease between the City and the Port Authority.

C. COASTAL ASSESSMENT

Location Questions:	**Yes**	**No**
1. Is the project site on the waterfront or at the water's edge?	✓	
2. Does the proposed project require a waterfront site?		✓
3. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?	✓	

Policy Questions	**Yes**	**No**

The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each question indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.

Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.

4. Will the proposed project result in revitalization or redevelopment of a deteriorated or under-used waterfront site? (1)		✓
5. Is the project site appropriate for residential or commercial redevelopment? (1.1)		✓
6. Will the action result in a change in scale or character of a neighborhood? (1.2)		✓

Policy Questions cont'd	Yes	No
7. Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		✓
8. Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		✓
9. Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)	✓	
10. Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)		✓
11. Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		✓
12. Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)	✓	
13. Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)	✓	
14. Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		✓
15. Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		✓
16. Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		✓
17. Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)		✓
18. Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound- East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)		✓
19. Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitat? (4.1)		✓
20. Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		✓
21. Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)	✓	
22. Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3)		✓
23. Would the action have any effects on commercial or recreational use of fish resources? (4.4)		✓
24. Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		✓
25. Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)		✓
26. Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)	✓	
27. Will any activity associated with the project generate nonpoint source pollution? (5.2)		✓
28. Would the action cause violations of the National or State air quality standards? (5.2)		✓

Policy Questions cont'd	Yes	No
29. Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		✓
30. Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)		✓
31. Would the proposed action have any effects on surface or ground water supplies? (5.4)		✓
32. Would the action result in any activities within a federally designated flood hazard area or state-designated erosion hazards area? (6)	✓	
33. Would the action result in any construction activities that would lead to erosion? (6)	✓	
34. Would the action involve construction or reconstruction of a flood or erosion control structure? (6.1)		✓
35. Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		✓
36. Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		✓
37. Would the proposed project affect a non-renewable source of sand ? (6.3)		✓
38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants? (7)	✓	
39. Would the action affect any sites that have been used as landfills? (7.1)		✓
40. Would the action result in development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)		✓
41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)	✓	
42. Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)		✓
43. Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)	✓	
44. Would the action result in the provision of open space without provision for its maintenance? (8.1)		✓
45. Would the action result in any development along the shoreline but NOT include new water-enhanced or water-dependent recreational space? (8.2)		✓
46. Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		✓
47. Does the proposed project involve publicly owned or acquired land that could accommodate waterfront open space or recreation? (8.4)		✓
48. Does the project site involve lands or waters held in public trust by the state or city? (8.5)	✓	
49. Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		✓
50. Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)		✓

Policy Questions cont'd	Yes	No
51. Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)		✓
52. Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)	✓	

D. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

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Contact ~~Applicant/Agent~~ Signature: Marc Helman Date: 1 November 2013

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENT PROGRAM
ATTACHMENT A

Project Description
The LaGuardia Airport Runway Safety Area Enhancement Program includes a series of projects divided into two functional areas at LaGuardia Airport (LGA):

(1) Constructing deck extensions to provide for Runway Safety Areas (RSAs) and Engineered Materials Arresting System (EMAS) beds at the ends of Runway 4-22 and Runway 13-31
(2) Constructing a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to eliminate runway incursions

The Program also includes the creation of construction staging areas to support the construction projects in the Runway Safety Area Enhancement Program.

The Proposed Action elements are depicted in the attached figures and are described below:

Runway Safety Area Enhancements
The RSA Enhancements would extend the existing decks at the west end of Runway 13-31 (Runway 31 End) and at the north end of Runway 4-22 (Runway 4 End). These deck extensions would include Engineered Materials Arresting System (EMAS) beds and would be constructed on new sections of pile-supported concrete deck extensions 500 feet wide by approximately 180 feet long. This would increase safety for aircraft and passengers in emergency situations, consistent with FAA's current design standards.

Restricted Vehicle Service Road Construction
This aspect of the project consists of constructing a new section of the Airport's existing RVSR south of the Runway 22 End to avoid repeated exits and entries of service vehicles from airport secure areas onto public roadways and to reduce the risk of runway incursions. A RVSR south of the Runway 22 End would allow ground service equipment to have access from the Airport's eastern terminals to aircraft service facilities on the west side of the Airport without having to leave the secured area and drive on public roadways or use the runway areas (creating runway incursions) to access the eastern terminals from the west side of the Airport.

Creation of Construction Staging Areas
In order to construct the RSA Enhancements and the new section of RVSR at LGA, an area must be created for contractor mobilization and construction equipment staging, as there is insufficient existing area on Airport that is unallocated and could be used for this purpose.

To accommodate the construction of the RSA Enhancements and RVSR, a construction staging would be created in an area within the Airport leasehold known as Ingraham's Mountain, a man-made topographic feature created with material excavated for construction of the third tube of the Lincoln Tunnel. Ingraham's Mountain is approximately 0.2 miles west of the airfield, outside of the Airport Operations Area (AOA) and bounded by Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard. Construction vehicle access to the Airport from the Ingraham's Mountain Construction Staging Area would be via an access point at 81st Street and 19th Avenue that would be used by construction vehicles only. Access to Ingraham's Mountain would be through an existing gate at Berrian Boulevard.

In addition, a portion of existing Employee Parking Lot 10E, located near the Runway 4 and 31 Ends, would be reconfigured to provide space for a construction staging area adjacent to the RSAs. Employee Parking Lot 10E is currently underutilized for employee parking, with only 1,200 spaces of the total 1,700 spaces in use. The remaining 500 spaces, on approximately 3.5 acres, would be temporarily allocated to a construction staging area to support the RSA construction project.

Purpose and Need

The purpose of the project is to increase safety for aircraft and their passengers by enhancing the RSAs at the Runway 4 and 31 Ends by the end of 2015. The RSA requirement is mandated by both the Federal Aviation Administration (FAA) and by Congress. Safety would also be enhanced by creating a new section of the RVSR south of the Runway 22 End to reduce the potential for runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA. These safety enhancements would be accomplished by:

- Constructing deck extensions and installing an Engineered Materials Arresting System (EMAS) beds on the decks
- Constructing the RVSR south of the Runway 22 End and reconfiguring Runway Drive to accommodate the construction of the RVSR

The Proposed Actions are needed because the existing RSAs do not meet the FAA requirement and the current RVSR is not adequate to prevent runway incursions. In order for LaGuardia Airport to meet the FAA safety requirements the following issues must be addressed:

Runway Safety Area Enhancement

Currently, the existing decks of both runways are not long enough to provide adequate space for a full dimension RSA, a standard EMAS installation (standard RSA), or a non-standard EMAS. If the runway thresholds are kept in their existing locations, then the existing decks need to be extended to provide adequate space for RSAs.

Creation of a New Section of the Restricted Vehicle Service Road (RVSR)

To avoid the security concerns and time delays associated with repeated exits and entries of service vehicles and to reduce the risk of runway incursions and of increasing Air Traffic Control's workload, LGA needs a RVSR that is on Airport property in secured areas (i.e., airside) near the Runway 22 End. Constructing a new section of the RVSR south of the Runway 22 End would allow fuel trucks to deliver jet fuel to ramps located at the eastern Terminals B, C, and D without exiting a secured area onto Runway Drive. A new section of the RVSR would also allow ground service equipment to have access from the LGA's eastern terminals to the aircraft service facilities on the west side of the airport without having to leave the same secured area.

In order to implement any RSA Enhancements and the RVSR at LGA, an area must be provided for contractor mobilization and construction equipment staging. A minimum of 10 acres with access to the airport roadway system are needed for the deck extension and RVSR construction.

LAGUARDIA AIRPORT
RUNWAY SAFETY AREA ENHANCEMENTS
NEW YORK CITY DEPARTMENT OF CITY PLANNING
NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM

Location Question Responses

Location Question 1
Is the project site on the waterfront or at the water's edge?
LaGuardia Airport (LGA) is located on a manmade peninsula surrounded on three sides by water (Flushing Bay/East River). The deck extensions would be built in the water and would affect 754 square feet of the bay/river bottom. However, the work would not occur in a working waterfront area.

Ingraham's Mountain is located on a peninsula and is adjacent to the water's edge. However, work on Ingraham's Mountain will take place at elevations that are approximately 65 feet above sea level and no work will take in the water or at the water's edge.

The RVSR site is a minimum of 1,000 feet from the waterway separated from the water's edge by buildings, runways, taxiways and roadways. A portion of Parking Lot 10E will be cordoned off as a staging area but no other alteration will be performed. No work will take place in the waterway or at the water's edge for these aspects of the project.

Location Question 3
Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?
The proposed project to construct the deck extensions would alter a total of approximately 4.65 acres of land underwater. Each deck extension will be supported on one hundred twenty (120) 24" diameter piles, typically on a grid of 35 feet x 27 feet. Each pile would occupy 3.14 square feet of bay/river bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both decks, the total impact is approximately 754 square feet or 0.02 acres. The Port Authority will undertake mitigation efforts for the 0.02 acres of bay/river bottom that will be impacted at a site that is as close to the impacted waterways as is practicable given Federal Aviation Administration (FAA) restrictions on projects that could be potential wildlife attractants.

The construction of the Restricted Vehicle Service Road and the construction of the staging area will not alter the shoreline, land underwater or coastal waters.

Policy Question Responses

Policy Question 9 (Policy 2)
Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites?

There are piers present at LGA that are used for navigational aids and for mooring vessels involved in maintaining waterside security for the airport. However, the proposed project site is not located in a Significant Maritime and Industrial Area although the importance of the airport in the local and regional economy merits its consideration as a water-dependent activity.

The deck extension project will add 182 feet to the length of runway decks currently located in the waterway in order to meet FAA and Congressional mandates for construction of Runway Safety Areas. The deck extensions will not change the current functions of the runways or the runway decks.

The piers located at the end of Runway 22 for navigational aids and the pier located along side Runway 22 for maintenance vehicles to reach the navigational aid would not be impacted by the proposed project to extend the decks.

The proposed RVSR is separated from existing piers by buildings, runways, taxiways, a parking lot and roadways.

As the proposed project will not change the function of the existing waterfront structures, the proposed project is consistent with Policy 2.

Policy Question 12 (Policy 2.3, 3.2)
Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads?

The deck extension involves the construction of an additional 182 feet beyond the existing deck to provide a Runway Safety Area in compliance with the FAA and Congressionally mandated requirements. The project will not alter the current use of the decks or the runway. The decks are located in an area where the waters are currently in a U.S. Department of Homeland Security exclusion zone and, therefore, are not accessible to the public as navigable recreational waters.

As the runway thresholds will remain the same, there will be no intrusion upon navigation and the Federal Navigation Channel by aircraft vertical or horizontal take-off and loading cones. The RSA deck extensions would intrude into navigable waters of the United States. However, there would not be additional navigation hazards because the waters adjacent to the ends of the existing runways are not available for navigation because of the presence of lighting piers and the U.S. Department of Homeland Security exclusion zone. The exclusion zone is marked with buoys.

The proposed deck extensions would support the airport's water-dependent function as part of the regional economy by protecting both property (aircraft) and lives (passengers and aircrew) in the event of an overrun or undershoot by either cargo or passenger aircraft.

The RVSR and the creation of the construction staging areas will not involve the construction of piers, docks, or bulkheads and would have no impact on navigation.

As the proposed project will not change the current use of the decks, and would support the airport's role in the regional economy, the proposed project is consistent with Policy 2.3. As the proposed project will not conflict with recreational, commercial and ocean-going freight vessels, the proposed project is consistent with Policy 3.2

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Policy Question 13 (Policy 2.3, 3.1, 4, 5.3, 6.3)
Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters?
The proposed project area is adjacent to, but not within, portions of the East River Long Island Sound Special Natural Waterfront Area. The proposed project site is approximately one mile from the nearest designated Significant Coastal Fish and Wildlife Habitat (North and South Brother Islands) and is separated from this site by Rikers Island.

The construction of the deck extensions would require the installation of closed end piles that would be driven to bedrock and then filled with concrete prior to the placement of pile caps and decking. The project would not require dredging nor would the deck extensions require the direct placement of dredged or fill materials into coastal waters, marshes, estuaries, or wetlands except for the piles themselves. Furthermore, the proposed project site is not a source of non-renewable sand for beach nourishment.

The piles would eliminate existing benthic habitat in each pile footprint. Each deck extension would be supported on one hundred twenty (120) 24" piles on a grid of 35 feet x 27 feet. Each pile would occupy 3.14 square feet of sea bottom for a total of 377 square feet per deck. Based on the proposed pile configuration for both decks, the total benthic habitat lost for both RSA deck extensions combined would be approximately 754 square feet or 0.02 acres. However, the new piles would create additional surface area of approximately 37,680 square feet area for the attachment of benthic organisms beneath the RSA deck extensions.

The proposed deck extensions would also result in approximately 4.65 acres of shading of existing open water. The water depth in the Project Area is approximately 20 feet, but sunlight only penetrates through a portion of the water column due to existing turbidity levels. This area would represent diminished habitat value in the upper 3 to 6 feet of the water column, primarily as foraging habitat for fish.

As the proposed deck extensions would have impacts on benthic habitat, the Port Authority is identifying mitigation projects that would be submitted as part of permit applications to the U.S. Army Corps of Engineers and the New York State Department of Environmental Conservation as compensation for unavoidable impacts to the affected project areas.

The construction of the RVSR and the construction staging area would not take place in coastal waters. Nor would this or any aspect of the project have an impact on navigation (see response to Policy Question 9).

The proposed Ingraham's Mountain Construction Staging Area and its access road would eliminate approximately 9 acres of existing upland habitat, which is vegetated by non-native and invasive plants as well as common early native and non-native species typically associated with disturbed habitats in southeastern New York State. Although approximately 9 acres of the existing habitat would be cleared, the remaining habitat in perimeter areas of the property would be left undisturbed. It is anticipated that some the displaced species would relocate to the undisturbed areas, while others would relocate to locations in the general surrounding area that could accommodate them. Accordingly, the existing

communities and associated vegetation would persist and continue to be present at Ingraham's Mountain, both during and after construction.

The RVSR would not impact habitat areas.

Based on the foregoing, the proposed project is consistent with Policies 2.3, 3.1, 4, 5.3 and 6.3

Policy Question 21 (Policy 4.2)
Would the action involve any activity in or near a tidal or freshwater wetland?
The proposed RSA project is located adjacent to areas of the airport with State designated tidal wetlands.

The deck extension project will take place outside the littoral zone (defined by the NYSDEC as lands from mean high tide line to 6 feet below mean low water). As the work would take place in areas with depths more than 6 feet below low water, no work would occur in State designated tidal wetlands.

The RVSR is located within LaGuardia Airport, which his surrounded on three sides by State designated tidal wetlands. However, the proposed project site is not located in the designated wetlands nor the tidal wetland adjacent area. The RVSR site is separated by a minimum of 1,000 feet from the State designated tidal wetlands by buildings, runways, taxiways, and roadways.

A portion of Ingraham's Mountain is located within the tidal wetland adjacent area. However, the proposed work at this site would take place at elevations of 65 to 85 feet above the sea level. Therefore, the State designated tidal wetlands and the tidal wetland adjacent areas would not be impacted.

Moreover, as noted in response to Policy Question 13 (see above), the Port Authority will propose mitigation for impacts to benthic habitat. The proposed mitigation is likely to include creation or restoration of tidal wetlands and tidal wetland adjacent areas at a site or sites in the watershed of LGA.

The proposed project would not impact State designated tidal wetlands and is likely to include a mitigation proposal to create/enhance tidal wetlands. Therefore, the proposed project is consistent with Policy 4.2.

Policy Question 26 (Policy 5.1)
Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters?
The current decks are over open waters that receive direct deposition of airborne pollutants, which are captured by the deck and washed off by rain events rather than falling directly in the water. The proposed project would have drainage managed such that the runoff from the decks would not cause contravention of water quality. Stormwater from the decks would be directed and connected to stormwater conveyances associated with the existing decks from where it would be released to Flushing Bay. The proposed decks would be partly covered by the proposed Engineered Materials Arrestor System (EMAS), which would not be used by vehicles except in emergency situations. Therefore,

materials associated with vehicle use would not be introduced to receiving waters from the EMAS. The outer portion of the deck would be used sporadically by inspection vehicles. Therefore, only minimal amounts of potential pollutants would be introduced to the extended decks.

Currently there are no stormwater controls on Ingraham's Mountain allowing for any stormwater not captured by the vegetation to runoff into the surrounding areas. The development of Ingraham's Mountain will be constructed using stormwater management controls to achieve zero net drainage from the area being developed thereby reducing the runoff of stormwater into the surrounding areas.

Stormwater from the RVSR at LaGuardia Airport does not flow directly into the outfalls. The stormwater is conveyed into holding areas and ultimately pump houses equipped with pumps with high level indicator. When the water reaches a specified level in the pump house, the pumps are activated and the stormwater is discharged to an outfall. When stormwater is discharged from the pump house to the outfall sampling, in accordance with the requirements of SPDES Permit No. NY 0008133 issued to the Port Authority, is conducted to ensure that water quality standards are not contravened.

LGA also has BMPs in place for stormwater management, specifically BMP 7 (Elimination of Non-Storm Water Discharges to Storm Drains), BMP 15 (Stormwater Pollution Prevention Education), and BMP 16 (Street Sweeping & Stormwater Facility Maintenance). There are no combined sewer system overflows (CSOs) from LGA into receiving waters and wastewater from LGA is directed to a city-operated wastewater treatment plant (WWTP) and not a combined sewer system. After completion of the RVSR project, stormwater will be managed in the same manner as described above and LGA will continue to comply with the requirements of the SPDES Permit.

The water surrounding LGA Airport is currently brackish and the current volume of fresh (storm) water being discharged into the brackish water is not sufficient to impact salinity or the fish habitat. The proposed work is either within existing paved areas that currently discharge to the LGA stormwater system or areas that are currently open water and receive precipitation directly. Therefore, there would be no increase in freshwater discharge as a result of the proposed project.

The proposed project would ensure the control of stormwater and would manage direct and indirect discharges. Therefore, the proposed project is consistent with Policy 5.1.

Policy Question 32 (Policy 6)
Would the action result in any activities within a federally designated flood hazard area or state designated erosion hazards area?
Portions of LaGuardia Airport are below sea level and in a designated federal hazard area.

The proposed deck extension is located in the currently mapped 100 year floodplain and in the 1% Advisory Base Flood Elevation proposed by the Federal Emergency Management Agency (FEMA). The RSA deck extensions have been designed so as to not exacerbate flooding and/or erosion but cannot be constructed at a higher elevation because it is necessary that they meet the existing deck elevations. Hydrodynamic modeling shows that the proposed in-water structures (piles) for the RSA deck extension would not cause changes in current velocities or directions that would result in scour or sedimentation

that could change water depths. In addition, the area that would be occupied by the piles is 0.02 acres and the volume of water displaced would not be sufficient to result in flooding of adjacent land areas.

A small portion of the RVSR would be constructed within the current 100-year and 500-year floodplains. The majority of the work would occur on paved surfaces and would not increase the risk of downstream flooding. Construction of the RVSR would not be a significant encroachment in the floodplain.

The U.S. Department of Transportation (USDOT) in Order 5650.2 sets criteria used to determine if there is a "significant encroachment" on the floodplain in those situations where it is not practicable to avoid it. A significant encroachment would not occur for the proposed project because: 1) there is a low probability of loss of human life, 2) the project has been designed to avoid or minimize future, extensive damage and costs (including damage that could interrupt service), and 3) there would be no notable adverse impacts on natural resources or on the floodplains natural and beneficial values. Based on these criteria, the proposed project would not constitute a significant encroachment on the floodplain.

Due to the higher elevation, with work that would occur from 65 feet to 85 feet above the ground surface, the construction staging area proposed for Ingraham's Mountain would not be the 100-year or 500-year floodplain.

Based on the foregoing, the proposed project is consistent with Policy 6.

Policy Question 33 (Policy 6)
Would the action result in any construction activities that would lead to erosion?
The deck extension is expected to cause small, localized changes to the erosion and sedimentation patterns. Model results indicate that the tidal flux through Rikers Island Channel would be reduced by 0.1 percent and that there would be no detectable impacts to the tidal flux through Flushing Bay. Based on these model results, the deck extension would have negligible impacts to Flushing Bay. As with the existing deck, there would be minor scour effects in the immediate vicinity of each pile. Based on the modeled current speeds, pile configuration, and sediment composition a maximum scour depth of 1.5 feet is estimated with a maximum diameter of approximately 8 feet. In general, the local pile scour at the future deck extension is expected to be similar to the existing pile scour.

The development of Ingraham's Mountain and the RVSR project will expose soil and would have the potential to cause erosion. A project specific Stormwater Pollution Prevention Plan (SWPPP) will be prepared and the plan will include measures to be implemented during construction to minimize erosion from the sites. Post construction stormwater management measures will also be implemented to minimize erosion due to stormwater runoff after the construction of the staging area on Ingraham's Mountain and the RVSR is completed.

Based on the foregoing, the proposed project is consistent with Policy 6.

Policy Question 38 (Policy 7)
Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants?
The deck extensions would not generate waste as not waste is associated with the placement of piles in the water. The construction of the deck extensions would require that stormwater management be in compliance with LGA's SPDES Permit.

The soil and other materials removed from Ingraham's Mountain will be disposed in accordance with Solid Waste Regulations. The creation of the RVSR will generate solid waste consistent with road construction projects.

As measures would be taken to minimize environmental degradation from solid waste and hazardous substances by complying with Local, New York State and Federal regulations and following procedures outlined in an Environmental Management Plan, the proposed project is consistent with Policy 7.

Policy Question 41 (Policy 7.3)
Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility?
The components of the proposed project would generate solid waste consistent with that generated by many construction projects, e.g. soil, rock, construction debris. The disposal of this solid waste would be managed in accordance with local, state and federal regulations. The Environmental Management Plan for the project will include procedures for the management and disposal of solid waste expected to be generated as part of the deck extension, the creation of the RVSR, and the construction staging areas, including requirements for the transport of the solid waste to avoid coastal areas. If hazardous waste is encountered during construction, it would also be managed in accordance with applicable regulation. At no time will a waste facility be created as part of this project. Therefore, the proposed project is consistent with Policy 7.3.

Policy Question 43 (Policy 8)
Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation?
The proposed Restricted Vehicle Service Road is adjacent to the Grand Central Parkway, which is a Section 4(f) park resource that is managed by the New York State Office of Parks, Recreation & Historic Properties in conjunction with the New York City and State Departments of Transportation. The proposed RVSR alterations are contained on airport property and they would not impact the park resource, nor would they decrease access to water-related recreational resources and facilities.

Elmjack Field located adjacent to Flushing Bay is primarily used for landside, rather than water dependent recreational purposes and is a privately owned property. Elmjack Field is located on airport property and its use by the public is with the forebearance of the Port Authority. Elmjack Field is adjacent to Ingrahams's Mountain and the proposed project would not alter the use of Elmjack Field and access to the park would be maintained during and after construction.

The proposed project would not interfere with public access to Elmjack Field and any water-related recreational opportunities. The proposed project would not impact the Grand Central Parkway and, therefore, a Section 4(f) evaluation is not necessary. The project would not change access to the shore or preclude activities currently available at the shore. Therefore, the proposed project is consistent with Policy 8.

Policy Question 48 (Policy 8.5)
Does the project site involve lands or waters held in public trust by the state or city?
The Airport property is owned by the City of New York and leased to the Port Authority through 2050. The boundaries of the Airport property and Port Authority's leasehold extend into the water to the bulkhead line. The deck extensions would be built beyond the bulkhead line on land under water owned by the State of New York. The Port Authority would acquire the property interests needed to construct the deck extensions from New York State. Once construction is completed, the Port Authority would convey the acquired property interests to New York City, and those interests would be incorporated into the Demised Premises of the Airport pursuant to Section 19.1 of the lease between the City and the Port Authority. In a letter to New York State's Office of General Services dated July 19, 2013, the Port Authority requested the underwater land rights to build the portions of the extensions that exceed the limits of these easements.

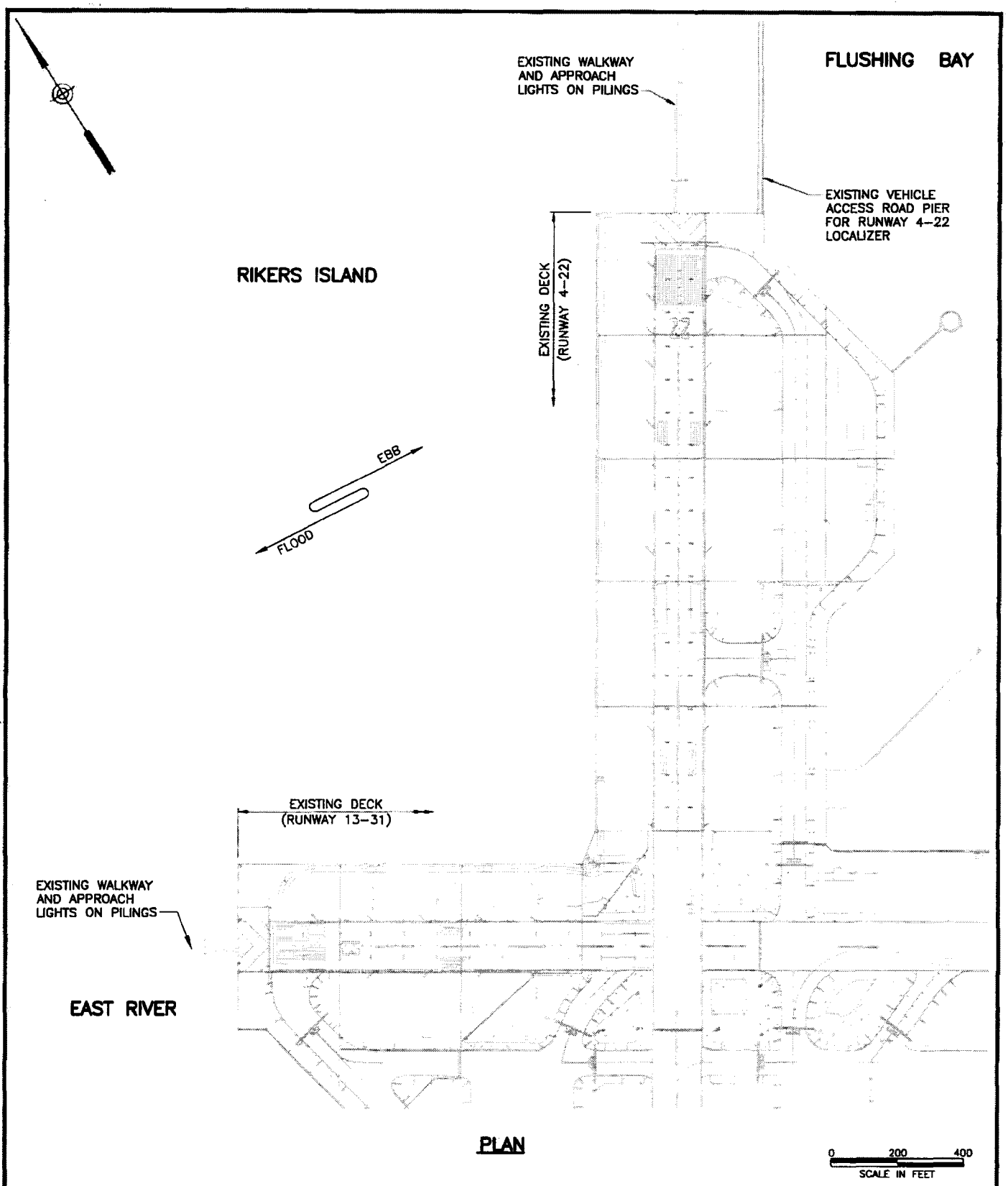
Based on the foregoing, the proposed project is consistent with Policy 8.5

Policy Question 52 (Policy 10)
Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York?
The Marine Air Terminal, the Lent Homestead and Cemetery, and the Steinway House, which are listed in the Register of Historic Places, and Hangars 1 – 5, which are eligible to listed in the Register of Historic Places are located within the Area of Potential Effect (APE). However, the proposed project would neither directly nor indirectly impact these historic resources.

No previously reported archeological sites are located within the Project Area, although archeological sites and areas of archaeological sensitivity have been reported within the APE. These are located along 19th Avenue, which follows the original shoreline that has been altered by residential and commercial development, as well as by fill emplacement that has substantially reduced the extent of Bowery Bay, particularly on the west side and that has filled a mud flat between the original shore and a peninsular feature immediately east of Steinway Creek.

The proposed project would avoid impacts to listed sites and archeological resources. The New York State Office of Parks, Recreation & Historic Properties has concurred with the FAA's Determination of No Adverse Effect to Historic Resources.

As the proposed project will avoid impacts to listed sites, as well as avoid impacts to archeological resources, the proposed project is consistent with Policy 10.



PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline: **STRUCTURAL**	MM-DD-YYYY (Date)	1 of 8
		EXISTING CONDITIONS PLAN	LGA-124.185 (Contract Number)	Workorder Number
A. Krutovkly (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 (PID Number)	Drawing Number **PD-1**

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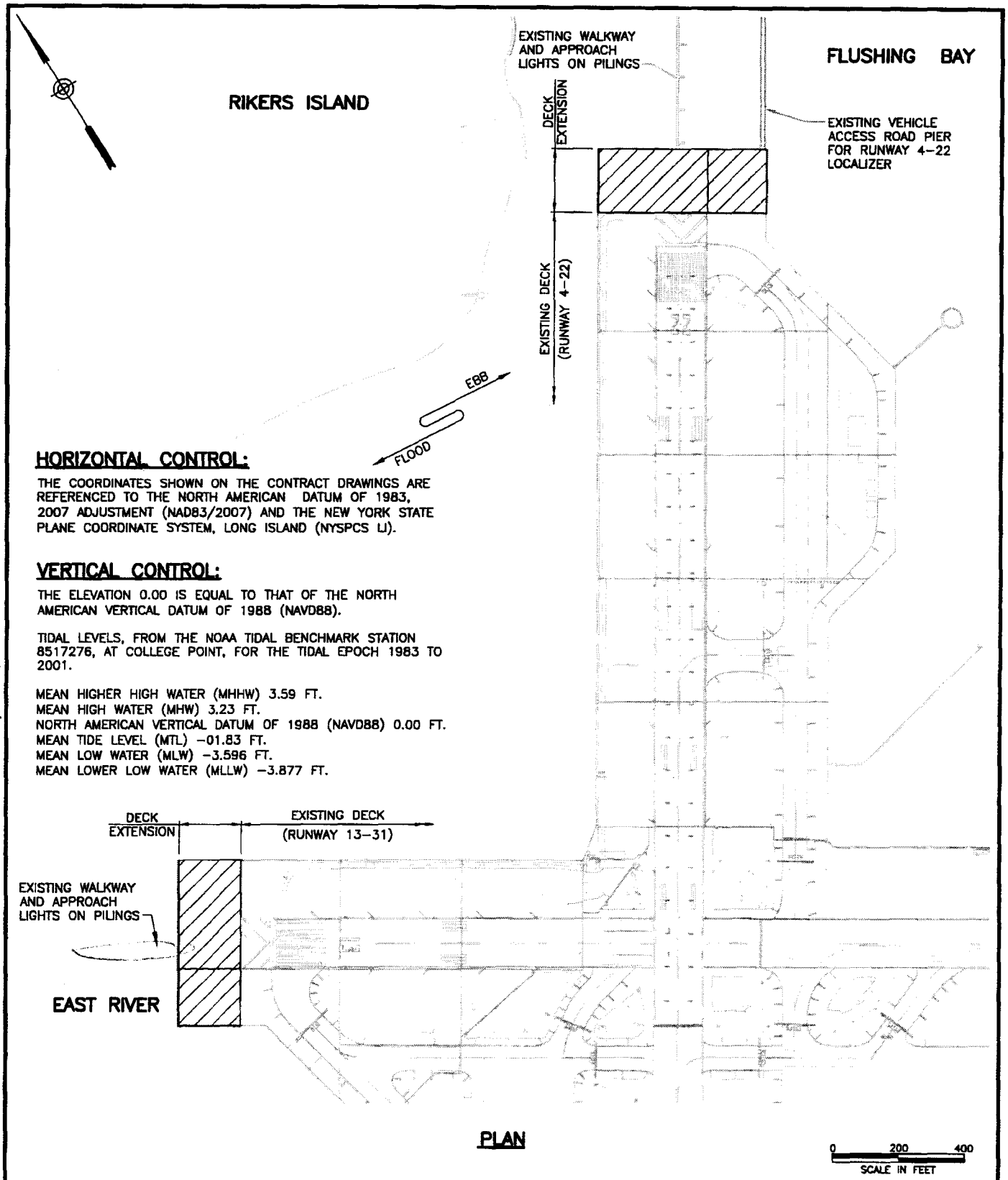

HORIZONTAL CONTROL:

THE COORDINATES SHOWN ON THE CONTRACT DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983, 2007 ADJUSTMENT (NAD83/2007) AND THE NEW YORK STATE PLANE COORDINATE SYSTEM, LONG ISLAND (NYSPCS LI).

VERTICAL CONTROL:

THE ELEVATION 0.00 IS EQUAL TO THAT OF THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

TIDAL LEVELS, FROM THE NOAA TIDAL BENCHMARK STATION 8517276, AT COLLEGE POINT, FOR THE TIDAL EPOCH 1983 TO 2001.

MEAN HIGHER HIGH WATER (MHHW) 3.59 FT.
MEAN HIGH WATER (MHW) 3.23 FT.
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) 0.00 FT.
MEAN TIDE LEVEL (MTL) -01.83 FT.
MEAN LOW WATER (MLW) -3.596 FT.
MEAN LOWER LOW WATER (MLLW) -3.877 FT.

PLAN

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline: STRUCTURAL	MM-DD-YYYY (Date)	2 of 8
		PROPOSED CONDITIONS PLAN	LGA-124.185 (Contract Number)	Workorder Number: -
A. Krutovkiy (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS		12725000 (PID Number)	Drawing Number: PD-2

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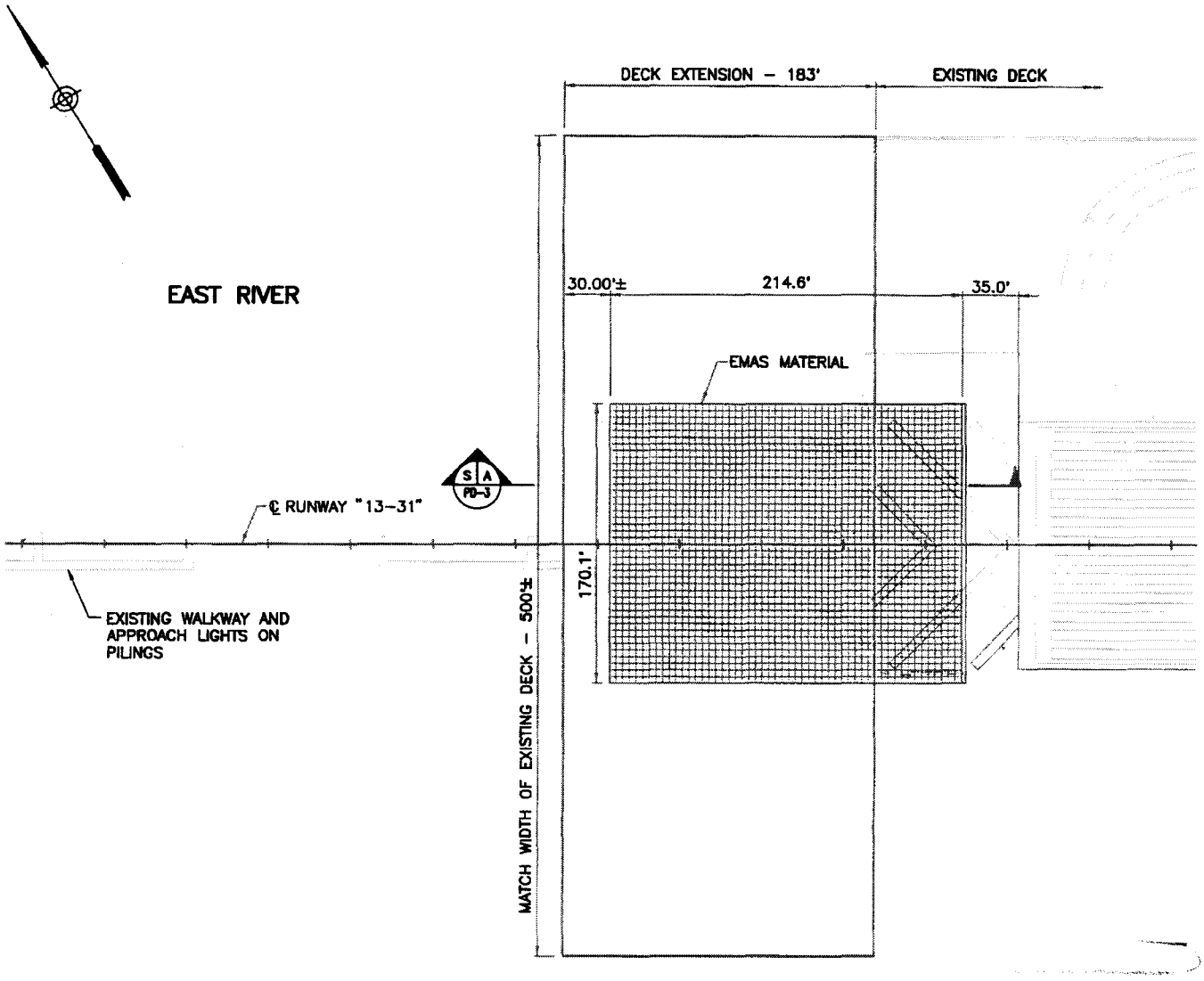
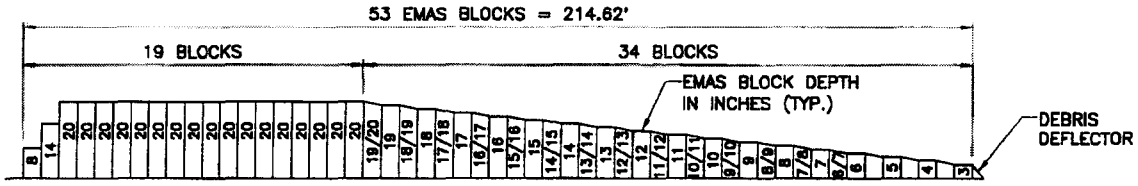


PLAN



S A PD-3 SECTION N.T.S.

0 50 100 SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline: STRUCTURAL	MM–DD–YYYY Date	3 of 8
A. Krutovkiy (Designed by) B. Boscaino (Drawn by) A. DaVito (Checked by)	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS	EMAS LAYOUT PLAN AND SECTION RUNWAY 13–31	LGA–124.185 Contract Number; 12725000 PID Number	Workorder Number –; Drawing Number PD-3

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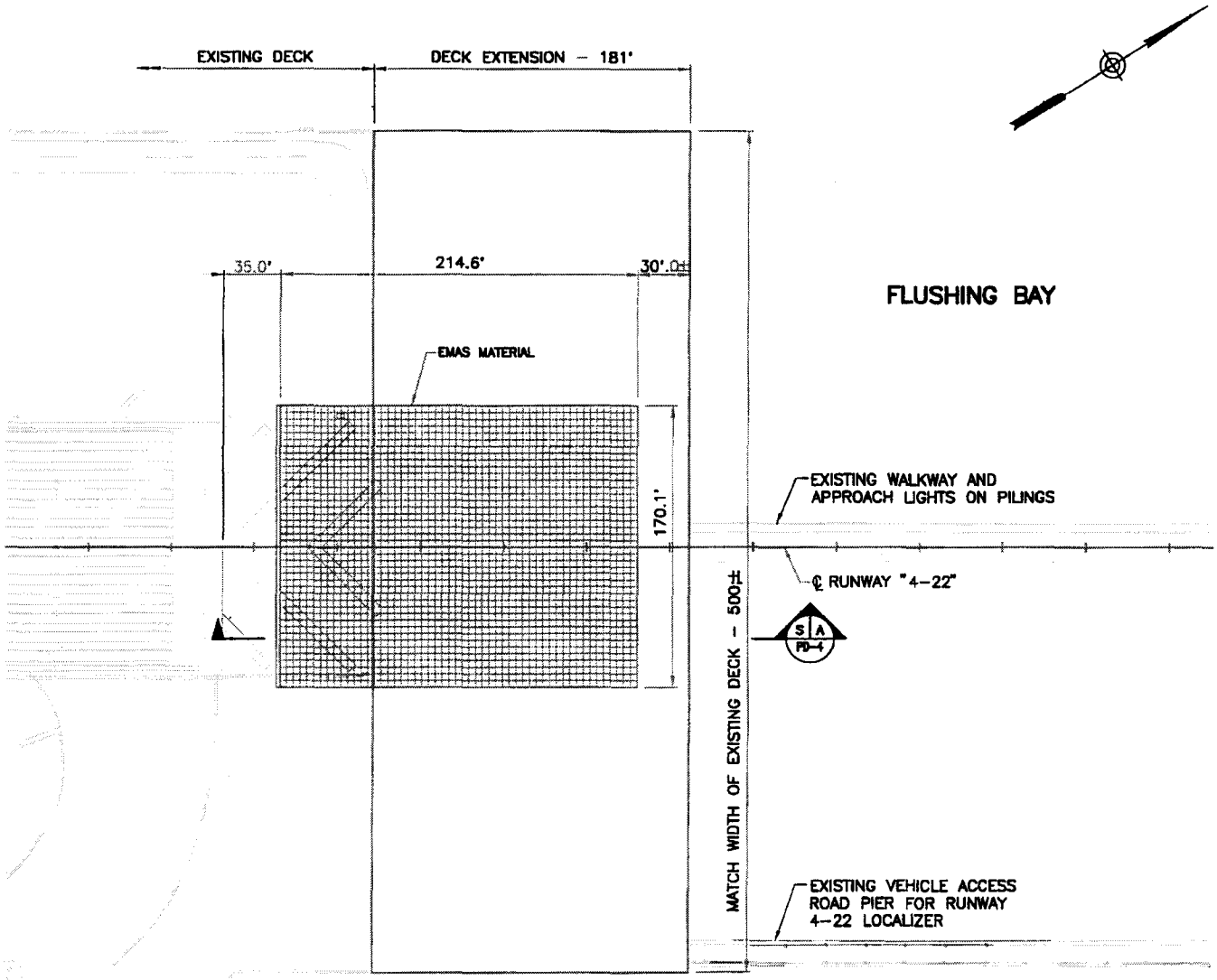
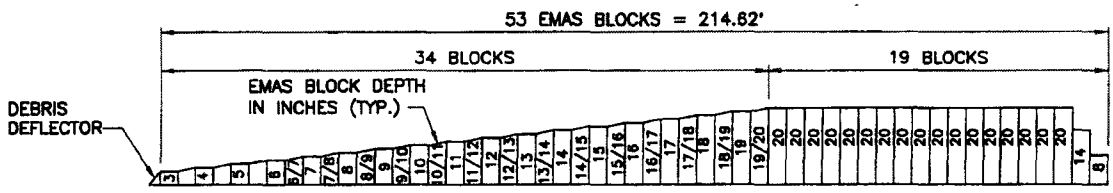


PLAN



S A PD-4 SECTION
N.T.S.

0 50 100
SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	4 of 8
A. Krutovkly B. Boscaino A. DeVito	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**	**EMAS LAYOUT PLAN AND SECTION RUNWAY 4-22**	LGA-124.185 Contract Number	Workorder Number -
Designed by Drawn by Checked by			12725000 PID Number	Drawing Number **PD-4**

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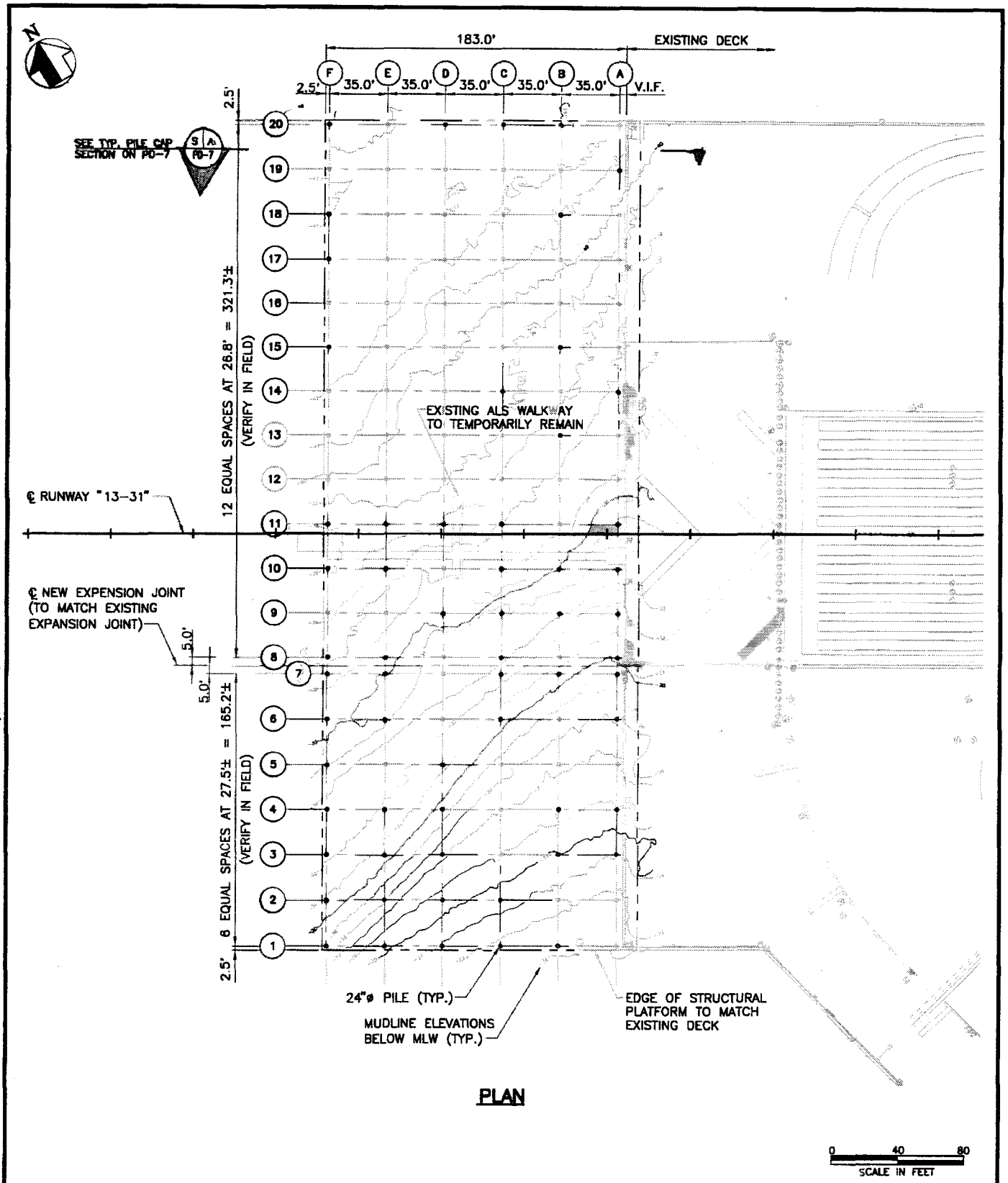

PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	5 of 8
		PILE LAYOUT PLAN RUNWAY 13-31	LGA-124.185 Contract Number	Workorder Number -
A. Krutovkiy B. Boscaino A. DeVito	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 PID Number	Drawing Number **PD-5**
Designed by Drawn by Checked by				

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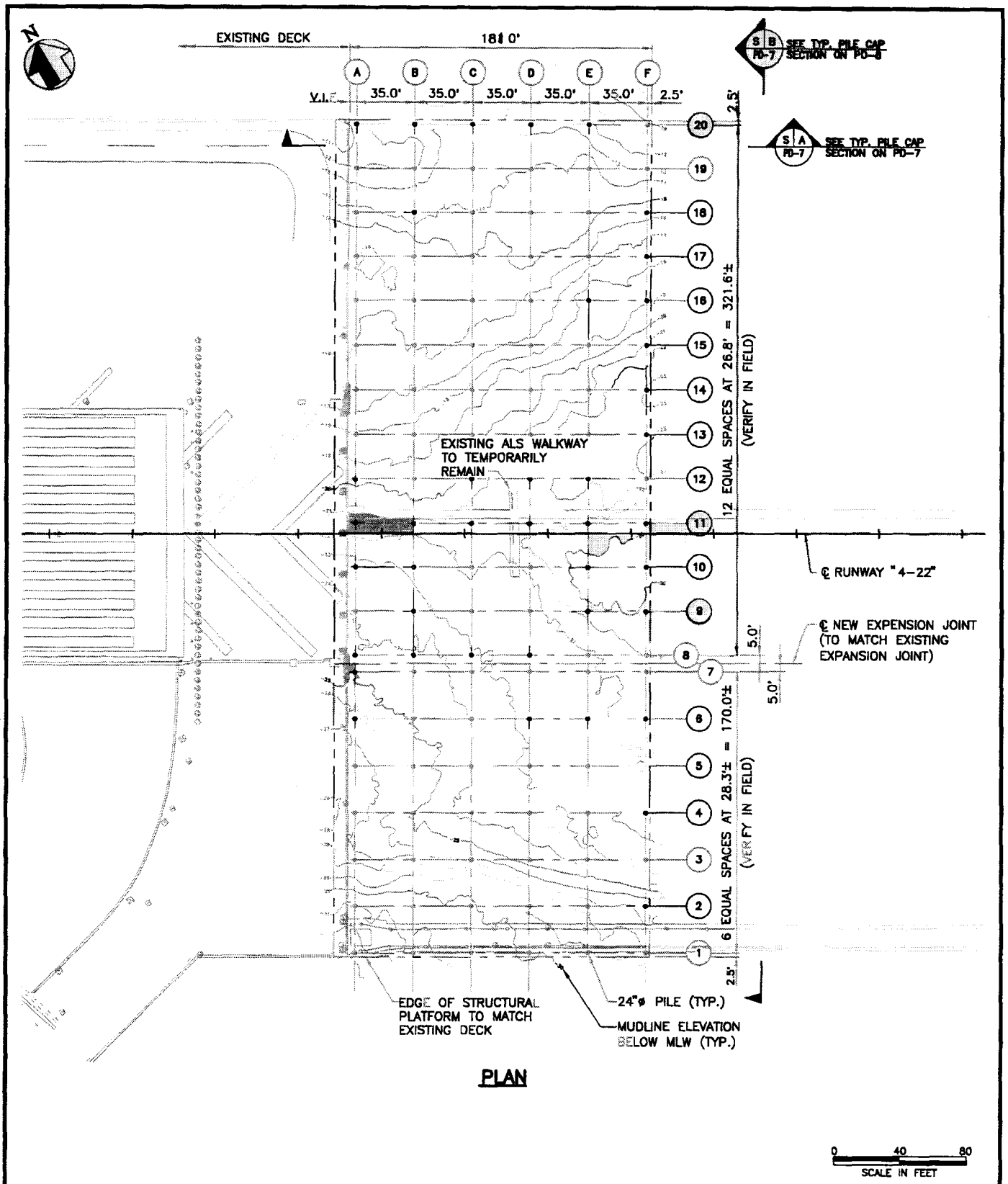

PLAN

THE PORT AUTHORITY OF NY & NJ	**LAGUARDIA AIRPORT**	Discipline **STRUCTURAL**	MM-DD-YYYY Date	8 of 8
		PILE LAYOUT PLAN RUNWAY 4-22	LGA-124.185 Contract Number	Workorder Number -
A. Krutovkly Designed by · B. Boscaino Drawn by · A. DeVito Checked by	**RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS**		12725000 PID Number	Drawing Number **PD-6**

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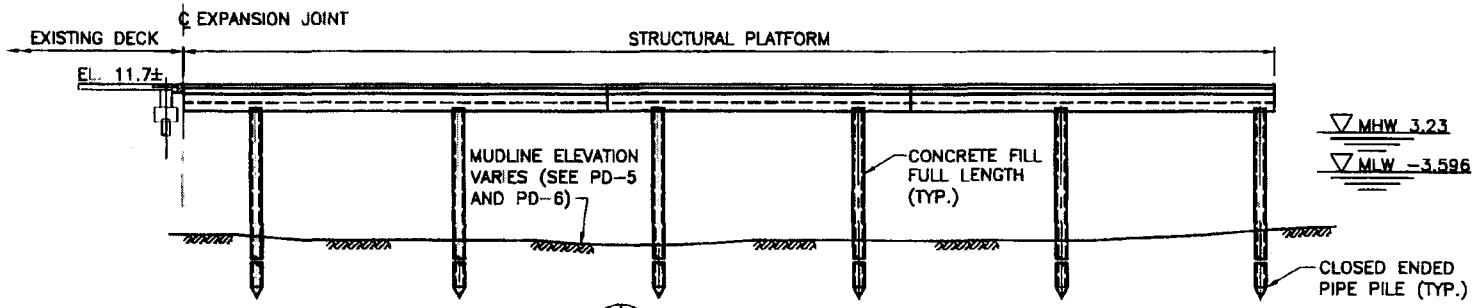
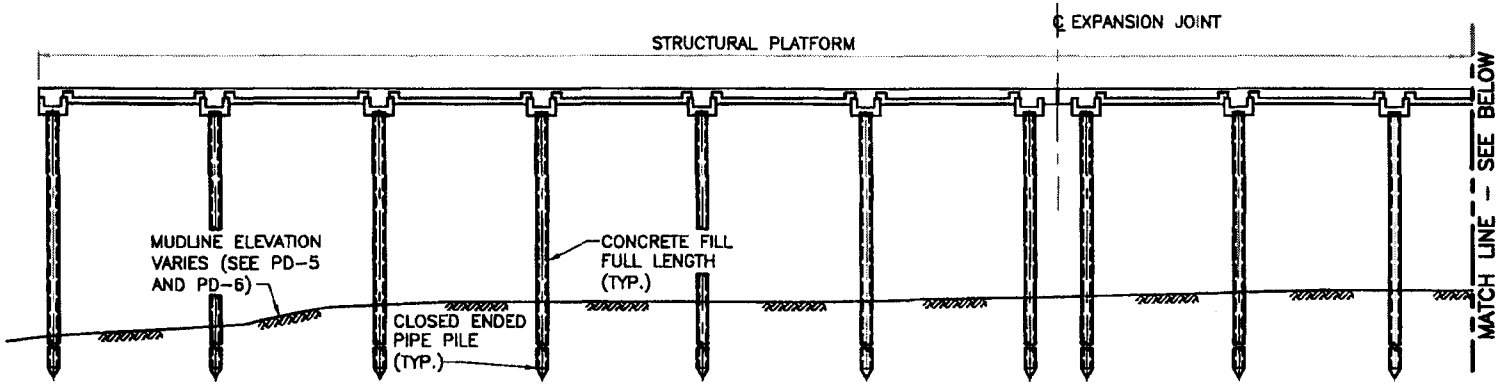
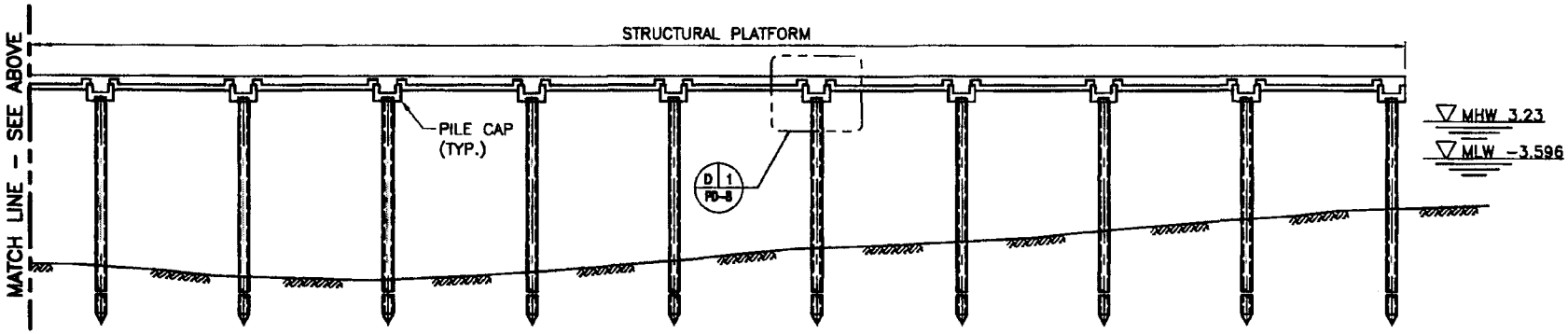


S A TYPICAL PILE CAP SECTION
PD-5 & PD-6 (PARALLEL TO THE RUNWAY)





S B TYPICAL PILE CAP SECTION
PD-5 & PD-6 (PERPENDICULAR TO THE RUNWAY)

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline: STRUCTURAL	MM-DD-YYYY (Date)	7 of 8
A. Krutovskiy (Designed by) B. Boscaino (Drawn by) A. DeVito (Checked by)	RUNWAY SAFETY AREA IMPROVMENTS PERMIT DRAWINGS	TYPICAL PILE CAP SECTIONS	LGA-124.185 (Contract Number) 12725000 (PID Number)	Workorder Number; Drawing Number PD-7

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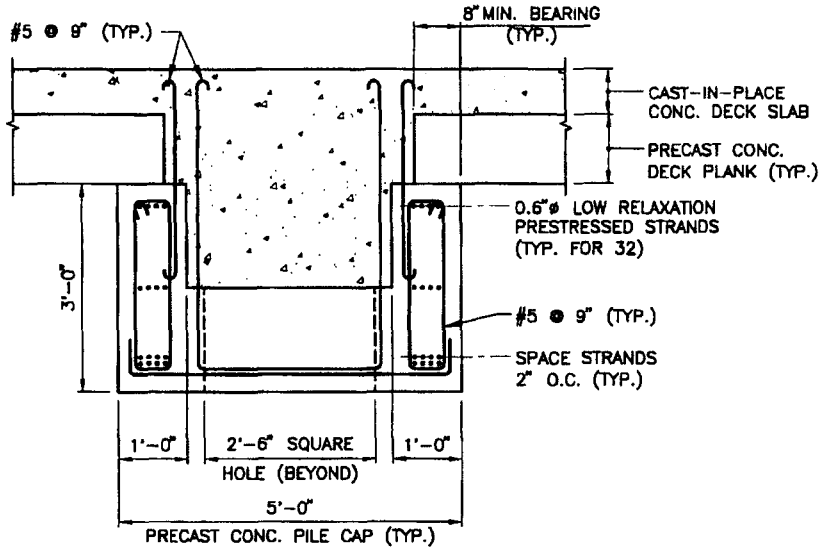
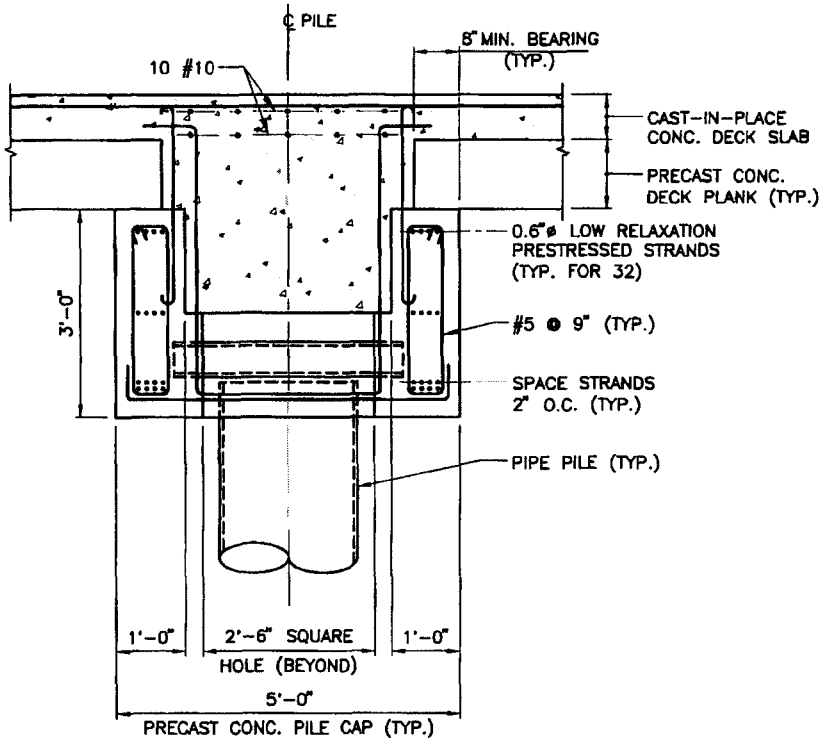


D 1 PD-7 TYPICAL PILE CAP SECTION



D 1 PD-7 TYPICAL PILE CAP SECTION THROUGH PILE

0 1 2 3
SCALE IN FEET

THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Discipline STRUCTURAL	MM-DD-YYYY Date	8 of 8
A. Krutovskiy B. Boscaino A. DeVito	RUNWAY SAFETY AREA IMPROVEMENTS PERMIT DRAWINGS	TYPICAL PILE CAP SECTIONS	LGA-124.185 Contract Number	Workorder Number
Designed by Drawn by Checked by			12725000 PID Number	Drawing Number PD-8

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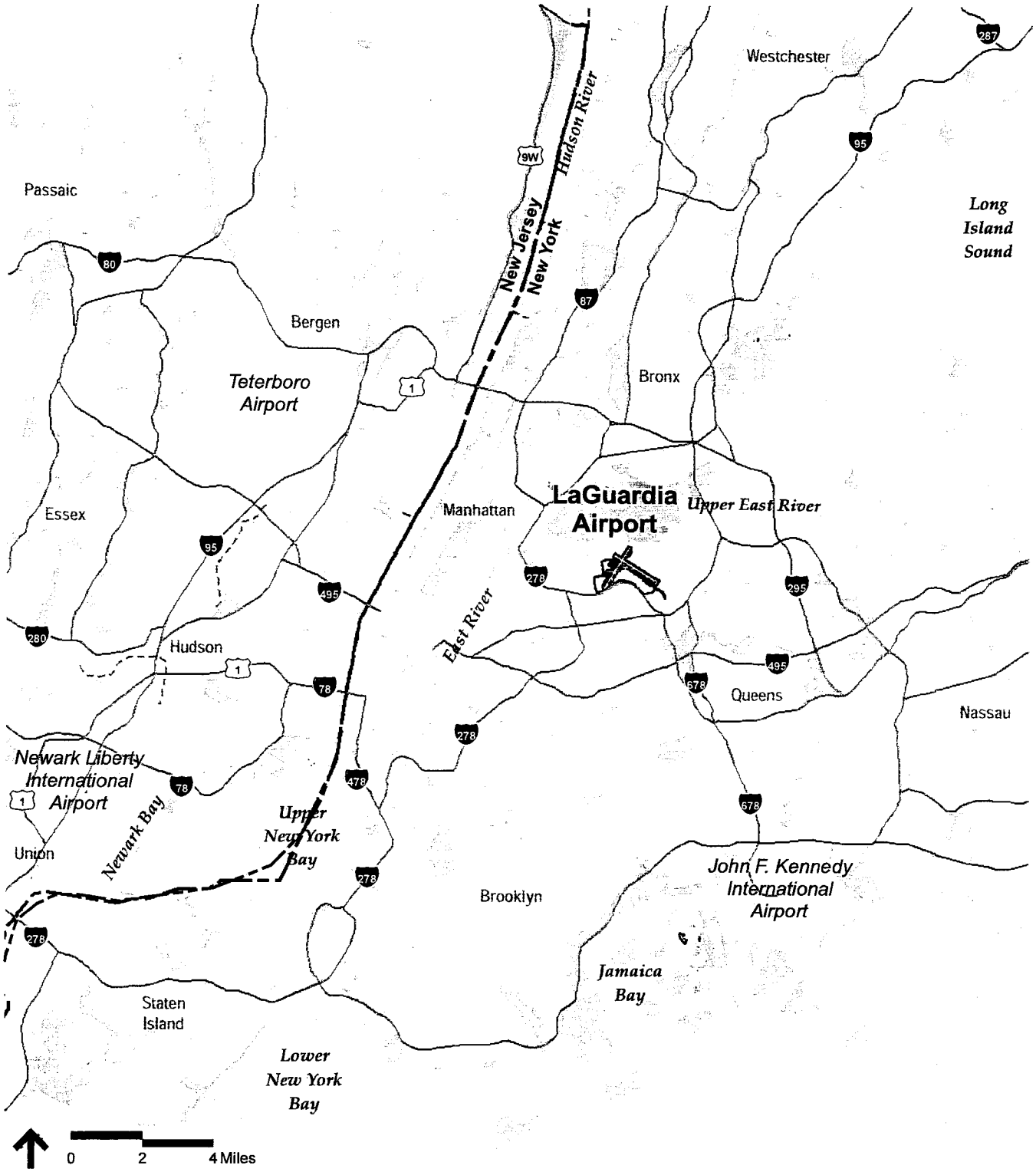


Sources: ESRI StreetMap

Legend

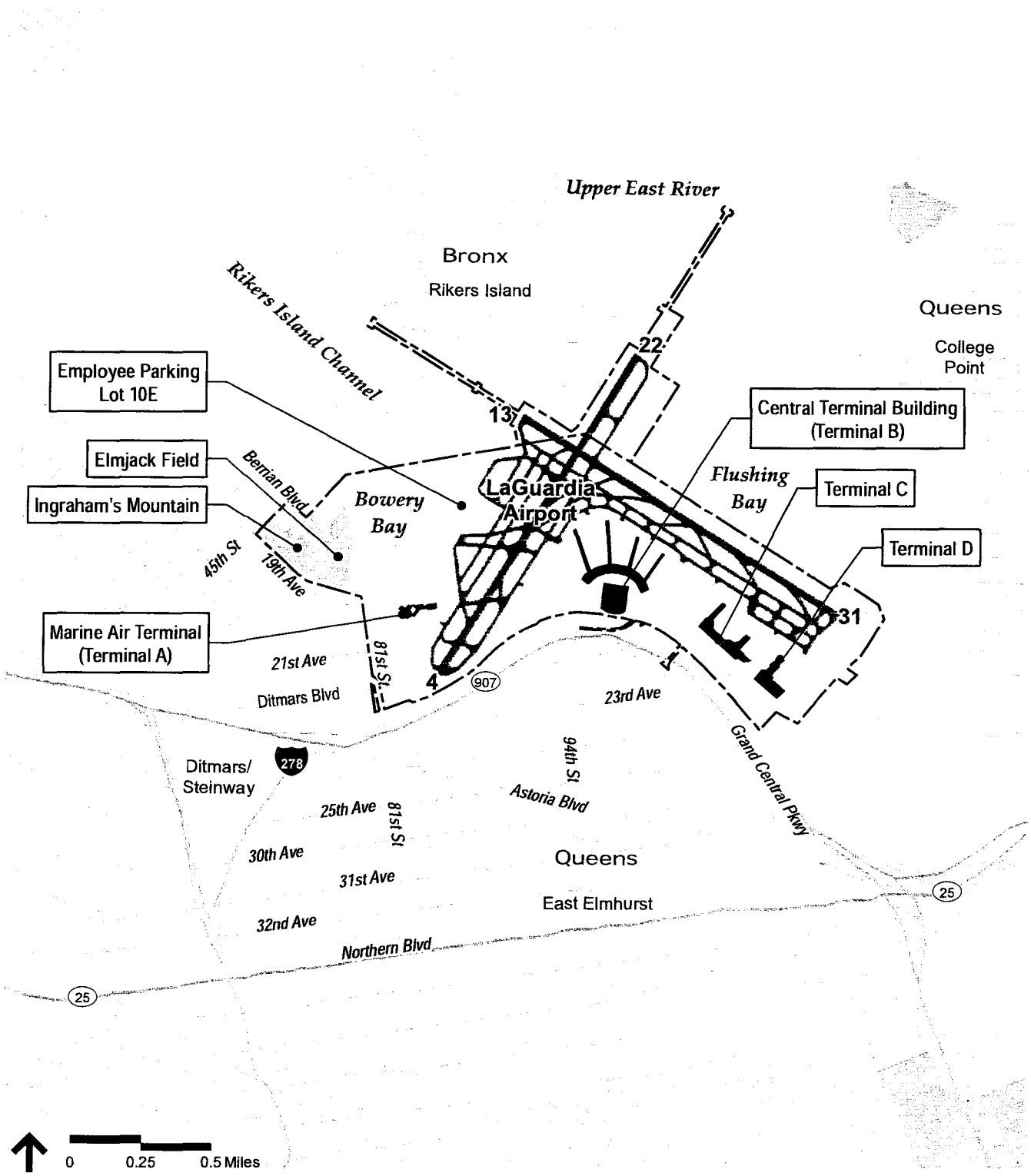
- Borough/County
- Highway
- State Boundary
- Park or Recreational Area
- Port Authority of NY and NJ Airports

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-1

Project Location



Sources: ESRI StreetMap

Legend

- LaGuardia Airport
- Highway
- Local Roadway
- Airport Facilities
- Park or Recreational Area

College Point	Neighborhood
Queens	Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-2
Project Vicinity

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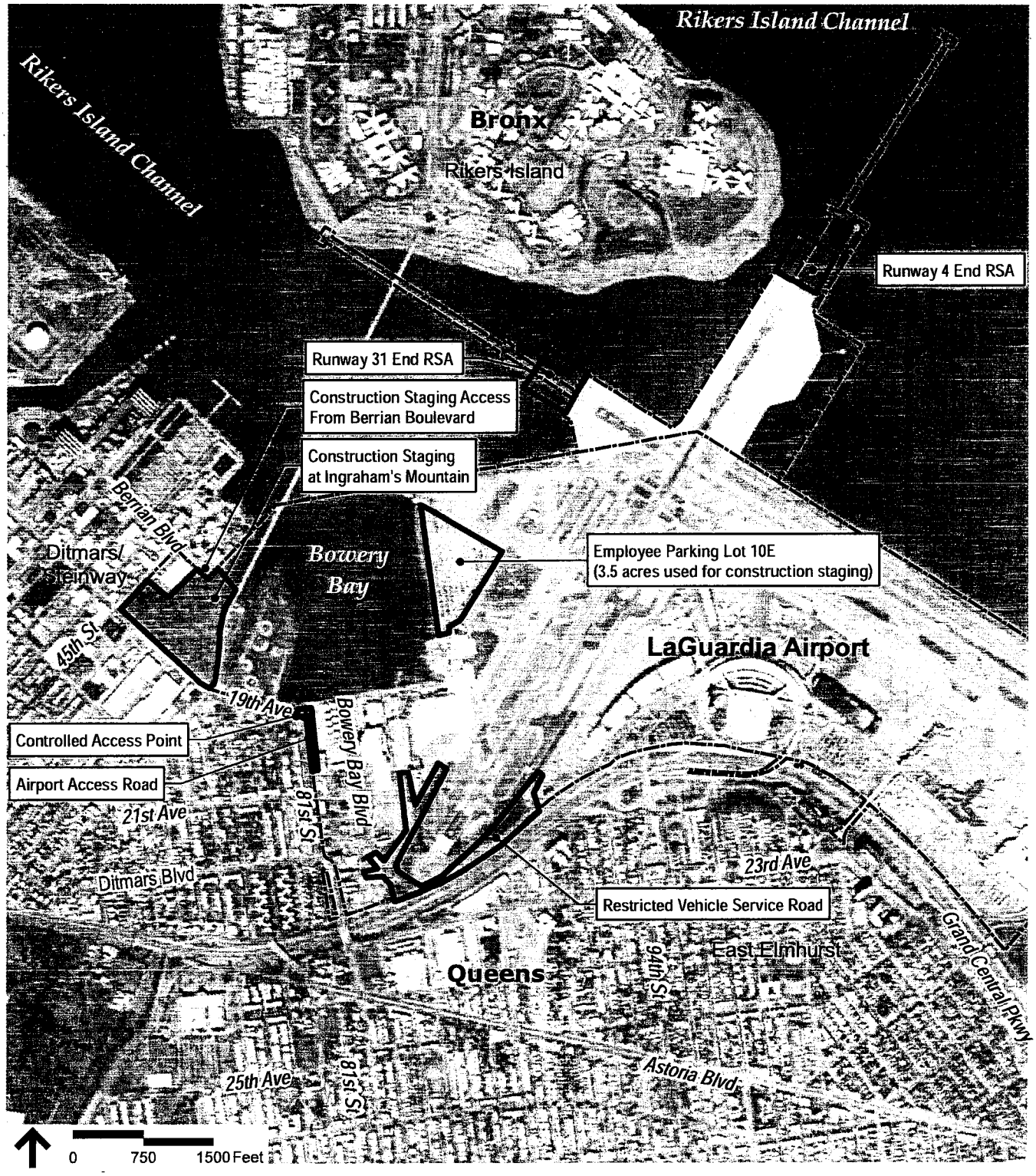


Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Project Areas

East Elmhurst Neighborhood

Queens Borough

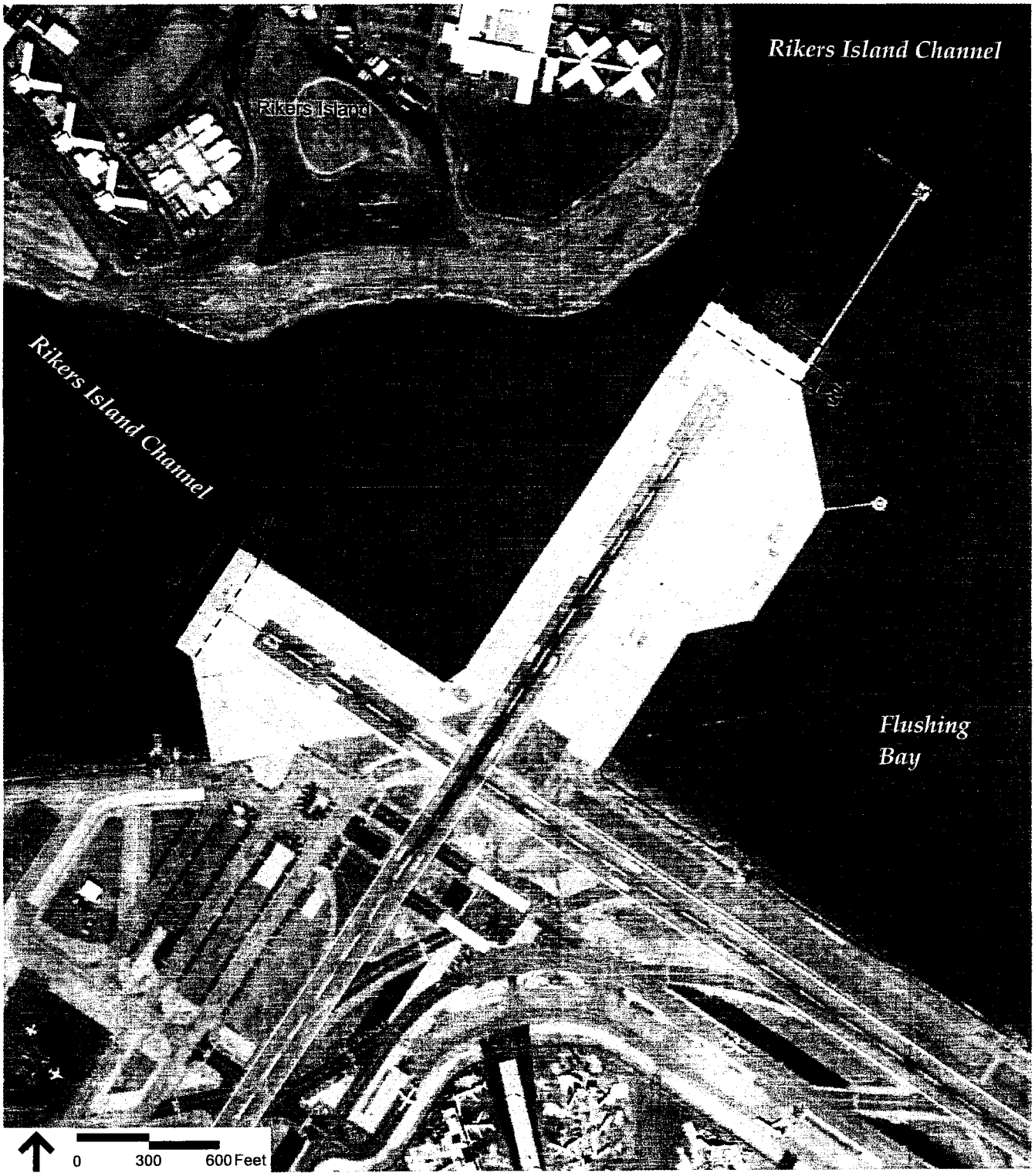
THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 1-3
Project Area

\\nynjdata\projects\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Project Area-letter.mxd

\\vhbiproj\NewYorkCity\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Ends of RSA-Existing.mxd



Source: ArcGIS Bing Aerial Service

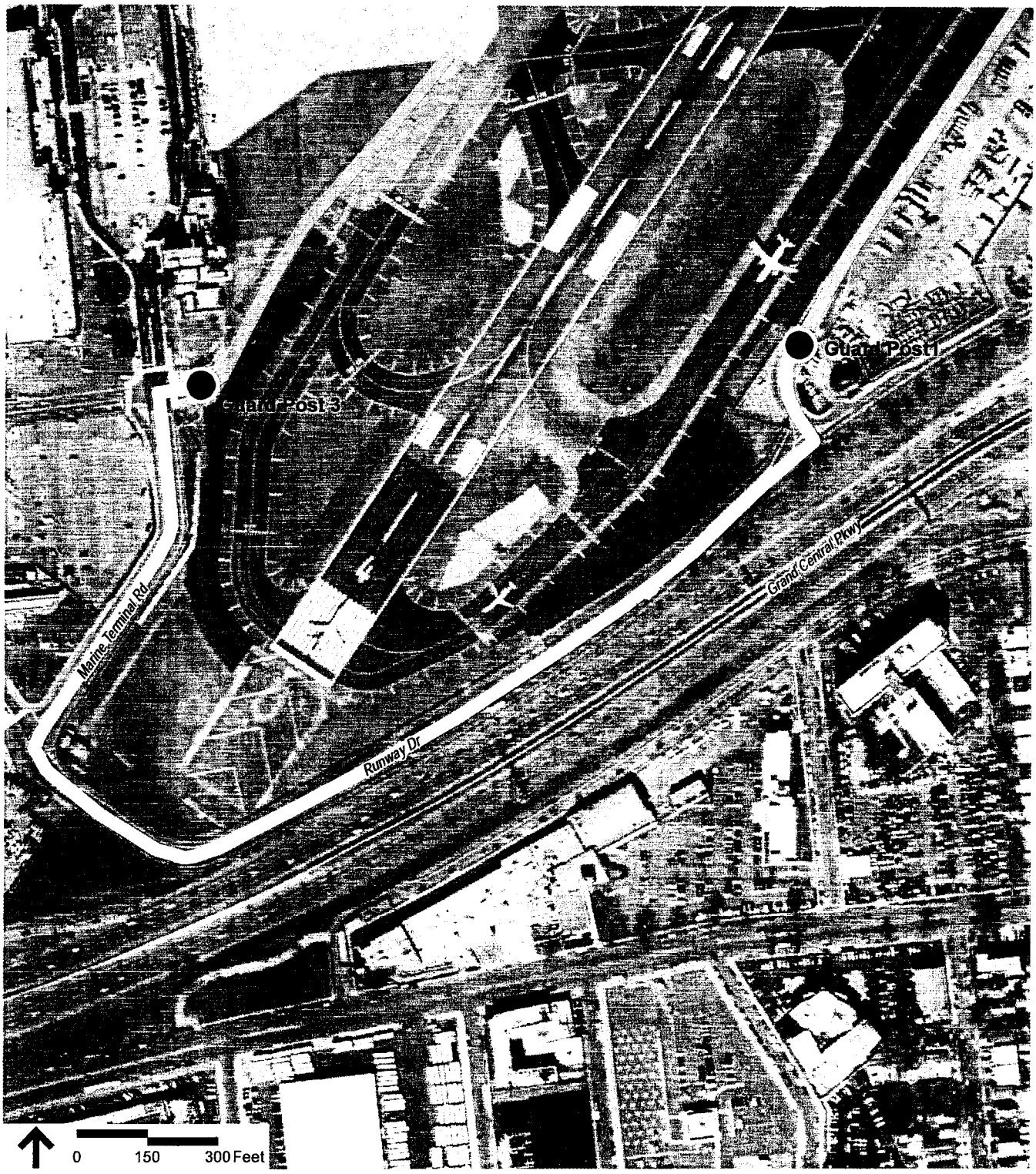
Legend

Runway End Safety Areas

THE PORT AUTHORITY OF NY & NJ
LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 2-2
Ends of Runways 4 and 31
Existing Runway Safety Areas

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\GIS\Project\LGA_Existing Vehicle Service Routes.mxd



Source: ArcGIS Bing Aerial Service

Legend

Existing Service Vehicle Route on Public Roads

Existing Restricted Vehicle Service Roads

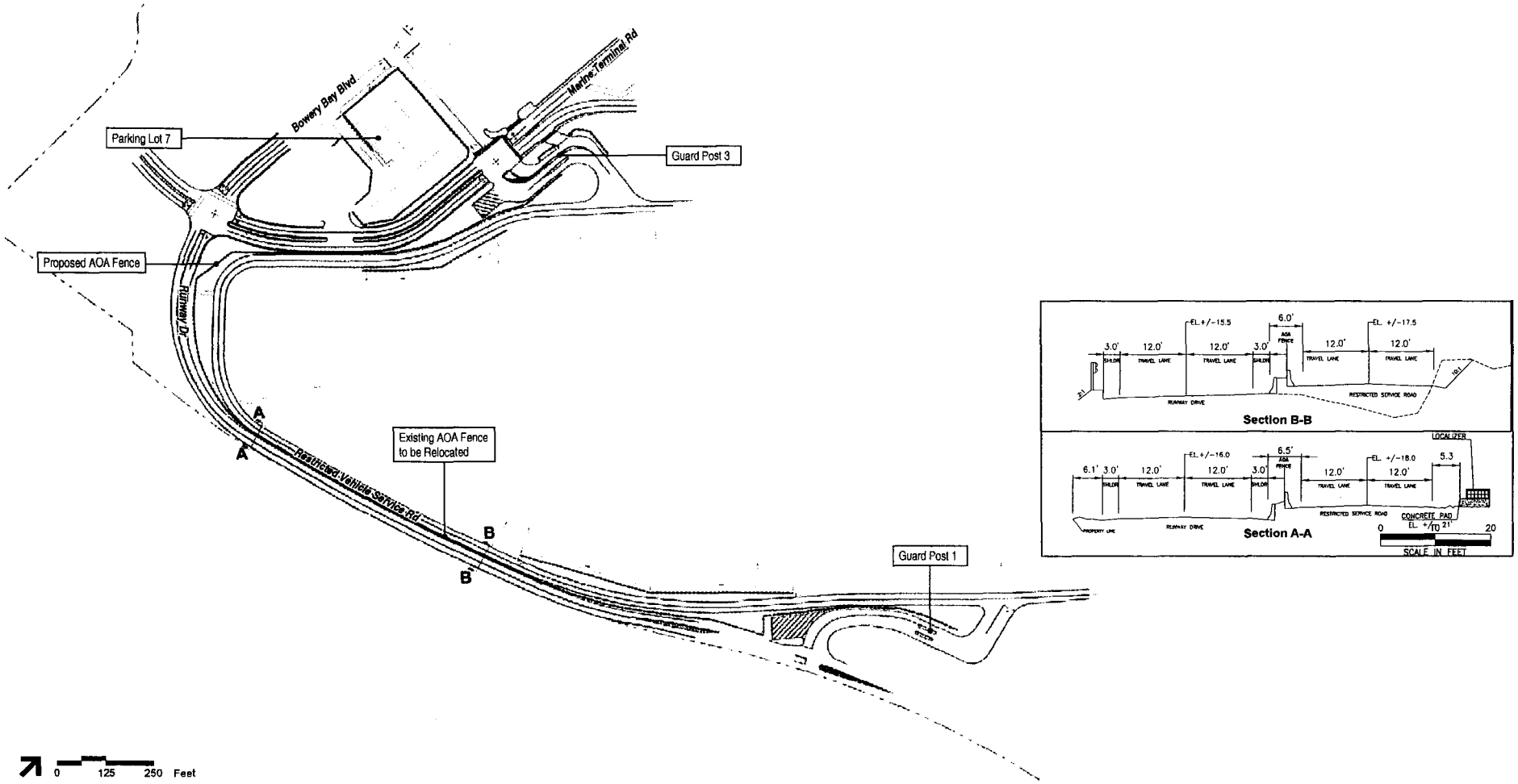
Guard Post

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 2-3

Existing Service Vehicle Route



Source: Port Authority of New York and New Jersey, 2013

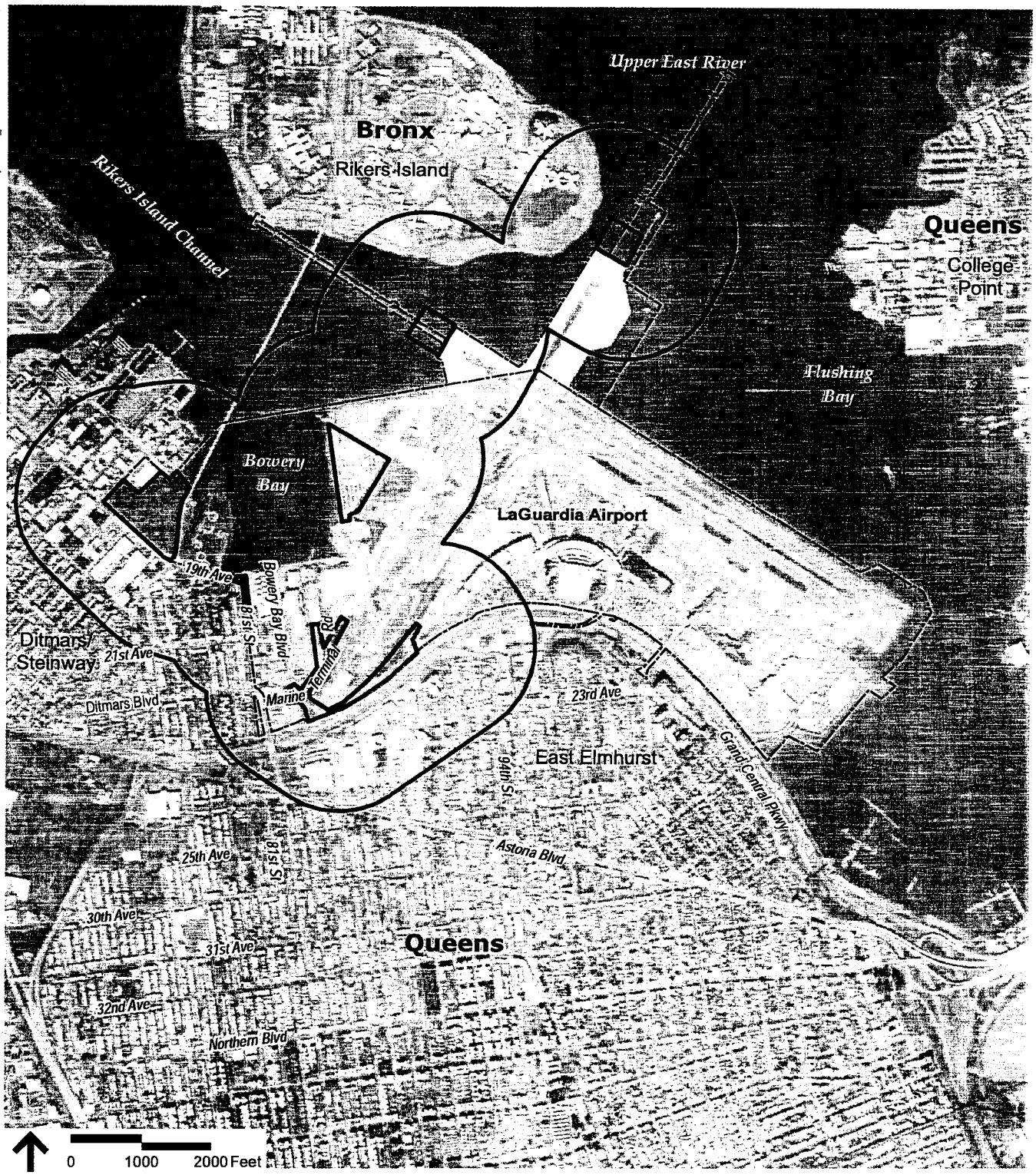
Legend

- Proposed Restricted Vehicle Service Road
- On-Airport Public Roads
- Airport Boundary

EL = Elevation
H = Height
AOA = Airport Operations Area

THE PORT AUTHORITY OF NY & NJ
LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 3-9
RVSR Alternative 1:
At-Grade Road
(Proposed Action)



Sources: ArcGIS Bing Aerial Service

Legend

LaGuardia Airport

Direct Impacts APE

Indirect Impacts APE

College Point Neighborhood

Queens Borough

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Draft Environmental Assessment

Figure 4-4

Section 106 Area of Potential Effect

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THE PORT AUTHORITY OF NY & NJ

Engineering Department

REGISTERED MAIL
RETURN RECIPT REQUESTED

August 16, 2013

Mr. Michael Marrella
Director, Waterfront and Open Space Division
New York City Department of City Planning
22 Reade Street
New York, NY 10007-1216

SUBJECT: LGA AIRPORT – RUNWAY SAFETY AREA ENHANCEMENTS: NOTIFICATION OF 1) ENVIRONMENTAL ASSESSMENT ISSUANCE & 2) INTENT TO FILE A WATERFONT REVITALIZATION PLAN CERTIFICATION AND REQUEST FOR CONCURRENCE

Dear Mr. Marrella:

I am writing to inform you that the Port Authority of NY & NJ (Port Authority) is preparing to undertake runway safety area (RSA) enhancements at LaGuardia Airport (LGA), located in the Borough of Queens, Queens County, New York. This is a major safety initiative that is being undertaken to comply with both Federal Aviation Administration (FAA) and Congressional mandates to improve RSAs to FAA design standards by the end of 2015. The proposed work was discussed at an interagency meeting in February 2013 at which your agency was represented.

The proposed project would involve extending existing decks at the north end of Runway 4-22 and west end of Runway 13-31 to support Engineered Materials Arrestor System (EMAS) beds, construction of a new section of LGA's restricted vehicle service road (RVSR) to reduce runway incursions, and creation of a construction staging area at the airport.

Shortly, you will receive a Draft Environmental Assessment (EA) prepared under the direction of the FAA, the lead federal agency for the National Environmental Policy Act (NEPA) environmental review process, for the project. The Draft EA, scheduled for issuance on August 22, 2013, provides an overview and detailed information about the proposed actions, alternatives, and project impacts.

In addition, the Port Authority will file Waterfront Revitalization Plan and Coastal Zone Management Plan Consistency Certifications with your office and the New York State Department of State (NYSDOS), respectively, along with requests for concurrences. We anticipate that this will occur in September of this year.

Two Gateway Center
Newark, NJ 07102

THE PORT AUTHORITY OF NY & NJ

If you have any questions or require additional information, please contact the undersigned by e-mail at mhelman@panynj.gov or by telephone at (973) 565 - 7564.

Very truly yours,

Marc Helman

Marc Helman
Supervisor, Permits and Governmental Approvals
Environmental Engineering Unit

cc: Jeff Zappieri, NYSDOS

February 6, 2013

Michael Marella
New York City Department of City Planning
22 Reade Street, 6E
New York, NY 10007-1216

Re: Port Authority of New York and New Jersey
LaGuardia Airport Runway Safety Improvements Environmental Assessment

Dear Mr. Marella,

The Port Authority of New York and New Jersey is proposing to undertake a Runway Safety Area (RSA) Improvement Project at LaGuardia Airport. The RSA improvements would extend the existing deck at the west end of Runway 13-31 and the north end of Runway 04-22, on pile-supported concrete decks 500 feet wide by approximately 185 feet long. The purpose of the proposed action is to increase safety for aircraft and passengers in emergency situations, consistent with FAA's design standards. The proposed action also includes the construction of a Restricted Vehicle Service Road (RSVR) around the south end of Runway 04-22, in order to allow service vehicles to travel from the east to the west end of the airport without crossing Runway 04-22. Construction requires that an existing employee parking lot be relocated in order to provide space for a construction staging area adjacent to the RSAs. A replacement parking lot would be constructed on airport property. The enclosed project location map depicts the limits of the project area.

Pursuant to the National Environmental Policy Act (NEPA), VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by the Port Authority to prepare an Environmental Assessment (EA) of the proposed action. On behalf of the Port Authority, we are inviting you to participate in the preparation of the EA, to review our assessment of existing conditions, project impacts, and provide guidance in developing appropriate mitigation measures.

I would also like to invite you or your staff to attend a project briefing to be held on February 14th at 10:00AM at the Port Authority offices at 225 Park Avenue. This will be an opportunity to discuss the project purpose, alternatives under consideration, and the studies being undertaken to evaluate potential construction-period and long-term effects of the proposed action. We hope you will attend the meeting in person. However, if you are unable to do so, you may access the meeting via web, using GoToMeeting, and telephone. Web and telephone access information has been sent to you in a separate MS Outlook meeting invitation.

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact Carol Lurie at 212-857-7330 or clurie@vhb.com.

Very truly yours,

Carol Lurie

\\vhb\proj\NewYorkCity\28878.00 LaGuardia RSA EA\docs\letters\20130206_AgencyCoord-Letters_VHB\20130206_AgencyCoord_NYDCP_VHB.docx

VHB Engineering, Surveying
and Landscape Architecture, P.C.
Two Penn Plaza, Suite 2602
New York, New York 10121
212.695.5858 ▪ FAX 212.971.7239
www.vhb.com

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THE PORT AUTHORITY OF NY & NJ

Darrell Buchbinder, General Counsel

SENT VIA E-MAIL AND EXPRESS MAIL

October 23, 2012

David Karnovsky, General Counsel
dkarnov@planning.nyc.gov
New York City Department of City Planning
22 Reade Street
New York, New York 10007

James McSpiritt, Division Chief
jmcspiri@law.nyc.gov
Betty Woo, Deputy Chief
bwoo@law.nyc.gov
Economic Development Division
New York City Law Department
100 Church Street
New York, New York 10007

Dear Mr. Karnovsky, Mr. McSpiritt and Ms. Woo:

This letter is to review our discussion of May 23rd and confirm our understanding of how to proceed with certain runway improvements at LaGuardia Airport.

The Port Authority is required by the Federal Aviation Administration, pursuant to 14 CFR 139, Certification of Airports, to improve runway safety areas at LaGuardia Airports and to complete construction in 2015. The improvements consist of two runway deck extensions at the end of Runways 4-22 and 13-31 and 40-knot engineered materials arresting system beds on each runway extension. The deck extensions would be built on land under water that is owned by the State of New York. Each extension would add approximately 183 feet in length to a 7,000-foot runway and would have a width of approximately 500 feet, as shown on the enclosed plans (Attachments A and B). The Port Authority would proceed to acquire the rights from the State needed to construct the runway deck extensions, including property rights in the lands needed for such construction.

The Amended and Restated Agreement of Lease of the Municipal Air Terminals, between the City of New York and the Port Authority, dated November 24, 2004 ("Lease") in Section 19.1 provides as follows:

> 19.1 Upon the Port Authority's, or Affiliate of or party acting on behalf of the Port Authority's, acquisition of any lands and improvements thereon or rights, easements or interests therein for use for Municipal Air Terminal Purposes other than temporary use for construction staging, access or egress during construction or other similar activity, including but not limited to lands or improvements acquired for the purpose of providing

225 Park Avenue South
New York, NY 10003

> additional rail access to the Demised Premises or for use in maintaining airplane beacons, guides or other aids to navigation, the same shall be deemed part of the Demised Premises and subject to this Agreement, subject to compliance with or approval under all applicable laws, rules and regulations which may affect such conveyance and incorporation. The City will use good faith efforts to and the Port Authority will, at the Port Authority's expense, cooperate in expeditiously taking such actions and executing such documents as may be reasonably necessary and appropriate to effectuate the conveyance of the same to the City without consideration and the incorporation of the same into the Demised Premises....

As we discussed, consistent with Section 19.1, the Port Authority proposes to proceed, with regard to the aforementioned runway extensions at LaGuardia Airport as follows:

> Acquire from the State the property interests required for the extensions,
>
> Construct the extensions, after appropriate environmental reviews, and
>
> Upon completion of the construction, the Port Authority will convey to the City the property and rights the Port Authority acquired from the State and said property would be incorporated into the "Demised Premises" of the Lease as provided for in Section 19.1.

The Port Authority is also required to improve and complete a runway safety area for John F. Kennedy International Airport (JFK) for runway 4L-22R.

It is our understanding that, in view of the foregoing provisions of Section 19.1 of the Lease, no City procedures will be required in order to effectuate the above.

Please confirm that the above reflects your understanding of our discussion and of the appropriate way to proceed with these runway safety improvements.

Thank you.

Sincerely,

Carlene McIntyre
Assistant General Counsel
Port Authority Law Department

B Air Quality

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Air Quality Appendix

This appendix provides the assumptions and supporting data for the construction emissions inventory and the intersection hotspot evaluation.

Construction Activity Levels

The construction period is anticipated to begin in late 2013 and continue through 2016. The RSA will be constructed in October of 2013 (i.e., lot 10E laydown) and March 2014 through October 2015 (21 months), construction staging area at Ingraham's Mountain will be prepared from January through September 2014 (9 months), and the RVSR will be constructed from June 2014 through December 2016 (31 months). Based on construction equipment schedules provided by PANYNJ, the total number of equipment hours for each project element was estimated as follows: the RSA (332,732 hours), construction staging at Ingraham's Mountain (101,480 hours), and the RVSR (418,960 hours). The number of daily construction workers per project element was estimated at 30 to 52 for the RSA, 15 for the construction staging, and 75 for the RVSR.[1] Generally, construction will be completed during six days per week and eight hours per day.

Table B-1 presents the construction schedule showing the types of construction equipment and the estimated hours of operation for the RSA. **Table B-2** presents the construction schedule showing the types of construction equipment and the estimated hours of operation for the construction staging at Ingraham's Mountain and the RVSR.

1 Memo from VHB to PANYNJ, LGA RSA EA Construction Assumptions, February 19, 2013.

Table B-1 Construction Equipment Hours of Operation for Runway Safety Area

	10E Laydown	22-RSA		13-RSA
Construction Equipment	2013	2014	2015	2015
Pick-ups	1,840	28,256	960	22,136
Vans	920	15,828	480	12,984
Box trucks	368	13,076	480	9,760
Utility trucks	368	13,076	480	9,760
6-wheel rack trucks	184	9,108	320	7,248
Payloaders	184	1,332	-	1,044
Backhoes	184	1,332	-	900
Low-Boy	40	376	-	400
10-wheel dump	184	800	-	440
Semi-tractor trailer	184	760	-	440
Concrete trucks	-	5,976	-	7,560
Flatbed tractor trailers	40	11,020	16	9,624
Small Compressors (185 cfm)	184	5,776	480	3,996
Medium Compressors (300 cfm)	-	1,656	-	1,296
Large Compressors (1,600 cfm)	-	576	-	576
Small Generators (25 hp)	1,104	15,144	640	11,496
Medium Generators (135 hp)	184	1,188	-	1,008
Large Generators (235 hp)	184	3,036	320	2,556
Pile Driving rigs / barges	-	864	-	864
Power pack	-	864	-	864
Crane (45-ton)	-	3,508	-	2,520
Crane (100-ton) / barge	-	1,344	-	1,620
Material Barges	-	2,544	-	2,520
Self-propelled Work Barges	-	12,144	320	9,528
Boats (17 foot)	-	12,144	320	9,528
Tow/Tug Boat	-	3,328	-	2,808
Light Towers	-	12,208	800	10,224

Source: Port Authority of New York and New Jersey, 2013. Note: cfm – cubic feet per minute), hp - horsepower

Table B-2 Construction Equipment Hours of Operation for Construction Staging and RVSR

	Construction Staging	RVSR		
Construction Equipment	2014	2014	2015	2016
Pick-ups	7,800	12,400	18,800	16,000
Vans	4,800	8,000	12,000	10,000
Box trucks	1,600	4,600	7,400	7,000
Utility trucks	1,600	4,600	7,400	7,000
6-wheel rack trucks	3,000	4,400	6,800	6,400
Payloaders	6,000	2,400	3,400	3,200
Excavators	5,800	2,200	2,800	2,400
Backhoes	6,000	2,400	3,400	3,200
Dozers	6,000	2,000	2,400	2,200
Graders	6,000	800	1,400	1,400
Milling Machines	-	960	1,440	1,280
Low-Boy	2,880	1,120	1,568	1,568
Pavers	-	1,120	1,568	1,568
Rollers	-	3,360	4,704	4,704
Sweepers	-	2,200	3,200	3,000
10-wheel dump	8,800	14,800	19,200	18,600
Semi-tractor trailer	19,000	13,600	18,400	17,600
Concrete trucks	-	3,400	4,000	2,800
Mobile Mixers	-	1,000	1,600	1,600
Flatbed tractor trailers	-	960	1,360	1,280
Small Compressors (185 cfm)	4,800	3,600	5,400	4,800
Medium Compressors (300 cfm)	-	1,000	1,400	1,400
Small Generators (25 hp)	9,600	7,600	12,000	11,200
Medium Generators (135 hp)	3,000	-	-	-
Crane (45-ton)	-	800	1,000	800
Crane (100-ton)	-	160	160	80
Attenuator Trucks	-	2,800	4,400	4,200
Arrow Boards	-	2,800	4,400	4,200
Light Towers	-	5,600	8,800	8,400
Electric Drive Rear Dump	4,800	-	-	-

Source: Port Authority of New York and New Jersey, 2013. Note: cfm – cubic feet per minute), hp – horsepower

Nonroad Equipment

Emission factors for each equipment type were developed using the NONROAD emission factor model. These factors were applied to the anticipated equipment work output (i.e., horsepower-hours of expected

equipment use). The horsepower assigned to the equipment type was based on the most frequently utilized equipment within Queens County as derived from the NONROAD model.

A usage factor accounting for the percentage of daily operation and a load factor accounting for the average throttle setting relative to full throttle rating, which are based on data within the NONROAD model, were used. For example, a usage factor of 0.75 equates to six hours of operation (based on an eight hour work day) and a load factor of 0.62 equates to 62 percent of full throttle rating during operation. For SO_2 and particulate matter emission factors, a diesel sulfur content of 15 parts per million (ultra-low sulfur diesel fuel) was assumed for off-road equipment, based on EPA mandated regulations. **Table B-3** presents the construction equipment data such as horsepower, load factor, and usage factor.

Table B-3 Construction Equipment Data

Construction Equipment	Maximum Horsepower	Load Factor	Usage Factor	NONROAD
6-wheel rack trucks	600	0.59	0.79	Diesel - Off-highway Trucks
Payloaders	75	0.21	0.18	Diesel - Aerial Lifts
Backhoes	100	0.21	0.55	Diesel - Tractors/Loaders/Backhoes
Small Compressors (185 cfm)	40	0.43	0.39	Diesel - Air Compressors
Medium Compressors (300 cfm)	75	0.43	0.39	Diesel - Air Compressors
Large Compressors (1,600 cfm)	100	0.43	0.39	Diesel - Air Compressors
Small Generators (25 hp)	40	0.43	0.16	Diesel - Generator Sets
Medium Generators (135 hp)	175	0.43	0.16	Diesel - Generator Sets
Large Generators (235 hp)	300	0.43	0.16	Diesel - Generator Sets
Pile Driving rigs / barges	175	0.43	0.22	Diesel - Bore/Drill Rigs
Power pack	600	0.43	0.16	Diesel - Generator Sets
Crane (45-ton)	175	0.43	0.48	Diesel - Cranes
Crane (100-ton) / barge	300	0.43	0.48	Diesel - Cranes
Boats (17 foot)	600	0.21	0.02	Gasoline - Inboard/Sterndrive
Light Towers	25	0.43	0.26	Diesel - Signal Boards/Light Plants
Excavators	175	0.59	0.53	Diesel - Excavators
Dozers	175	0.59	0.45	Diesel - Crawler Tractor/Dozers
Graders	300	0.59	0.46	Diesel - Graders
Pavers	175	0.59	0.39	Diesel - Pavers
Rollers	100	0.59	0.37	Diesel - Rollers
Sweepers	175	0.43	0.59	Diesel - Sweepers/Scrubbers
Mobile Mixers	6	0.43	0.13	Diesel - Cement & Mortar Mixers
Milling Machines	75	0.43	0.46	Diesel - Crushing Equipment

Source: United States Environmental Protection Agency NONROAD2008a, 2009 and United States Environmental Protection Agency *Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling*, 2008.
Note: cfm – cubic feet per minute), hp – horsepower

Because the age of the equipment is entirely dependent on the preferences of the contractor, a conservative estimate of average equipment age was applied. For example, although newer Tier III and IV equipment less than six years old may be used, the construction emissions inventory utilized Tier I and II equipment for a portion of the fleet. However, Tier III and IV may be incorporated in greater quantities as a function of the contractor's fleet.

The following equations were used to obtain emission estimates for off-road construction equipment:

*Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) * size (hp) * # hours per year * Load Factor * Usage Factor * (453.59/2,000 tons/grams)*

Tables B-4 through B-7 present the construction equipment emission factors (grams per horsepower-hour) for 2013, 2014, 2015, and 2016, respectively.

Table B-4 Construction Equipment Emission Factors (grams/hp-hour) for 2013

Construction Equipment	CO	NOx	PM10	PM2.5	SO2	VOC
6-wheel rack trucks	0.94	2.35	0.16	0.15	0.01	0.17
Payloaders	6.04	6.27	0.90	0.87	0.01	1.33
Backhoes	6.57	5.54	0.98	0.96	0.01	1.19
Small Compressors (185 cfm)	1.48	4.52	0.27	0.27	0.01	0.29
Medium Compressors (300 cfm)	2.41	4.34	0.36	0.34	0.01	0.39
Large Compressors (1,600 cfm)	2.23	4.11	0.37	0.36	0.01	0.38
Small Generators (25 hp)	2.40	5.12	0.45	0.43	0.01	0.65
Medium Generators (135 hp)	1.58	5.05	0.31	0.30	0.01	0.45
Large Generators (235 hp)	1.40	4.81	0.27	0.26	0.01	0.41
Pile Driving rigs / barges	1.55	5.19	0.32	0.31	0.01	0.43
Power pack	1.51	4.80	0.23	0.22	0.01	0.36
Crane (45-ton)	0.81	3.28	0.20	0.20	0.01	0.26
Crane (100-ton) / barge	0.63	3.02	0.14	0.13	0.01	0.23
Boats (17 foot)	90.8	9.67	0.07	0.07	0.18	6.95
Light Towers	2.57	4.80	0.39	0.37	0.01	0.59
Excavators	1.10	2.66	0.27	0.26	0.01	0.22
Dozers	1.14	2.86	0.27	0.26	0.01	0.24
Graders	0.85	2.57	0.17	0.16	0.01	0.21
Pavers	1.18	3.04	0.27	0.27	0.01	0.26
Rollers	3.23	3.72	0.44	0.43	0.01	0.34
Sweepers	0.75	2.90	0.19	0.19	0.01	0.24
Mobile Mixers	4.81	6.60	0.73	0.71	0.01	1.02
Milling Machines	2.36	4.16	0.33	0.32	0.01	0.35

Source: United States Environmental Protection Agency NONROAD2008a, 2009.
Note: cfm = cubic feet per minute), hp -= horsepower

Table B-5 Construction Equipment Emission Factors (grams/hp-hour) for 2014

Construction Equipment	CO	NOx	PM10	PM2.5	SO2	VOC
6-wheel rack trucks	0.78	1.97	0.13	0.13	0.01	0.16
Payloaders	5.71	6.02	0.84	0.81	0.01	1.24
Backhoes	6.13	5.14	0.91	0.89	0.01	1.09
Small Compressors (185 cfm)	1.28	4.28	0.23	0.22	0.01	0.26
Medium Compressors (300 cfm)	2.22	4.16	0.32	0.31	0.01	0.35
Large Compressors (1,600 cfm)	2.04	3.70	0.33	0.32	0.01	0.35
Small Generators (25 hp)	2.15	4.92	0.41	0.39	0.01	0.58
Medium Generators (135 hp)	1.46	4.73	0.29	0.28	0.01	0.42
Large Generators (235 hp)	1.28	4.51	0.25	0.24	0.01	0.39
Pile Driving rigs / barges	1.43	4.84	0.29	0.29	0.01	0.41
Power pack	1.39	4.50	0.21	0.20	0.01	0.34
Crane (45-ton)	0.73	2.86	0.18	0.18	0.01	0.24
Crane (100-ton) / barge	0.56	2.63	0.12	0.11	0.01	0.22
Boats (17 foot)	86.2	9.29	0.07	0.07	0.17	6.64
Light Towers	2.51	4.71	0.37	0.36	0.01	0.56
Excavators	0.95	2.21	0.23	0.23	0.01	0.20
Dozers	1.00	2.43	0.24	0.23	0.01	0.22
Graders	0.73	2.17	0.15	0.14	0.01	0.19
Pavers	1.04	2.63	0.25	0.24	0.01	0.23
Rollers	2.91	3.27	0.39	0.38	0.01	0.30
Sweepers	0.66	2.46	0.17	0.16	0.01	0.21
Mobile Mixers	4.77	6.38	0.70	0.68	0.01	0.98
Milling Machines	2.16	3.96	0.29	0.28	0.01	0.32

Source: United States Environmental Protection Agency NONROAD2008a, 2009.
Note: cfm = cubic feet per minute), hp = horsepower

Table B-6 Construction Equipment Emission Factors (grams/hp-hour) for 2015

Construction Equipment	CO	NOx	PM10	PM2.5	SO2	VOC
6-wheel rack trucks	0.64	1.64	0.10	0.10	<0.01	0.16
Payloaders	5.38	5.79	0.78	0.76	<0.01	1.16
Backhoes	5.70	4.75	0.84	0.82	<0.01	0.99
Small Compressors (185 cfm)	1.09	4.06	0.18	0.18	<0.01	0.24
Medium Compressors (300 cfm)	2.03	3.98	0.28	0.28	<0.01	0.32
Large Compressors (1,600 cfm)	1.86	3.32	0.30	0.29	<0.01	0.32
Small Generators (25 hp)	1.92	4.73	0.37	0.35	<0.01	0.51
Medium Generators (135 hp)	1.35	4.43	0.27	0.26	<0.01	0.40
Large Generators (235 hp)	1.18	4.21	0.23	0.22	<0.01	0.37
Pile Driving rigs / barges	1.31	4.51	0.27	0.27	<0.01	0.38
Power pack	1.29	4.20	0.19	0.19	<0.01	0.31
Crane (45-ton)	0.65	2.48	0.16	0.16	<0.01	0.22
Crane (100-ton) / barge	0.49	2.27	0.10	0.10	<0.01	0.20
Boats (17 foot)	81.9	8.92	0.07	0.07	0.17	6.33
Light Towers	2.46	4.64	0.37	0.36	<0.01	0.53
Excavators	0.80	1.84	0.19	0.19	<0.01	0.19
Dozers	0.87	2.04	0.21	0.20	<0.01	0.20
Graders	0.62	1.84	0.12	0.12	<0.01	0.18
Pneumatic Rock Splitters	1.96	3.78	0.25	0.25	<0.01	0.29
Pavers	0.92	2.26	0.22	0.21	<0.01	0.21
Rollers	2.59	2.85	0.34	0.33	<0.01	0.27
Sweepers	0.58	2.07	0.15	0.14	<0.01	0.20
Mobile Mixers	4.73	6.17	0.66	0.64	<0.01	0.94
Milling Machines	1.96	3.78	0.25	0.25	0.00	0.29

Source: United States Environmental Protection Agency NONROAD2008a, 2009.
Note: cfm = cubic feet per minute), hp = horsepower

Table B-7 Construction Equipment Emission Factors (grams/hp-hour) for 2016

Construction Equipment	CO	NOx	PM10	PM2.5	SO2	VOC
6-wheel rack trucks	0.50	1.34	0.08	0.08	0.00	0.15
Payloaders	5.07	5.57	0.73	0.71	0.00	1.08
Backhoes	5.29	4.38	0.77	0.75	0.00	0.90
Small Compressors (185 cfm)	0.91	3.85	0.15	0.15	0.00	0.22
Medium Compressors (300 cfm)	1.86	3.82	0.25	0.24	0.00	0.29
Large Compressors (1,600 cfm)	1.69	2.95	0.26	0.26	0.00	0.29
Small Generators (25 hp)	1.71	4.55	0.33	0.32	0.00	0.45
Medium Generators (135 hp)	1.24	4.14	0.25	0.25	0.00	0.38
Large Generators (235 hp)	1.08	3.93	0.21	0.20	0.00	0.35
Pile Driving rigs / barges	1.20	4.18	0.26	0.25	0.00	0.36
Power pack	1.08	3.93	0.21	0.20	0.00	0.35
Crane (45-ton)	0.57	2.14	0.14	0.14	0.00	0.21
Crane (100-ton) / barge	0.43	1.95	0.09	0.09	0.00	0.19
Boats (17 foot)	77.8	8.54	0.07	0.07	0.17	6.04
Light Towers	2.42	4.59	0.36	0.35	0.00	0.51
Excavators	0.65	1.50	0.16	0.15	0.00	0.17
Dozers	0.74	1.72	0.18	0.17	0.00	0.18
Graders	0.51	1.53	0.10	0.09	0.00	0.17
Pneumatic Rock Splitters	1.77	3.62	0.22	0.22	0.00	0.26
Pavers	0.80	1.91	0.19	0.19	0.00	0.19
Rollers	2.29	2.46	0.30	0.29	0.00	0.24
Sweepers	0.50	1.74	0.12	0.12	0.00	0.18
Mobile Mixers	4.69	5.96	0.63	0.61	0.00	0.90
Milling Machines	1.77	3.62	0.22	0.22	0.00	0.26

Source: United States Environmental Protection Agency NONROAD2008a, 2009.
Note: cfm – cubic feet per minute), hp - horsepower

Harborcraft emission factors were derived from the EPA *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories - Final Report* (dated April 2009) and presented in **Table B-8**. Emission factors are based on the use of ultra-low sulfur fuel, a correction factor for PM_{10}, $PM_{2.5}$, and SO_2, Tier I engines, an estimated horsepower, and a ratio of 0.97 for $PM_{2.5}$ to PM_{10}.

Table B-8 Harborcraft Emission Factors (grams/hour)

Construction Equipment	Hp	CO	NOx	PM10	PM2.5	SO2	VOC
Material Barges	600	1,342	8,769	231	224	5.82	242
Self-propelled Work Barges	60	179	877	69.3	67.2	0.58	24.2
Tow/Tug Boat	600	1,342	8,769	231	224	5.82	242

Source: United States Environmental Protection Agency NONROAD2008a, 2009 and United States Environmental Protection Agency *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories - Final Report, April 2009.*

Onroad Vehicles

The employee vehicle, shuttle bus, and haul truck emissions were based on estimated manpower needs, the number of trips/shifts, and the estimated trip distance. **Table B-9** presents which vehicle types are used onsite verses off-site. Instead of hours of operation, as with construction equipment, vehicle emissions were based on an average speed of 30 miles per hour and the following average travel distances for on-road construction vehicles operating as a result of the construction activities:

- 20 miles round trip per day – Workers' passenger cars used for commuting,
- 4 miles round trip per day – Shuttle bus taking workers from parking to project site,
- 20 miles round trip per day – Trailer trucks, and
- 12 miles round trip per day – Haul/concrete trucks.

Table B-9 Construction Vehicles, Delivery and Haul Trucks

Vehicle Type	On/Off Site
Pick-ups	On
Vans	On
Box trucks	Off
Utility trucks	Off
Low-Boy	Off
10-wheel dump	Off
Semi-tractor trailer	Off
Concrete trucks	Off
Flatbed tractor trailers	Off
Electric Drive Rear Dumps	Off

Source: Port Authority of New York and New Jersey, 2013

An average auto-occupancy rate of 1.50 and an auto mode share of 75 percent was assumed for construction personnel. The remaining 25 percent of construction personnel are projected to arrive and depart via city bus. LaGuardia Airport is served by the M60, Q33, A48, and Q72 bus lines which also provide connections to subway stations in Manhattan and Queens.

The following equations were used to obtain emission estimates for on-road vehicles (delivery trucks, haul trucks, shuttle buses, and employee vehicles):

*Delivery/Haul Truck Emission Rate (tons/year) = Emission Factor (grams/mile) * # hours per year * 30 miles per hour * (453.59/2,000 tons/grams)*

*Employee Trip Emission Rate (tons/year) = Emission Factor (grams/mile) * # of employees * 20 miles per trip * # of shifts per year * (453.59/2,000 tons/grams)*

*Shuttle Bus Trip Emission Rate (tons/year) = Emission Factor (grams/mile) * 4 miles per trip * # of shifts per year * (453.59/2,000 tons/grams)*

Tables B-10 through B-12 present the on-road vehicles emission factors (grams per mile) for 2013, 2014, 2015, and 2016 for passenger cars/trucks, shuttle buses, and haul trucks, respectively. MOVES model input parameters were selected based on guidance and data provided by the NYSDEC.[2] MOVES was developed based on specific information (vehicle/fuel mix, fuel specifications, inspection/maintenance program, etc.) related to the Queens County area.

Table B-10 Passenger Car and Truck Emission Factors (grams/mile)

Pollutant	2013	2014	2015	2016
Carbon Monoxide (CO)	1.49	1.39	1.31	1.20
Nitrogen Oxides (NO_x)	0.20	0.18	0.15	0.13
Particulate Matter 10 micrometers (PM_{10})	0.05	0.04	0.04	0.04
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.02	0.02	0.02	0.02
Sulfur Dioxide (SO_2)	0.01	0.01	0.01	0.00
Volatile Organic Compounds (VOC)	0.02	0.02	0.02	0.01

Source: United States Environmental Protection Agency MOVES2010b, 2011

Table B-11 Employee Shuttle Buses Emission Factors (grams/mile)

Pollutant	2013	2014	2015	2016
Carbon Monoxide (CO)	3.21	3.03	2.87	2.50
Nitrogen Oxides (NO_x)	0.68	0.63	0.58	0.54
Particulate Matter 10 micrometers (PM_{10})	0.08	0.08	0.07	0.07
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.04	0.04	0.03	0.03
Sulfur Dioxide (SO_2)	0.01	0.01	0.01	0.01
Volatile Organic Compounds (VOC)	0.09	0.08	0.07	0.07

Source: United States Environmental Protection Agency MOVES2010b, 2011

2 Email from Eric Zalewsky, New York State Department of Environmental Conservation to Paul Sanford, KBE, February 7, 2013.

Table B-12 Haul Trucks Emission Factors (grams/mile)

Pollutant	2013	2014	2015	2016
Carbon Monoxide (CO)	3.51	3.42	3.36	3.31
Nitrogen Oxides (NO_x)	2.95	2.66	2.38	2.15
Particulate Matter 10 micrometers (PM_{10})	0.28	0.26	0.24	0.22
Particulate Matter 2.5 micrometers ($PM_{2.5}$)	0.16	0.15	0.13	0.11
Sulfur Dioxide (SO_2)	0.01	0.01	0.01	0.01
Volatile Organic Compounds (VOC)	0.22	0.21	0.19	0.18

Source: United States Environmental Protection Agency MOVES2010b, 2011

Fugitive Emissions

Additionally, the construction emissions inventory for fugitive dust sources was calculated using emission factors within EPA's *Compilation of Air Pollutant Emission Factors* (AP-42, Volume I, Fifth Edition). Fugitive dust emissions result from the following activities: grading, moving soil, and digging, loading/unloading of trucks, movement of trucks on unpaved surfaces, and wind erosion of stockpiles. A fugitive dust emission factor of 10 pounds per day per acre disturbed was used. For the purpose of the analysis and based on plans for the proposed improvements, the following disturbed acreage was used: 3.5 acres for the RSA, 14.6 acres for the construction staging area (Ingraham's Mountain and Lot 10E), and 8.4 acres for the RVSR. Based on EPA's AP-42 (*Section 13.2.3 Heavy Equipment Operations*), $PM_{2.5}$ emissions were assumed to be 10 percent of PM_{10} emissions. Erosion control measures and water application programs were taken to minimize these fugitive dust emissions. Based on EPA's AP-42, a dust control efficiency of 75 percent due to daily watering and other measures was used.

Evaporative VOC emissions associated with the application of hot mix asphalt on areas requiring paving was estimated based on an emission factor of 0.053 tons of VOC per acre of asphalt material laid, following methodology outlined by the National Association of Clean Air Agencies. For the purpose of the analysis and based on plans for the proposed improvements, the following acreage was used: 5.6 acres for the RVSR.

Intersection Evaluation

The EPA identifies CO, PM_{10}, and $PM_{2.5}$ as the primary pollutants of concern when assessing potential air quality impacts from motor vehicle exhaust. Increased concentrations of CO, PM_{10}, and $PM_{2.5}$ can be expected in places where large numbers of motor vehicles (especially diesel vehicles for PM_{10} and $PM_{2.5}$) are present including crowded intersections where traffic delays are common during peak (traffic) hour periods.

An intersection air quality evauation was conducted in accordance with the criteria established by the EPA's *Project-Level Conformity and Hot-Spot Analyses*[3]. The following criterion specifies under what conditions an intersection air quality analysis is required. A hot-spot analysis is required only for locations which are non-attainment or maintenance for CO, PM_{10}, and/or $PM_{2.5}$. As previously stated,

3 United States Environmental Protection Agency, Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Non-attainment and Maintenance Areas, March 2006; Using MOVES in Project-Level Carbon Monoxide Analyses, December 2010; and Guideline for Modeling Carbon Monoxide from Roadway Intersections, November 1992.

the area surrounding La Guardia Airport is in maintenance for CO and non-attainment for $PM_{2.5}$. For this analysis, traffic volumes, vehicle delays, intersection level of service (LOS), presence of sensitive receptors, and the modification of existing intersections as a result of the Proposed Action were considered.

For CO, intersections that are at LOS D, E, or F or that will deteriorate to LOS D, E, or F with the Proposed Action are to be evaluated. For PM_{10} and $PM_{2.5}$, intersections that are at LOS D, E, or F with a significant number of diesel vehicles or intersections that will deteriorate to LOS D, E, or F with a significant number of diesel vehicles with the Proposed Action are to be evaluated. Secondly, the following screening criteria is from the New York City Department of Environmental Protection's (DEP) *City Environmental Quality Review (CEQR) Technical Manual*[4]*:*

Projects that would generate peak hour auto traffic or divert existing peak hour traffic, resulting in the following:

- 160 or more auto trips in areas of concern in downtown Brooklyn or Long Island City, Queens;
- 140 or more auto trips in Manhattan between 30th and 61st Streets; or
- 170 or more auto trips in all other areas of the City.

Projects that would generate peak hour heavy-duty diesel vehicle traffic or its equivalent in vehicular emissions, resulting in the following:

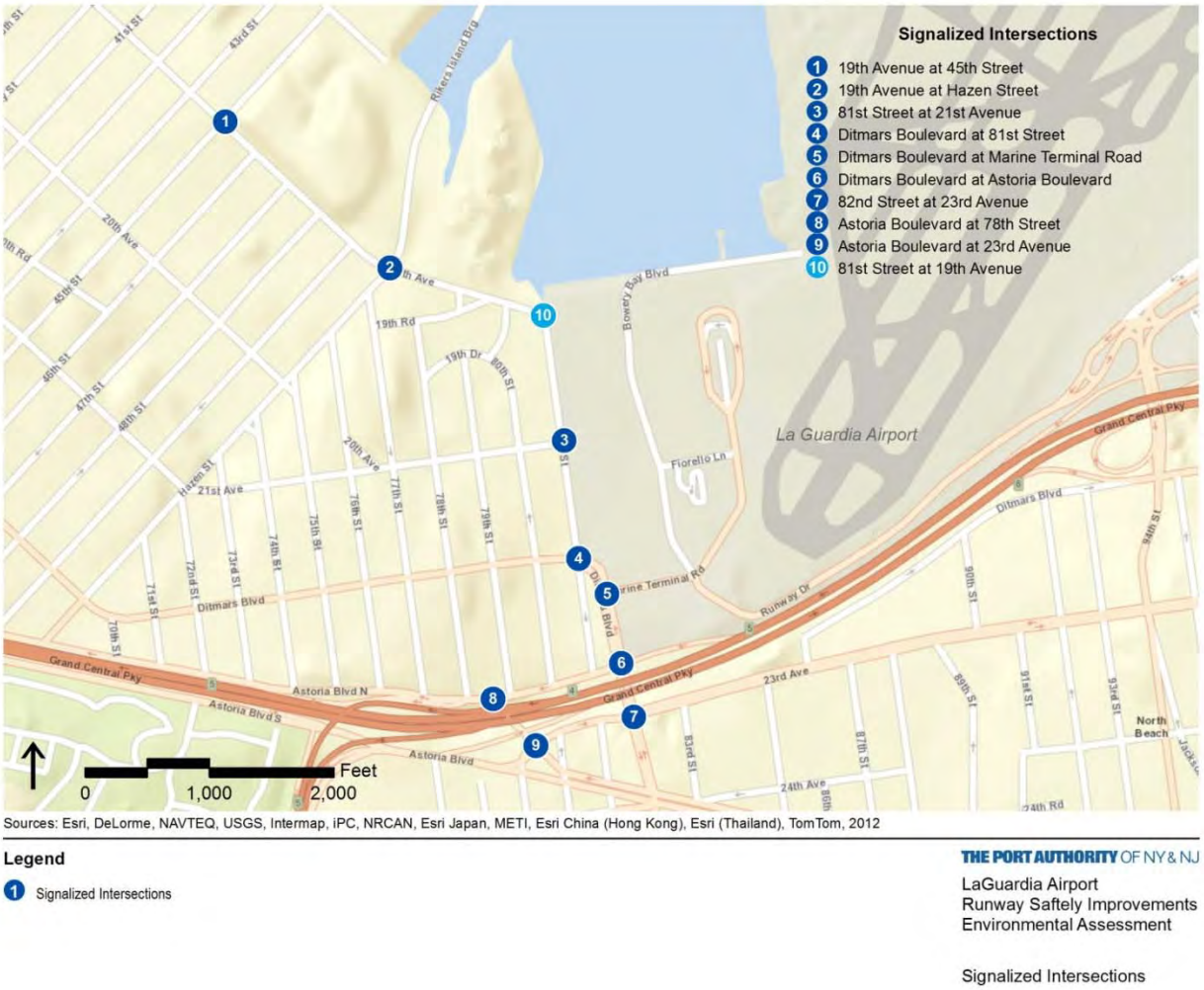
- 12 or more heavy duty diesel vehicles (HDDV) for paved roads with average daily traffic fewer than 5,000 vehicles;
- 19 or more HDDV for collector roads;
- 23 or more HDDV for principal and minor arterials; or
- 23 or more HDDV for expressways and limited access roads.

For this analysis, future No Action and Proposed Action traffic conditions at ten intersections (**Figure B-1**) were evaluated, as listed within the following:

1. 19th Avenue at 45th Street (unsignalized)
2. 19th Avenue at Hazen Street
3. 81st Street at 21st Avenue
4. Ditmars Boulevard at 81st Street
5. Ditmars Boulevard at Marine Terminal Road
6. Ditmars Boulevard at Astoria Boulevard
7. 82nd Street at 23rd Avenue
8. Astoria Boulevard at 78th Street
9. Astoria Boulevard at 23rd Avenue
10. - 81st Street at 19st Avenue (Proposed Action only)

4 New York City DEP's City Environmental Quality Review (CEQR) Technical Manual, January 2012 edition (REV. 6/18/12).

Figure B-1 Air Quality Hotspot Intersections



As shown in **Table B-13**, none of the ten intersections would be LOS D, E, or F with the Proposed Action and thus, a detailed analysis of intersections was not warranted. Secondly, the number of construction vehicles is not expected to exceed the screening criteria (e.g., 23 trucks per hour) established by the New York City DEP's *CEQR Technical Manual*. The maximum number of trucks (i.e., two trucks per hour) during the peak hour (6:30 to 7:30 AM) generated by the Proposed Action in the third quarter of 2014 is below the screening criteria. Secondly, four trucks per hour during off -peak periods between midnight and 6 AM (i.e., 64 trucks per day) are also below the screening criteria. Therefore, a detailed air quality analysis of intersections was not warranted.

Table B-13 Intersection Level of Service during Peak Hour

Intersection	Existing	2014 No-Action Alternative	2014 Proposed Action
1	A	A	A
2	C	C	C
3	C	C	C
4	B	B	B
5	B	B	B
6	C	C	C
7	C	C	C
8	C	C	C
9	B	B	B
10	--	--	B

Source: VHB, 2013.

C Shading Analysis

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DRAFT

Memorandum

To: Ed Knoesel, PANYNJ

Date: March 25, 2013

Project No.: 28766.00

From: Carol Lurie, VHB

Re: LaGuardia Airport
Runway Area Safety Enhancements EA
Shading Analysis Methodology

LGA Shading Analysis

The proposed RSA deck extensions will reduce light availability beneath the structures, potentially affecting the ability of visual predators (fish or invertebrates) to locate prey, and potentially affecting the ability of macroalgae to colonize benthic substrates or pilings. A shadow study was undertaken to estimate the extent of shading from the extended deck surface, to better estimate the indirect effects to aquatic habitat quality.

Methodology
The shadow study analysis estimates the minimum and maximum shadow impacts using equinox and solstice dates that occur yearly. Each of these dates uses three to four distinct times of the day when shadows impacts are measured: 9AM, 12 PM, 3PM and 6PM. Only 9AM, 12PM and 3PM are represented in December because the sun has set before the 6PM.

Using a CAD file, the existing airport runway, decks, seawalls shoreline and ground plane were imported into the computer application SketchUp. With elevation data, all these elements were set to their appropriate heights and Geo-Referenced to the New York City area. This allows the model to accurately account for the sun's position and angle at various times of year. Two surfaces, created on separate layers, were modeled to represent the level of sea water at low tide and at high tide. When using the "Shadows" function in SketchUp, exact dates and times can be set (example: December 21, 2013 at 9AM). The calculations are based on the location (latitude and longitude, directional orientation of the model, and an associated time zone. Shadow settings were set to Universal Time Code, to ensure consistency across each analysis time. All study dates and times are exported individually, and then compiled into one layered Photoshop file, using "Blending Modes." "Blending Modes" enables a representation of the overlapping extent of all shadows in one image. The maximum area of shadow impacts from the new deck is measured as an area using the outer boundary of all three or four shadow conditions taken together. Figures 5-2 and 5-3 show each shadow as a different gradation of overlay, allowing visualization of the amount of time that an area is within partial shade.

Results
The proposed deck extension is assumed to shade the underlying water column throughout the day, which would affect the fisheries function of the water column for the entire area of the new deck. The shading study focuses on identifying the additional peripheral areas that would be shaded during a portion of each day (the area of partial shading).

The proposed deck extensions would be situated in approximately 40 feet of water, at an elevation of 12 feet NAVD88. The mean high tide level is +6.4 feet, and the mean low water elevation is approximately -0.8 feet, a 7.2-foot tidal range. The maximum lateral extent of shadow on the water surface would occur at mean low water. The shadow would intersect the water column as a slanted plane, and shadow would extend laterally somewhat beyond the modeled mean low water surface. Although the water column is approximately 40 feet deep, sunlight only penetrates through a portion of the water column due to existing turbidity levels. The secchi disk transparency limit ranges from 3 to 6 feet beneath the surface, indicating that only the uppermost 3 to 6 feet receives sufficient photosynthetically-active radiation to support marine plant life. Figure 5-4 shows a generalized cross-section of the water column adjacent to the deck, with the relationship of the shadow plane to water levels and the limit of transparency.

As shown in Figure 5-2, Runway 4-22 is oriented in a NE-SW direction. Shade from the deck falls primarily on the northwest and northeast sides of the deck, with little shading on the southeast side, except in the late afternoon. The maximum extent of shading (at 3 PM on December 21) extends approximately 60 feet from the proposed deck on the northeast and 50 feet from the deck on the northwest side. The total area of partial shading from the new deck would be approximately 33,500 square feet (0.8 acres). However, the existing deck casts a shadow on the northeast side equivalent to the new shadow, so that the net new shading outside of the deck footprint would be approximately 9,500 square feet (0.22 acres). Shading would be less in March and June, with approximately only 2,800 square feet (0.06 acre) of new shading outside of the deck footprint in June.

As shown in Figure 5-3, Runway 13-31 is oriented in a NW-SE direction. Shade from the deck primarily falls on the northwest and northeast sides, with little shading on the southwest side. The maximum extent of shading (3 PM on December 21) extends approximately 60 feet from the deck on the northeast side and 50 feet from the deck on the northwest side. The total area of partial shading from the new deck would be approximately 30,000 square feet (0.7 acres). However, the existing deck already casts a shadow on the northwest side equivalent to the new shadow, so that the net new shading outside of the deck footprint would be approximately 11,000 square feet (0.25 acres). Shading would be less in March and June, with approximately only 2,000 square feet (0.05 acre) of new shading outside of the deck footprint.

The total area of new shading would be the area of the proposed deck extension (always shaded) plus the area of new shading (partially shaded). For the Runway 4 RSA, this is 100,500 square feet (2.31 acres). For the Runway 31 RSA, this is 102,000 square feet (2.34 acres). Thus the proposed action would result in approximately 4.65 acres of net new shadow associated with the extended decks. Table C-1 shows the extent of water column shading associated with the proposed deck extensions.

Table C-1 Water Column Shading

RSA	Always Shaded (Under Deck Footprint)	Partially Shaded (Adjacent to Deck)	Total New Shaded Area
Runway 04	91,000 sf	9,500 sf	100,500 sf /2.31 ac
Runway 31	91,000 sf	11,000 sf	102,000 sf /2.34 ac
Total	**182,000 sf**	**20,500 sf**	**202,500 sf/ 4.64 ac**

D

Surface Transportation

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Surface Transportation Appendix

This appendix provides tables summarizing the traffic levels of service for the construction AM peak hour for the 2013 Existing, and projected 2014 No-Action and Proposed Action conditions. The volume to capacity (V/ C) ratios, control delays in seconds, and levels of service for each movement and intersection analyzed are shown in Tables D-1 through D-3 (attached). The estimated 2014 Third Quarter (2014 Q3) weekday construction trips by hour are included in Table D-4 (attached), which shows the auto, truck and van trips, total trips, and total Passenger Car Equivalents (one truck trip equals two PCEs). The 2013 Existing, and projected 2014 No-Action, Proposed Action Increments and Proposed Action traffic volumes are shown for the construction AM peak hour on Figures D-1 through D-4 (attached). The appendix also provides a description of the existing roadway network and traffic data collected for the surface transportation analysis.

Existing Roadway Network and Traffic Data

The surface transportation analysis was performed consistent with Port Authority of New York & New Jersey (Port Authority) Traffic Engineering and *City Environmental Quality Review (CEQR) Technical Manual* guidelines. The operation of all signalized and unsignalized intersection analysis locations were assessed using methodologies presented in the *Highway Capacity Manual* (HCM) using *Synchro* software. The Port Authority approved the use of *Synchro* software and supplied the existing traffic volumes used in these analyses.

The HCM procedures evaluate the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicles. At signalized intersections, the average control delay per vehicle is the basis for determining levels of service for individual lane groups (grouping of movements in one or more travel lanes), the overall approaches to each intersection, and the overall intersection itself. The levels of service criteria for signalized intersections are defined in **Table D-5**.

Table D-5 LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

LOS A describes operations with low delays, i.e., an average control delay of 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.

LOS B describes operations with delays in excess of 10.0 seconds up to 20.0 seconds per vehicle. This generally occurs with good progression and/ or short cycle lengths. Again, most vehicles do not stop at the intersection.

LOS C describes operations with delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/ or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/ c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/ c ratios.

LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/ c ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Based on *CEQR Technical Manual* guidelines, LOS A, B, and C are considered acceptable, LOS D is considered marginally acceptable up to mid-LOS D (45.0 seconds of delay for signalized intersections), and unacceptable above mid-LOS D, and LOS E and F indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. The levels of service criteria for unsignalized intersections are summarized in **Table D-6**.

Table D-6 LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

For unsignalized intersections, LOS E is considered the limit of acceptable delay, while LOS F is considered unacceptable to most drivers. LOS F conditions exist when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely.

The assessment of potential significant traffic impacts of the RSA construction is based on the significant impact criteria used in other traffic studies conducted by the Port Authority for construction, transportation improvement and transit projects. Using these criteria, a significant adverse traffic impact is defined as a deterioration in level of service from below mid-LOS D to above mid-LOS D or to LOS E or F where the increase in delay is 10 seconds or more; deterioration from LOS E to LOS F, or within LOS E or within LOS F, where the increase in delay is 10 seconds or more.

Traffic counts were performed on a typical weekday on January 29, 2013 by the Port Authority during the AM and PM periods and were supplemented with two weeks of 24-hour automatic traffic recorder counts conducted from January 26 to February 8, 2013. Balanced hourly traffic flow maps were provided by the Port Authority for 4:30-5:30 AM through 8:30-9:30 AM and 1:15-2:15 PM through 6:15-7:15 PM; the existing AM and PM peak hour volumes are 7:30-8:30 AM and 3:15-4:15 PM for background traffic conditions.

Ten study intersections were selected along the major approach route of 81st/ 82nd Streets and 19th Avenue to the Ingraham's Mountain Construction Staging Area from the Brooklyn-Queens Expressway, Grand Central Parkway (GCP) and Astoria Boulevard, as shown in **Figure 4-7, *Traffic Analysis Study Area Map***. These include:

- 19th Avenue / 45th Street
- 19th Avenue / Hazen Street
- 81st Street / 21st Avenue
- 81st Street / Ditmars Boulevard
- Ditmars Boulevard and 82nd Street / Marine Terminal Road
- 82nd Street / Westbound GCP Off-Ramp
- 82nd Street / 23rd Avenue
- GCP North Service Road / Astoria Boulevard North
- 23rd Avenue / Astoria Boulevard North
- 19th Avenue / 81st Street and Proposed Temporary Construction Airport Access Driveway (new signalized intersection to be analyzed in the construction With Action condition)

Nineteenth Avenue is a 50-foot wide two-lane, two-way street running east-west through the study area. There is a with a mixture of permitted parking for detatched trailers, No Parking Anytime or No Standing Anytime regulations on both sides between 45th Avenue and Hazen Street. During the existing construction AM peak hour, there are approximately 360 to 400 vehicles per hour (vph) in the westbound direction and 125 to 135 vph in the eastbound direction.

Eighty-First Street is a four-lane, two-way street running north-south through the study area. There are two northbound lanes with parking on the right curb and two southbound lanes with parking on the right curb separated by a raised concrete median; the left lanes are 10 to 12 feet and the right lanes with parking are 21 to 22 feet wide. Parking on 81st Street in the area of 21st Avenue consists of alternate side regulations. During the existing construction AM peak hour, there are approximately 1,050 to 1,100 vph in the northbound direction and about 275 vph in the southbound direction between 21st Avenue and Ditmars Boulevard.

Between Ditmars Boulevard and 23rd Avenue, 82nd Street varies from two to three lanes in the northbound direction and two to three lanes in the southbound direction, which are separated by a raised, concrete median. The northbound and southbound roadways are 30 to 36 feet wide each and have No Standing or No Parking Anytime regulations on both sides. During the existing construction AM peak hour, there are approximately 1,000 to 1,400 vph in the northbound direction and about 400 to 600 vph in the southbound direction between Ditmars Boulevard and 23rd Avenue.

All nine existing intersections analyzed operate at acceptable levels of service during the 6:30-7:30 AM peak hour. Three traffic movements operate at unacceptable levels of service: the northbound approach at 19th Avenue / Hazen Street; the westbound right-turn movement at 82nd Street / 23rd Avenue; and the westbound approach at GCP North Service Road / Astoria Boulevard North. The weekday AM traffic volume map is provided in Figure D-4 and detailed level of service tables for the existing AM construction peak hour are provided in Table D-1.

Table D-1

2013 EXISTING TRAFFIC LEVELS OF SERVICE

			AM Peak Hour (6:30 - 7:30AM)			
	INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**
	UNSIGNALIZED INTERSECTIONS					
1	**19TH AVENUE AND 45TH STREET**					
	19th Avenue	EB	LTR	-	1.2	A
		WB	LTR	-	0.4	A
	45th Street	NB	LTR	-	17.5	C
		SB	LTR	-	17.8	C
	Overall Intersection		**-**	-	**3.2**	**A**
	SIGNALIZED INTERSECTIONS					
2	**19TH AVENUE AND HAZEN STREET**					
	19th Avenue	EB	LTR	0.32	14.8	B
		WB	LT	0.49	4.8	A
			R	0.89	20.3	C
	Hazen Street	NB	LTR	1.00	80.6	F
		SB	L	0.63	30.5	C
			TR	0.18	18.1	B
	Overall Intersection		**-**	**0.91**	**27.7**	**C**
3	**21ST AVENUE AND 81ST STREET**					
	21st Avenue	EB	LR	0.28	22.1	C
	81st Street	NB	LT	0.82	28.3	C
		SB	TR	0.19	13.4	B
	Overall Intersection		**-**	**0.61**	**25.1**	**C**
4	**DITMARS BOULEVARD AND 81ST STREET**					
	Ditmars Boulevard	EB	LTR	0.11	7.4	A
		WB	LTR	0.60	12.4	B
			R	0.74	9.4	A
	81st Street	SB	L	0.52	29.7	C
			LTR	0.54	30.0	C
	Overall Intersection		**-**	**0.72**	**14.7**	**B**
5	**DITMARS BOULEVARD AND MARINE TERMINAL ROAD**					
	Marine Terminal Road	WB	L	0.59	32.1	C
			R	0.55	31.8	C
	Ditmars Boulevard	NB	T	0.65	13.1	B
			R	0.32	7.8	A
		SB	T	0.27	9.1	A
	Overall Intersection		**-**	**0.63**	**15.0**	**B**

Table D-1

2013 EXISTING TRAFFIC LEVELS OF SERVICE

			AM Peak Hour (6:30 - 7:30AM)			
	INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**
6	**DITMARS BOULEVARD/82ND STREET AND GCP OFF-RAMP**					
	GCP Off-ramp	WB	LTR	0.94	34.1	C
	82nd Street	NB	LT	0.85	22.9	C
	Ditmars Boulevard	SB	TR	0.73	31.5	C
	Overall Intersection		**-**	**0.85**	**30.2**	**C**
7	**23RD AVENUE AND 82ND STREET**					
	23rd Avenue	EB	LTR	0.49	31.5	C
		WB	L	0.49	39.9	D
			R	0.89	57.7	E
	82nd Street	NB	TR	0.21	12.4	B
		SB	L	0.43	4.5	A
			LT	0.40	3.6	A
	Overall Intersection		**-**	**0.55**	**21.2**	**C**
8	**GCP SERVICE ROAD NORTH AND ASTORIA BOULEVARD NORTH**					
	GCP Service Road North	WB	T	0.90	49.4	D
	Astoria Boulevard North	NB	T	0.62	7.9	A
	Overall Intersection		**-**	**0.72**	**21.4**	**C**
9	**23RD AVENUE AND ASTORIA BOULEVARD NORTH**					
	23rd Avenue	EB	L	-	0.0	A
			T	0.36	37.6	D
	Astoria Boulevard North	NB	TR	0.57	12.1	B
	Overall Intersection		**-**	**0.51**	**15.9**	**B**

Notes

(1): Control delay is measured in seconds per vehicle.

(2): Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table D-2

2014 NO ACTION TRAFFIC LEVELS OF SERVICE

	INTERSECTION & APPROACH		AM Peak Hour (6:30 - 7:30AM) Mvt.	V/C	Control Delay	LOS
	UNSIGNALIZED INTERSECTIONS					
1	**19TH AVENUE AND 45TH STREET**					
	19th Avenue	EB	LTR	-	1.2	A
		WB	LTR	-	0.4	A
	45th Street	NB	LTR	-	17.6	C
		SB	LTR	-	17.9	C
	Overall Intersection		**-**	-	**3.2**	**A**
	SIGNALIZED INTERSECTIONS					
2	**19TH AVENUE AND HAZEN STREET**					
	19th Avenue	EB	LTR	0.33	14.9	B
		WB	LT	0.49	4.8	A
			R	0.89	20.6	C
	Hazen Street	NB	LTR	1.00	81.9	F
		SB	L	0.64	31.0	C
			TR	0.18	18.1	B
	Overall Intersection		**-**	**0.92**	**28.1**	**C**
3	**21ST AVENUE AND 81ST STREET**					
	21st Avenue	EB	LR	0.28	22.1	C
	81st Street	NB	LT	0.82	28.4	C
		SB	TR	0.19	13.5	B
	Overall Intersection		**-**	**0.61**	**25.2**	**C**
4	**DITMARS BOULEVARD AND 81ST STREET**					
	Ditmars Boulevard	EB	LTR	0.11	7.4	A
		WB	LTR	0.60	12.6	B
			R	0.75	9.4	A
	81st Street	SB	L	0.53	29.8	C
			LTR	0.54	30.2	C
	Overall Intersection		**-**	**0.73**	**14.8**	**B**
5	**DITMARS BOULEVARD AND MARINE TERMINAL ROAD**					
	Marine Terminal Road	WB	L	0.59	32.2	C
			R	0.55	31.8	C
	Ditmars Boulevard	NB	T	0.66	13.0	B
			R	0.32	7.7	A
		SB	T	0.29	9.2	A
	Overall Intersection		**-**	**0.63**	**14.9**	**B**

Table D-2

2014 NO ACTION TRAFFIC LEVELS OF SERVICE

			AM Peak Hour (6:30 - 7:30AM)			
	INTERSECTION & APPROACH		**Mvt.**	**V/C**	**Control Delay**	**LOS**
6	**DITMARS BOULEVARD/82ND STREET AND GCP OFF-RAMP**					
	GCP Off-ramp	WB	LT	0.41	14.9	B
			R	1.03	65.9	E
	82nd Street	NB	LT	0.86	23.0	C
	Ditmars Boulevard	SB	TR	0.74	31.5	C
	Overall Intersection		**-**	**0.90**	**33.1**	**C**
7	**23RD AVENUE AND 82ND STREET**					
	23rd Avenue	EB	LTR	0.49	31.5	C
		WB	L	0.49	39.9	D
			R	0.89	58.0	E
	82nd Street	NB	TR	0.21	12.4	B
		SB	L	0.43	3.9	A
			LT	0.40	2.7	A
	Overall Intersection		**-**	**0.55**	**20.9**	**C**
8	**GCP SERVICE ROAD NORTH AND ASTORIA BOULEVARD NORTH**					
	GCP Service Road North	WB	T	0.91	49.8	D
	Astoria Boulevard North	NB	T	0.62	7.9	A
	Overall Intersection		**-**	**0.73**	**21.5**	**C**
9	**23RD AVENUE AND ASTORIA BOULEVARD NORTH**					
	23rd Avenue	EB	L	-	0.0	A
			T	0.36	37.6	D
	Astoria Boulevard North	NB	TR	0.58	12.1	B
	Overall Intersection		**-**	**0.52**	**16.0**	**B**

Notes

(1): Control delay is measured in seconds per vehicle.

(2): Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table D-3

2014 PROPOSED ACTION TRAFFIC LEVELS OF SERVICE

	INTERSECTION & APPROACH		AM Peak Hour (6:30 - 7:30AM) Mvt.	V/C	Control Delay	LOS
	UNSIGNALIZED INTERSECTIONS					
1	**19TH AVENUE AND 45TH STREET**					
	19th Avenue	EB	LTR	-	1.3	A
		WB	LTR	-	0.4	A
	45th Street	NB	LTR	-	18.6	C
		SB	LTR	-	26.0	D
	Overall Intersection		**-**	-	**6.2**	**A**
	SIGNALIZED INTERSECTIONS					
2	**19TH AVENUE AND HAZEN STREET**					
	19th Avenue	EB	LTR	0.36	15.4	B
		WB	LT	0.51	7.3	A
			R	0.89	24.8	C
	Hazen Street	NB	LTR	1.00	81.9	F
		SB	L	0.64	31.0	C
			TR	0.18	18.1	B
	Overall Intersection		**-**	**0.92**	**30.0**	**C**
3	**21ST AVENUE AND 81ST STREET**					
	21st Avenue	EB	LR	0.28	22.1	C
	81st Street	NB	LT	0.83	28.6	C
		SB	TR	0.21	12.1	B
	Overall Intersection		**-**	**0.61**	**25.0**	**C**
4	**DITMARS BOULEVARD AND 81ST STREET**					
	Ditmars Boulevard	EB	LTR	0.11	7.4	A
		WB	LTR	0.61	12.7	B
			R	0.75	9.6	A
	81st Street	SB	L	0.56	28.9	C
			LTR	0.56	29.1	C
	Overall Intersection		**-**	**0.73**	**14.8**	**B**
5	**DITMARS BOULEVARD AND MARINE TERMINAL ROAD**					
	Marine Terminal Road	WB	L	0.59	32.2	C
			R	0.55	31.8	C
	Ditmars Boulevard	NB	T	0.66	13.1	B
			R	0.32	7.8	A
		SB	T	0.30	9.2	A
	Overall Intersection		**-**	**0.63**	**15.0**	**B**

Table D-3

2014 PROPOSED ACTION TRAFFIC LEVELS OF SERVICE

	INTERSECTION & APPROACH		Mvt.	AM Peak Hour (6:30 - 7:30AM) V/C	Control Delay	LOS
6	**DITMARS BOULEVARD/82ND STREET AND GCP OFF-RAMP**					
	GCP Off-ramp	WB	LT	0.41	14.9	B
			R	1.04	68.0	E
	82nd Street	NB	LT	0.90	23.2	C
	Ditmars Boulevard	SB	TR	0.75	32.3	C
	Overall Intersection		**-**	**0.91**	**33.8**	**C**
7	**23RD AVENUE AND 82ND STREET**					
	23rd Avenue	EB	LTR	0.49	31.5	C
		WB	L	0.49	39.9	D
			R	0.89	58.0	E
	82nd Street	NB	TR	0.21	12.4	B
		SB	L	0.43	3.8	A
			LT	0.41	2.7	A
	Overall Intersection		**-**	**0.55**	**20.7**	**C**
8	**GCP SERVICE ROAD NORTH AND ASTORIA BOULEVARD NORTH**					
	GCP Service Road North	WB	T	0.91	49.8	D
	Astoria Boulevard North	NB	T	0.62	7.9	A
	Overall Intersection		**-**	**0.73**	**21.5**	**C**
9	**23RD AVENUE AND ASTORIA BOULEVARD NORTH**					
	23rd Avenue	EB	L	-	0.0	A
			T	0.36	37.6	D
	Astoria Boulevard North	NB	TR	0.58	12.1	B
	Overall Intersection		**-**	**0.52**	**16.0**	**B**
10	**19TH AVENUE AND 81ST STREET**					
	19th Avenue	EB	TR	0.20	5.3	A
	LaGuardia Airport Driveway	WB	LT	0.88	15.2	B
	81st Street	NB	LR	0.04	30.9	C
	Overall Intersection		**-**	**0.72**	**13.6**	**B**

Notes

(1): Control delay is measured in seconds per vehicle.

(2): Overall intersection V/C ratio is the critical lane groups' V/C ratio.

(3): Intersection 10 - 19th Avenue and 81st Street - is a new location in the Proposed Action condition

Table 5-4
2014 Q3 Weekday Construction Vehicle Trips Generated by Hour

Hour Beginning	Autos In	Autos Out	Trucks In	Trucks Out	Vans to Airport	Vans from Airport	Total Vehicles	Total PCEs
12:00 AM	0	0	6	9	0	0	15	30
1:00 AM	0	0	9	9	0	0	18	36
2:00 AM	0	0	9	9	0	0	18	36
3:00 AM	0	0	9	9	0	0	18	36
4:00 AM	0	0	9	9	0	0	18	36
5:00 AM	0	0	9	6	0	0	15	30
6:00 AM	8	53	0	3	0	11	75	78
7:00 AM	0	0	1	1	0	0	2	4
8:00 AM	0	0	1	1	0	0	2	4
9:00 AM	0	0	1	1	0	0	2	4
10:00 AM	0	0	1	1	0	0	2	4
11:00 AM	0	0	1	1	0	0	2	4
12:00 PM	0	0	1	1	0	0	2	4
1:00 PM	0	0	1	1	0	0	2	4
2:00 PM	0	0	1	1	0	0	2	4
3:00 PM	0	8	0	0	0	0	8	8
4:00 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0
11:00 PM	53	0	3	0	11	0	67	70
Total	**61**	**61**	**62**	**62**	**11**	**11**	**268**	**392**

Source: Port Authority

Note: PCE = Passenger Car Equivalent. 1 truck = 2 PCEs.

Source: VHB, Inc.

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure D-1

2013 Existing Traffic Volumes
Weekday 6:30 - 7:30 AM

Source: VHB, Inc.

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure D-2

2014 No-Action Traffic Volumes
Weekday 6:30 - 7:30 AM

Source: VHB, Inc.

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure D-3

2014 Proposed Action Traffic Increments
Weekday 6:30 - 7:30 AM

Source: VHB, Inc.

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Improvements
Environmental Assessment

Figure D-4

2014 Proposed Action Traffic Volumes
Weekday 6:30 - 7:30 AM

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E

Noise

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Scenario 1; Runway 4 End - Deck Extension
Impact Pile Driving (April 2014 - May 2014)
8:00 AM - 7:00 PM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Compressors (1,600 cfm)	Compressor (air)	No	40	78	3257	0	37.7	2	40.8
Large Generators (100kw)	Generator	No	50	81	3257	0	41.7	1	41.7
Large Generators (250kw)	Generator	No	50	81	3257	0	41.7	1	41.7
3 - Pile Driving rigs / barges	Impact Pile Driver	Yes	20	101.3	3257	0	58.0	3	62.8
3- Power pack (500kw generators)	Generator	No	50	81	3257	0	41.7	3	46.5
Crane (100-ton) / barge	Crane	No	16	81	3257	0	36.8	1	36.8
								Activity Total Leq (dBA)	63.0

Scenario 1; Runway 4 End - Deck Extension
Vibratory Hammer Pile Driving (April 2014 - May 2014)
12:01 AM - 6:00 AM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Compressors (1,600 cfm)	Compressor (air)	No	40	78	3257	0	37.7	2	40.8
Large Generators (100kw)	Generator	No	50	81	3257	0	41.7	1	41.7
Large Generators (250kw)	Generator	No	50	81	3257	0	41.7	1	41.7
3 - Pile Driving rigs / barges	Vibratory Pile Driver	No	20	100.8	3257	0	57.5	3	62.8
3- Power pack (500kw generators)	Generator	No	50	81	3257	0	41.7	3	46.5
Crane (100-ton) / barge	Crane	No	16	81	3257	0	36.8	1	36.8
								Activity Total Leq (dBA)	62.5

General Notes:
1. Closest Receptor - Site 2.
2. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
3. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
4. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
5. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

Scenario 1; Runway 4 End - Deck Extension
Vibratory Hammer Pile Driving (April 2014 - May 2014)
12:01 AM - 6:00 AM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Compressors (1,600 cfm)	Compressor (air)	No	40	78	808	0	49.9	2	52.9
Large Generators (100kw)	Generator	No	50	81	808	0	53.8	1	53.8
Large Generators (250kw)	Generator	No	50	81	808	0	53.8	1	53.8
3 - Pile Driving rigs / barges	Vibratory Pile Driver	No	20	100.8	808	0	69.6	3	74.4
3- Power pack (500kw generators)	Generator	No	50	81	808	0	53.8	3	58.6
Crane (100-ton) / barge	Crane	No	16	81	808	0	48.9	1	48.9
								Activity Total Leq (dBA)	74.6

General Notes:

1. Closest Receptor - Site 5A.
2. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
3. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
4. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
5. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

Scenario 2; Runway 31 End - Deck Extension + RVSR
Impact Pile Driving + RVSR Light Earthwork (March 2015)
8:00 AM - 7:00 PM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	1427	10	35.9	1	35.9
Backhoes	Backhoe	No	40	78	1427	10	34.9	1	34.9
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	1427	10	30.9	2	33.9
Compressors (1,600 cfm)	Compressor (air)	No	40	78	4353	0	35.2	2	38.2
Large Generators (100kw)	Generator	No	50	81	4353	0	39.2	1	39.2
Large Generators (250kw)	Generator	No	50	81	4353	0	39.2	1	39.2
3 - Pile Driving rigs / barges	Impact Pile Driver	Yes	20	101.3	4353	0	55.5	3	60.3
3- Power pack (500kw generators)	Generator	No	50	81	4353	0	39.2	3	44.0
Crane (100-ton) / barge	Crane	No	16	81	4353	0	34.2	1	34.2
								Activity Total Leq (dBA)	60.5

Scenario 2; Runway 31 End - Deck Extension + RVSR
Vibratory Hammer Pile Driving + RVSR Light Earthwork (March 2015)
12:01 AM - 6:00 AM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	1427	10	35.9	1	35.9
Backhoes	Backhoe	No	40	78	1427	10	34.9	1	34.9
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	1427	10	30.9	2	33.9
Compressors (1,600 cfm)	Compressor (air)	No	40	78	4353	0	35.2	2	38.2
Large Generators (100kw)	Generator	No	50	81	4353	0	39.2	1	39.2
Large Generators (250kw)	Generator	No	50	81	4353	0	39.2	1	39.2
3 - Pile Driving rigs / barges	Impact Pile Driver	No	20	100.8	4353	0	55.0	3	59.8
3- Power pack (500kw generators)	Generator	No	50	81	4353	0	39.2	3	44.0
Crane (100-ton) / barge	Crane	No	16	81	4353	0	34.2	1	34.2
								Activity Total Leq (dBA)	60.1

General Notes:
1. Closest Receptor - Site 1; assume 10 dB shielding for RVSR equipment only due to noise wall along 81st Street.
2. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
3. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
4. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
5. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

Scenario 2; Runway 31 End - Deck Extension + RVSR
Impact Pile Driving + RVSR Light Earthwork (March 2015)
8:00 AM - 7:00 PM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	5542	0	34.1	1	34.1
Backhoes	Backhoe	No	40	78	5542	0	33.1	1	33.1
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	5542	0	29.1	2	32.1
Compressors (1,600 cfm)	Compressor (air)	No	40	78	1656	0	43.6	2	46.6
Large Generators (100kw)	Generator	No	50	81	1656	0	47.6	1	47.6
Large Generators (250kw)	Generator	No	50	81	1656	0	47.6	1	47.6
3 - Pile Driving rigs / barges	Impact Pile Driver	Yes	20	101.3	1656	0	63.9	3	68.7
3- Power pack (500kw generators)	Generator	No	50	81	1656	0	47.6	3	52.4
Crane (100-ton) / barge	Crane	No	16	81	1656	0	42.6	1	42.6
								Activity Total Leq (dBA)	68.9

Notes:
1. Closest Receptor - Site 5C.

Scenario 2; Runway 31 End - Deck Extension + RVSR
Vibratory Hammer Pile Driving + RVSR Light Earthwork (March 2015)
12:01 AM - 6:00 AM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	5273	0	34.6	1	34.6
Backhoes	Backhoe	No	40	78	5273	0	33.6	1	33.6
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	5273	0	29.5	2	32.5
Compressors (1,600 cfm)	Compressor (air)	No	40	78	1358	0	45.3	2	48.4
Large Generators (100kw)	Generator	No	50	81	1358	0	49.3	1	49.3
Large Generators (250kw)	Generator	No	50	81	1358	0	49.3	1	49.3
3 - Pile Driving rigs / barges	Impact Pile Driver	No	20	100.8	1358	0	65.1	3	69.9
3- Power pack (500kw generators)	Generator	No	50	81	1358	0	49.3	3	54.1
Crane (100-ton) / barge	Crane	No	16	81	1358	0	44.4	1	44.4
								Activity Total Leq (dBA)	70.1

Notes:
1. Closest Receptor - Site 5B.

General Notes:
1. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
3. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
4. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
5. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

Scenario 3; RVSR
Excavation/Grading/Gravel (September 2014 - October 2014)
12:01 AM - 6:00 AM Weekends; 7:00 AM - 3:00 PM Weekdays

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	402	0	56.9	2	59.9
Excavators	Excavator	No	40	81	402	0	58.9	2	61.9
Backhoes	Backhoe	No	40	78	402	0	55.9	2	58.9
Dozers	Dozer	No	40	82	402	0	59.9	2	62.9
Graders	Grader	No	40	85	402	0	62.9	1	62.9
Milling Machines	Pavement Scarafier	No	20	90	402	0	64.9	2	67.9
Mobile Mixer	Concrete Mixer Truck	No	40	79	402	0	56.9	2	59.9
Pavers	Paver	No	50	77	402	0	55.9	2	58.9
Rollers	Roller	No	20	80	402	0	54.9	6	62.7
Compressors (185 cfm)	Compressor (air)	No	40	78	402	0	55.9	3	60.7
Compressors (300 cfm)	Compressor (air)	No	40	78	402	0	55.9	1	55.9
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	402	0	51.9	6	59.7
Crane (45-ton)	Crane	No	16	81	402	0	54.9	1	54.9
Crane (100-ton) - Water Quality Structures	Crane	No	16	81	402	0	54.9	1	54.9
								Activity Total Leq (dBA)	73.0

Notes:
1. Closest Receptor - Site 4.

Scenario 3; RVSR
Excavation/Grading/Gravel (September 2014 - October 2014)
12:01 AM - 6:00 AM Weekends Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	No. of Pieces of Equipment	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	586	10	43.6	2	46.7
Excavators	Excavator	No	40	81	586	10	45.6	2	48.7
Backhoes	Backhoe	No	40	78	586	10	42.6	2	45.7
Dozers	Dozer	No	40	82	586	10	46.6	2	49.7
Graders	Grader	No	40	85	586	10	49.6	1	49.6
Milling Machines	Pavement Scarafier	No	20	90	586	10	51.6	2	54.6
Mobile Mixer	Concrete Mixer Truck	No	40	79	586	10	43.6	2	46.7
Pavers	Paver	No	50	77	586	10	42.6	2	45.6
Rollers	Roller	No	20	80	586	10	41.6	6	49.4
Compressors (185 cfm)	Compressor (air)	No	40	78	586	10	42.6	3	47.4
Compressors (300 cfm)	Compressor (air)	No	40	78	586	10	42.6	1	42.6
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	586	10	38.6	6	46.4
Crane (45-ton)	Crane	No	16	81	586	10	41.7	1	41.7
Crane (100-ton) - Water Quality Structures	Crane	No	16	81	586	10	41.7	1	41.7
								Activity Total Leq (dBA)	59.8

Notes:
1. Closest Receptor - Site 3; assume 10 dB shielding due to noise wall along 81st Street.

General Notes:
1. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
2. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
3. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
4. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

Scenario 4; Ingraham's Mountain Construction Staging Area + RVSR
Excavation/Grading/Gravel (June 2014)
7:00 AM - 3:00 PM Weekdays Only

Equipment Type	RCNM Equivalent	Impact Device	Acoustical Usage Factor	Actual Lmax (dBA)	Distance to Receptor (feet)	Estimated Shielding (dBA)	Leq (dBA)	Convert to Single Pressure	No. of Pieces of Equipment	Total Pressure	Total Leq (dBA)
Payloaders	Front End Loader	No	40	79	526	0	54.6	287096.9057	4	1148387.623	60.6
Excavators	Excavator	No	40	81	526	0	56.6	455017.9314	4	1820071.725	62.6
Backhoes	Backhoe	No	40	78	526	0	53.6	228049.1783	4	912196.7131	59.6
Dozers	Dozer	No	40	82	526	0	57.6	572833.6366	4	2291334.546	63.6
Graders	Grader	No	40	85	526	0	60.6	1142953.368	4	4571813.472	66.6
Compressors (185 cfm)	Compressor (air)	No	40	78	526	0	53.6	228049.1783	3	684147.5348	58.4
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	526	0	49.5	90144.35273	6	540866.1164	57.3
Large Generators (100 HP+)	Generator	No	50	81	526	0	57.5	568772.4142	2	1137544.828	60.6
Payloaders	Front End Loader	No	40	79	1428	10	35.9	3895.323986	2	7790.647972	38.9
Excavators	Excavator	No	40	81	1428	10	37.9	6173.672468	2	12347.34494	40.9
Backhoes	Backhoe	No	40	78	1428	10	34.9	3094.165826	2	6188.331651	37.9
Dozers	Dozer	No	40	82	1428	10	38.9	7772.193154	2	15544.38631	41.9
Milling Machines	Pavement Scarafier	No	20	90	1428	10	43.9	24519.61177	2	49039.22353	46.9
Pavers	Paver	No	50	77	1428	10	34.9	3072.229098	2	6144.458195	37.9
Rollers	Roller	No	20	80	1428	10	33.9	2451.961177	6	14711.76706	41.7
Compressors (185 cfm)	Compressor (air)	No	40	78	1428	10	34.9	3094.165826	3	9282.497477	39.7
Compressors (300 cfm)	Compressor (air)	No	40	78	1428	10	34.9	3094.165826	1	3094.165826	34.9
Small Generators (25 Hp)	Generator (<25KVA, VMS Signs)	No	50	73	1428	10	30.9	1223.076433	6	7338.4586	38.7
									Activity Total Leq (dBA)		71.2

General Notes:
1. Closest Receptor - Site 1; assume 10 dB shielding for RVSR equipment only due to noise wall along 81st Street.
2. All 'Impact Device', 'Acoustical Usage Factor', and 'Actual Lmax' values are from FHWA's RCNM User Guide Table 1.
3. Leq = (Lmax - (20*LOG_{10}(Distance to Receptor/50)) - Estimated Shielding) + (10*LOG_{10}(Acoustical Usage Factor/100)); equation is consistent with eqn (1) and (2) in RCNM User's Guide, pg. 20.
4. Total Leq = 10*LOG_{10}((10^(Leq/10))*(No. of Pieces of Equipment)).
5. Activity Total Leq = 10*LOG10(SUM((10^(Leq/10))*(No. of Pieces of Equipment))).

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Public Coordination

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Public Coordination

Throughout the development of the Draft EA, the Port Authority of New York and New Jersey held briefings to discuss upcoming LaGuardia Airport projects, including the Runway Area Safety Enhancements Project, with the following local and state elected officials:

- New York City Councilwoman Julissa Ferreras on January 30, 2013, February 1, 2013, and October 30, 2013
- Queens Borough President Helen Marshall on October 4, 2012 and February 1, 2013
- New York State Senator Michael Gianaris on July 3, 2012 and February 1, 2013
- New York State Senator José Peralta on February 1, 2013
- New York State Assemblywoman Aravella Simotas on March 22, 2013
- New York State Congresswoman Grace Meng on April 2, 2013
- City of New York Department of Correction, Office of the Chief of Department on June 26, 2013

An announcement was printed in the *Newark Star Ledger, Bergen Record, Daily News (Queens edition), Queens Courier, Queens Chronicle, Queens Gazette, Queens Tribune, Queens Times Ledger, Queens Ledger, El Especialito, The National Herald,* and the *Sing Tao Daily* newspapers that the Draft EA is available for public review and comment for 30 days, ending September 23, 2013. Clippings of these newspaper advertisements are included in in thr following pages of this appendix.

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Religious Services Directory

ASSEMBLIES OF GOD

Assemblies of God
BETHANY CHURCH
Pastor Don James
201-891-7494 • www.bethanychurch.tv
568 Wellington Dr, Wyckoff, NJ 07481
399 Pascack Road, Washington Twp, NJ 07676
451 Ringwood Ave, Wanaque, NJ 07465
419 E. Halsey Road, Parsippany, NJ 07054

BAPTIST

VAN RIPER ELLIS BROADWAY BAPTIST CHURCH
7-01 River Road, Fair Lawn, NJ • 201-791-8844
11am Morning Worship Service

FIRST BAPTIST OF NEW MILFORD
345 Monmouth Ave. New Milford, NJ 07646
11:00 AM Worship Service
7:30 PM Wednesday Prayer Meeting
201-261-6065

CHRISTIAN SCIENCE

Midland Park Church & Reading Room
(201)389-6860 (201)445-0036
259 Godwin Ave
Sunday 10:30am • Sunday School 10:30am
Wednesday Testimony Meeting 7:45pm
Call for Reading Room Hours
All Are Welcome!

EASTERN ORTHODOX

ST. ANTHONY ORTHODOX CHURCH
385 Ivy Lane, Bergenfield • 201-568-8840
V.Rev. Joseph Allen, Pastor
10:00AM Sunday Church School
10:00AM Divine Liturgy in English

ST. ATHANASIOS GREEK ORTHODOX CHURCH
FATHER ANARGYROS STAVROPOULOS, PASTOR
51 Paramus Road, Paramus NJ • 201-368-8881, REALITY
Sunday Worship: Matins 8:45AM • Divine Liturgy: 10:00AM
Office Hours: Monday-Friday 9AM-4PM
Greek afternoon School for kids
ages 5-18 every Mon, Wed & Fri
Greek Dance Lessons every Fri for kids ages 7-18

HOLY APOSTLES EASTERN ORTHODOX CHURCH
17 Platt Avenue
(off Saddle River Road)
Saddle Brook - 201-845-7259
Sunday Divine Liturgy- 10am in English

EPISCOPAL

CHURCH OF THE GOOD SHEPHERD
1576 Palisade Ave.Fort Lee • 201-461-7260
www.goodshepherdfortlee.org
Come love, worship, serve God with us!
Sun Eucharist: 8:00AM traditional language
10:00AM inclusive language, music, Sun. School
Wheelchair accessible • Rev. Allison Moore, Ph.D., Rector

EVANGELICAL

MONTVALE EVANGELICAL FREE CHURCH
141 West Grand Avenue • 201-391-6233
Sunday Morning Blended Worship 10:30AM
Sunday School for All Ages

ISLAM

ISLAMIC CENTER OF PASSAIC COUNTY
152 Derrom Ave, Paterson, NJ
973-278-7070 • www.ICPC.com
Friday Service 1:15-2PM • Translation Available
Food Pantry on the last Saturday of every month 3-6PM
For interfaith programs 973-278-7070 ext 15

JEWISH CONSERVATIVE

JCC OF FORT LEE
1449 Anderson Ave., Fort Lee
Looking for a change? Try Congregation Gesher Shalom, The JCC of Fort Lee. We are an Egalitarian Conservative Synagogue. Services conducted by our Rabbi, Kenneth A. Stern, & our Cantor Paul Zim.
For more information call 201-947-1735

LUTHERAN

ST. MATTHEW'S EV. LUTHERAN CHURCH
225 Center Street, New Milford, NJ 07646
201-262-5092 Rev. Anthony Iovine
smelcnewmilford.org
Saturday 5 pm Sunday 10 am
Sunday School 9am
ALL ARE WELCOME

NON-DENOMINATIONAL

UNITY CHURCH OF CHRIST
735 Rutland Ave., Teaneck
Spiritual Leader: Rev. Dr. Bessie Duncan, L.U.T.
Office 201-836-6333, Dial-A-Blessing 201-836-6122
Sun. Services at 9AM & 11AM Sun. School 11AM
Wed.: Prayer, Healing & Meditation 7:00PM
Wed.: Bible Class 7:30-9PM
www.unityteaneck.org

HAWTHORNE GOSPEL CHURCH
2000 Route 208, Hawthorne
Pastor John W. Mimema
Sunday AM Services: 8:25, 9:55 & 11:25AM
Family Sunday School 10:00AM
Sunday PM Service: 5:00PM
Wednesday Prayer: 7:00PM
(Questions? Call 973-427-0960)

PENTACOSTAL/CHARISMA

FAITH SOUL SAVING STATION
173 Haledon Ave, Paterson, NJ 07522 973-956-9301
Elder Malachi Floyd • Email: faithsoulsavingt@aol.com
Sunday School 9:30AM • Sunday Worship 11:00AM
Sunday Evening Service 7PM
Wednesday Bible Study 7PM
Thursday Prayer 7PM
Please call before 10:15am for Church pick-up

PRESBYTERIAN

PRESBYTERIAN CHURCH AT TENAFLY
55 Magnolia Ave., Tenafly, NJ
Come Share The Spirit With Us!
201-567-0111
Worship 10:00 AM
Sunday School During 10:00 AM Worship
Coffee Hour 11:00 AM
Childcare Provided • www.PCAT.ws

ROMAN CATHOLIC

OUR LADY OF VICTORIES R.C. CHURCH
150 Harriot Avenue, Harrington Park, NJ
201-768-1706
MASS SCHEDULE
Saturday Vigil: 4PM & 5PM
Sunday: 7:30AM, 9:35AM, 10:45AM, 12 Noon, 6PM, 7PM
TRADITIONAL LATIN MASS
every Sunday at 8:15am
Serving the entire Pascack and Northern Valleys

UNITARIAN

CENTRAL UNITARIAN CHURCH
156 Forest Ave., Paramus
201-262-6300 www.cucparamus.org
10:30AM Sunday Services
An inclusive and welcoming congregation
WE WELCOME OUR NEW MINISTER, THE REV. DAVID M. HORST
REV. HORST BELIEVES IN A "MINISTRY OF HOSPITALITY," WHICH BEGINS WITH WARM AND WELCOMING SUNDAY WORSHIP SERVICES. JOIN US!

UNITED METHODIST

GRACE UNITED METHODIST
555 Russell Ave., Wyckoff 201-891-4595
http//www.gumc.org
Rev. Jeanette M. Block
Worship Services: 8, 9 & 11AM
Sunday School All Ages to Grade 5, 9, 10 & 11AM
SUMMER VACATION BIBLE SCHOOL MAY THRU SEPTEMBER

To advertise your House of Worship
Call Karen at 973 / 569-7490

RELIGION

Pope Benedict reveals God told him to resign

RELIGION NEWS SERVICE

VATICAN CITY – Pope Emeritus Benedict XVI resigned from the papacy because "God told me" to, according to a report by a Catholic news agency.

BENEDICT

The Zenit news agency reported that Benedict decided to step back as a result of what he described as a "mystical experience" that should not be confused with a vision.

That experience sparked an "absolute desire" to dedicate his life exclusively to prayer, in a solitary relationship with God, Benedict reportedly said.

Zenit wrote that its report was based on the account of one of the few people who are granted a meeting with the former pope, who is living in a retrofitted monastery on the Vatican grounds.

Benedict shocked the world when he announced his resignation on Feb. 11, becoming the first pope to leave his job in more than 600 years. He told aides he intended to live out his life "hidden from the world."

According to the report, the pope emeritus also praised the "charisma" of his successor, Pope Francis, saying that his actions as the leader of the Catholic Church show that his election was "God's will."

Evangelicals budget $400,000 for immigration reform ads

WASHINGTON – A coalition of evangelical groups, including the Southern Baptist Convention, hopes to give an earful to key congressional lawmakers about immigration reform.

The Evangelical Immigration Table has launched a $400,000 radio ad campaign in 56 congressional districts, featuring local pastors and national voices encouraging passage of immigration reform without delay. Dr. Barrett Duke of the Southern Baptist Convention's Ethics and Religious Liberties Commission says the ads will air for two weeks "at saturation rates."

Pastor Felix Cabrera of Oklahoma City's Quail Creek Baptist Church says the collateral damage of the current policy that he has seen includes the detention and separation of parents from children born in the United States.

And Amarillo, Texas, pastor Stan Coffey says evangelicals should let their voices be heard on the issue because "this is what Jesus would have done if he were here." **— The Associated Press**

Public Notices

Public Auction
On September 18th, 2013 at 12:00 pm, Lackland Self-Storage, 77 Willowbrook Blvd, Wayne NJ 07470, the following merchandise will be sold at public auction. Listed below is the unit number along with the name and a brief description of the content.

Unit	Name	Description
21	Cassandra Duby	Plastic totes, boxes, baby items, bags, picture frames, furniture.
217	Joseph Batavia	Leather couches, mattress, box spring, dressers, baby items.
323	Abraham Martinez	Bags, A/C, mirror, boxes, snow blower, speakers.
381	Lidia Vargas	Plastic totes, mattress, vacuum cleaner, cot.
386	David Webb	Plastic bins, chairs, duffle bags, boxes, boots, router.
638	James Addonizio	Fan, night table, lamp, paintings, boxes, toys.

August 22, 29, 2013-fee:$45.36 (24) 3545864

PUBLIC NOTICE
Notice is hereby given that bid proposals will be received via the Internet until 10:00:59 A.M. on 9/17/13, downloaded, and publicly opened and read, from Bidders classified under N.J.S.A. 27:7-35.1 et seq.; in the CONFERENCE ROOM-1C, 1st Floor E & O Building, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625; for:

Maintenance Underwater/Timber Structural Repair and Inspection Contract, Statewide - 2014; Various Locations,
Statewide
100% State
DP No: 13436

Bidders are required to comply with the requirements of P.L. 1975, c. 127 N.J.A.C 17:27.
The awarded bidder must provide a completed Contractor Certification and Disclosure of Political Contribution Form(s) according to both P.L.2005, C-51 and Executive Order No. 117 within fourteen (14) days from the award date. Executive Order No: 117 is effective on November 15, 2008. Pursuant to N.J.S.A. 52:32-44, all bidders must be registered with the New Jersey Department of Treasury, Division of Revenue, Business Registration, as of the date of bids. The awarded bidder must provide proof of valid business registration within fourteen (14) days from the award date. Pursuant to the "Public Works Contractor Registration Act", N.J.S.A. 34:11-56.48 et seq. (P.L. 2003, c. 91), all bidders must be registered with the New Jersey Department of Labor, Division of Wage and Hour Compliance, at the time of bid. The awarded bidder must provide proof of PWCR within fourteen (14) days from the award date.

The Department, in accordance with Title VI Civil Rights Act of 1964, 78 Stat. 252 U.S.C., 49 C.F.R., Parts 21 and 23 issued pursuant to such Act, and Section 504 of the Rehabilitation Act of 1973 will afford minority business enterprises full opportunity to submit bids in response to this invitation and will not discriminate against any bidder on the grounds of race, color, sex, national origin, or handicap in the project award.

Plans, specifications, and bidding information for the proposed work are available at Bid Express website www.bidx.com. You must subscribe to use this service. To subscribe, follow the instructions on the web site. Fees apply to downloading documents and plans and bidding access. The fee schedule is available on the web site. All fees are directly payable to Bid Express. Plans, specifications, and bidding information may be inspected (BUT NOT OBTAINED) by contracting organizations at our Design Field Offices at the following locations:

200 Stierli Court
Mt. Arlington, NJ 07856
Phone: 973-601-6690

One Executive Campus Rt. 70 West
Cherry Hill, NJ 08002
Phone: 856-486-6623

New Jersey Department of Transportation
Division of Procurement
Bureau of Construction Services
1035 Parkway Avenue
PO Box 600
Trenton, NJ 08625

NJDOT PROCUREMENT CA
August 22, 29, September 5, 2013-Fee:$294.84 (104) 3548057

PUBLIC NOTICE
Notice is hereby given that bid proposals will be received via the Internet until 10:00:59 A.M. on 9/12/13, downloaded, and publicly opened and read, from Bidders classified under N.J.S.A. 27:7-35.1 et seq.; in the CONFERENCE ROOM-1C, 1st Floor E & O Building, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625; for:

Maintenance Concrete Structural Repair Contract, North - 2014;
Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Somerset, Sussex, Union and Warren Counties
100% State
DP No: 13437

Bidders are required to comply with the requirements of P.L. 1975, c. 127 N.J.A.C 17:27.
The awarded bidder must provide a completed Contractor Certification and Disclosure of Political Contribution Form(s) according to both P.L.2005, C-51 and Executive Order No. 117 within fourteen (14) days from the award date. Executive Order No: 117 is effective on November 15, 2008. Pursuant to N.J.S.A. 52:32-44, all bidders must be registered with the New Jersey Department of Treasury, Division of Revenue, Business Registration, as of the date of bids. The awarded bidder must provide proof of valid business registration within fourteen (14) days from the award date. Pursuant to the "Public Works Contractor Registration Act", N.J.S.A. 34:11-56.48 et seq. (P.L. 2003, c. 91), all bidders must be registered with the New Jersey Department of Labor, Division of Wage and Hour Compliance, at the time of bid. The awarded bidder must provide proof of PWCR within fourteen (14) days from the award date.

The Department, in accordance with Title VI Civil Rights Act of 1964, 78 Stat. 252 U.S.C., 49 C.F.R., Parts 21 and 23 issued pursuant to such Act, and Section 504 of the Rehabilitation Act of 1973 will afford minority business enterprises full opportunity to submit bids in response to this invitation and will not discriminate against any bidder on the grounds of race, color, sex, national origin, or handicap in the project award.

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200 Stierli Court
Mt. Arlington, NJ 07856
Phone: 973-601-6690

One Executive Campus Rt. 70 West
Cherry Hill, NJ 08002
Phone: 856-486-6623

New Jersey Department of Transportation
Division of Procurement
Bureau of Construction Services
1035 Parkway Avenue
PO Box 600
Trenton, NJ 08625
August 22, 29, September 5, 2013-fee:$283.50 (100) 3548046

SPECIAL MEETING NOTICE
There will be a SPECIAL MEETING of the Rutherford Board of Education held on Monday, August 26, 2013 at 7:30 P.M. in the RUTHERFORD HIGH SCHOOL LIBRARY. Action will be taken.
Joseph P. Kelly
School Business Administrator/
Board Secretary
176 Park Avenue
Rutherford, NJ 07070
201-438-7675 x 1100
August 19, 2013
August 22, 2013-fee:$14.18 (15) 3548140

Palisades Interstate Parkway Police
is auctioning a
2004 Dodge Caravan
VIN: 2D4GP44L04R539657
Auction may be viewed at
GovDeals.com from
August 19th through August 30th .
Aug 22, 23, 24, 2013-fee:$22.68 (8) 3547914

TOWNSHIP OF NORTH BERGEN
Please take notice that the North Bergen Zoning Board of Adjustment will hold their regular Meeting on Wednesday, September 4th, 2013 at 7:00PM in the Municipal Council Chambers, Ground Floor, 4233 Kennedy Boulevard, North Bergen, New Jersey.

The Agenda is as follows:
Roll Call
Case # 07-13 RNL LLC
1217-63rd Street
Block: 204 Lot(s) 3
Present Use: Contractor's garage and office
Proposed Use: Convert the entirety of the premises to an office

Case # 06-13 Diamond HVAC-R, Inc.
4316 Liberty Avenue
Block: 8 Lot(s) 153-154
Present Use: Office/Wharehouse
Proposed Use: The applicant proposes converting the second floor office space into two residential units
August 22, 2013-fee:$23.63 (25) 3548282

NOTICE TO ABSENT DEFENDANTS
Docket No.: F-027347-13
Superior Court of New Jersey
Chancery Division
Bergen County
(L.S.) STATE OF NEW JERSEY TO: ROBERT P. CONNORS & KARIN CONNORS and each of their heirs, devisees, and personal representatives, and his, her, their or any of their successors in right, title and interest
YOU ARE HEREBY SUMMONED AND REQUIRED to serve upon ZUCKER, GOLDBERG & ACKERMAN, LLC, ESQS., plaintiff's attorneys, whose address is 200 Sheffield Street, Suite 101, Mountainside, New Jersey 07092-0024, telephone number 1-908-233-8500, an Answer to the Complaint filed in a civil action, in which JPMorgan Chase Bank, National Association is plaintiff, and Robert P. Connors, et al., are defendants, pending in the Superior Court of New Jersey, Chancery Division, Bergen County, and bearing Docket F-027347-13 within thirty-five (35) days after August 22, 2013 exclusive of such date, or if published after August 22, 2013, (35) days after the actual date of such publication, exclusive of such date. If you fail to do so, judgment by default may be rendered against you for the relief demanded in the Complaint. You shall file your Answer and proof of service in duplicate with the Clerk of the Superior Court of New Jersey, Hughes Justice Complex - CN 971, Trenton, NJ 08625, in accordance with the rules of civil practice and procedure.
This action has been instituted for the purpose of (1) foreclosing a Mortgage dated August 7, 1998 made by Robert P. Connors and Karin Connors, husband and wife as mortgagor, to Mercury, Inc. recorded on August 19, 1998 in Book 09800 of Mortgages for Bergen County, Page 302, which Mortgage was duly assigned to the plaintiff, JPMorgan Chase Bank, National Association, by Assignment of Mortgage dated August 7, 1998 ; and (2) to recover possession of, and concerns premises commonly known as 25 Haring Street, Bergenfield, NJ 07621, also being Lot 3 in Block 107.03.
If you are unable to obtain an attorney, you may communicate with the New Jersey Bar Association by calling 732-249-5000. You may also confact the "Lawyer Referral Service of the County of venue by calling 201-488-0044. If you cannot afford an attorney, you may communicate with the Legal Services office of the County of venue by calling 201-487-2166.
YOU, ROBERT P. CONNORS & KARIN CONNORS and each of their heirs, devisees, and personal representatives, and his, her, their or any of their successors in right, title and interest, are made a party defendant to this foreclosure action because you executed Plaintiff's obligation and mortgage and may be liable for any deficiency, and are a record owner of the subject property and for any right, title and interest you may have in, to or against the subject property.
Elisabeth Ann Strom
ELISABETH ANN STROM, CLERK
SUPERIOR COURT OF NEW JERSEY
This is an attempt to collect a debt, and any information obtained will be used for that purpose.
The Fair Housing Act prohibits "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status, or national origin, or intention to make such preference, limitation or discrimination" in connection with any aspect of a residential real estate transaction. Zucker, Goldberg & Ackerman, LLC encourages fair housing and supports the equal housing practices of the Fair Housing Act in the conduct of its business."
August 22, 2013-fee:$83.16 (88) 3548080

NOTICE OF
REQUEST FOR PROPOSALS
FOR
"Parking/Engineering Consultant Services" for the Fort Lee Parking Authority
For the Redevelopment Area 5

The Fort Lee Parking Authority is soliciting proposals through a fair and open process in accordance with N.J.S.A. 19:44A-20.4 et seq.

Sealed RFP responses will be received by Maureen Holtje, QPA of the Parking Authority on Thursday, September 26, 2013 at 10:00 a.m. in the office of the Fort Lee Parking Authority, 309 Main Street, Middle Bldg., Fort Lee, New Jersey 07024, at which time and place responses will be opened for:

"Parking/Engineering Consultant Services" for the Parking Authority for the Redevelopment Area 5, which consists of two parcels, east & west.

Specifications and instructions may be requested via the Fort Lee Parking Authority website at: www.fortleeparking.org Attn: Gloria Gallo, Administrator, Fort Lee Parking Authority, 309 Main Street, Fort Lee, New Jersey 07024: Response to RFP for Parking/Engineering Consultant Services for the Parking Authority for the Redevelopment Area 5.

A pre RFP meeting is scheduled for:
Date: Weds, August 28, 2013
Time: 10:00 a.m.
Place: Fort Lee Parking Authority
309 Main Street
Fort Lee, NJ 07024

All prospective Respondents are urged to attend.

Respondents shall comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27. A copy of your New Jersey Business Registration Certificate shall be included with your proposal.

Maureen Holtje, RPPS QPA
Fort Lee Parking Authority
August 22, 2013-fee:$51.03 (54) 3548037

POWERS KIRN, LLC
728 Marne Highway, Suite 200
Moorestown, NJ 08057
(856) 802-1000
Attorneys for Plaintiff
Frances M. Kelly, Esquire - 318132002
(2013-0688)
NOTICE TO ABSENT DEFENDANTS
Superior Court of New Jersey
Chancery Division
Bergen County
Docket No.F 024359 13
STATE OF NEW JERSEY TO:
Lusia Grecco , her heirs, devisees, and personal representatives and his/her, their, or any of their successors in right, title and interest
YOU ARE HEREBY SUMMONED and required to serve upon the Attorneys for Plaintiff, Powers Kirn, LLC, 728 Marne Highway, Moorestown, NJ 08057, an Answer to the Complaint filed in a Civil Action in which The Bank of New York Mellon f/k/a The Bank of New York as Trustee for Alternative Loan Trust 2004-16CB, Mortgage Pass-Through Certificates, Series 2004-16CB is Plaintiff and Lusia Grecco , et al., are Defendants, pending in the Superior Court of New Jersey, within thirty-five (35) days after August 22, 2013, exclusive of such date. If you fail to do so, judgment by default may be rendered against you for the relief demanded in the Complaint. You shall file your Answer and Proof of Service in duplicate with the Clerk of the Superior Court at the Richard J. Hughes Justice Complex, CN 971, 6th Floor, North Wing, Trenton, New Jersey, 08625, in accordance with the rules governing the courts. A $135.00 filing fee payable to the Clerk of the Superior Court and a completed Case Information Statement must accompany your answer or motion.
The action has been instituted for the purpose of foreclosing a mortgage dated May 24, 2004, recorded on June 28, 2004, in Book 13612 at Page 749 made by Lusia Grecco to Mortgage Electronic Registration Systems, Inc., as nominee for America's Wholesale Lender and duly assigned to plaintiff, The Bank of New York Mellon f/k/a The Bank of New York as Trustee for Alternative Loan Trust 2004-16CB, Mortgage Pass-Through Certificates, Series 2004-16CB, and concerns real estate located at 84 MacArthur Avenue, Garfield , NJ 07026, Block 38.04 Lot 20.
YOU, Lusia Grecco , her heirs, devisees, and personal representatives and his/her, their, or any of their successors in right, title and interest are made a defendant because you are the maker of the bond/note and mortgage and/or an owner thereof and Plaintiff is unable to determine the whereabouts of the defendant, and therefore, does not know whether he/she is living or dead, and therefore, names as defendantiii Lusia Grecco , her heirs, devisees, and personal representatives and his/her, their, or any of their successors in right, title and interest
You are further advised that an individual who is unable to obtain an attorney may communicate with the New Jersey State Bar Association by calling toll free 800-792-8315 (within New Jersey) or 609-921-6205-1101 (from out of state). You may also communicate with a Lawyer Referral Service, or if you cannot afford to pay an attorney you may call the Legal Services Office. The phone numbers for the county in which this action is pending are: Legal Services (201) 487-2166, Lawyer Referral (201) 488-0044.
Elisabeth Ann Strom, Acting
Clerk of the Superior Court
August 22, 2013-fee:$81.27 (86) 3546032

BOROUGH OF CLOSTER
NOTICE OF AMENDMENT OF CONTRACT AWARD FOR
PROFESSIONAL SERVICES
At the Regular Meeting held August 14, 2013, the Mayor and Council of the Borough of Closter awarded the following contract amendment to Boswell McClave Engineering Associates for Professional Engineering Services in conjunction with 2013 Barrier Free Curb Ramp Installations per proposal dated July 15, 2013 for an amount not to exceed $12,050.00.
This contract amendment is awarded without competitive bidding as a professional service under the provisions of the Local Public Contracts Law N.J.S.A. 40A:11-5(a)(i) because the above named is authorized by law to practice his recognized profession and it is not practical to obtain competitive bids. Additionally, the appointment is in accordance with the Fair and Open Process under New Jersey Law.
The contract and resolutions are available for inspection in the Borough Clerk's Office.
Loretta Castano, Borough Clerk
August 22, 2013-fee:$27.40 (29) 3548028

NOTICE OF INTENT TO TRANSFER LIQUOR LICENSE
NOTICE OF INTENT TO TRANSFER LIQUOR LICENSE TAKE NOTICE that application has been made to the Township Committee of Alcoholic Beverage Control of the Township of Millburn for a person to person transfer to Taub-Co License LLC, a Delaware LLC, whose mailing address is 200 E. Long Lake Road, Suite 300, Bloomfield Hills, MI 48304-2324, of the plenary retail consumption license #0712-33-005-004 heretofor issued to Chrimax Corporation, a New Jersey corporation, whose mailing address is 1 Ledgewood Drive, Cedar Grove, New Jersey 07009. Objections, if any, should be made to Christine Gatti, Township Clerk, Township of Millburn, 375 Millburn Avenue, Millburn, NJ 07041; (973) 564-7073. Taub-Co License LLC, 200 E. Long Lake, Suite 300, Bloomfield Hills, MI 48304-2324. Pub Date: August 8, 2013

The Item - 3542273
Fee:$21.16
August 22, 29, 2013

PUBLIC NOTICE
Notice is hereby given that bid proposals will be received via the Internet until 10:00:59 A.M. on 9/5/13 downloaded, and publicly opened and read, from Bidders classified under N.J.S.A. 27:7-35.1 et seq.; in the CONFERENCE ROOM-1C, 1st Floor E & O Building, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625; for:

Sign Structure Replacement Contract 2011-1, Contract No. SWI114270; Various Routes; Newark City, Ridgewood Village, Parsippany-Troy Hill Township, Woodbridge Township, Freehold Township, Camden City, Ewing Township, Carneys Point Township & Edison Township; Bergen, Morris, Middlesex, Monmouth, Camden, Mercer & Salem Counties
Federal Project No: STP-C00S(481) UPC NO: 114270
DP No: 13139

Bidders are required to comply with the requirements of P.L. 1975, c. 127 N.J.A.C 17:27.
For Federal projects, Bidders must register with both the New Jersey Department of Treasury and the Federal government pursuant to N.J.S.A 52:32-44 AND the "Public Works Contractor Registration Act", N.J.S.A. 34:11-56.48 et seq. (P.L.2003, c. 91) prior to contract execution. Appropriate proof of these registrations should be provided to NJDOT as soon as possible.

The Department, in accordance with Title VI Civil Rights Act of 1964, 78 Stat. 252 U.S.C., 49 C.F.R., Parts 21 and 23 issued pursuant to such Act, and Section 504 of the Rehabilitation Act of 1973 will afford minority business enterprises full opportunity to submit bids in response to this invitation and will not discriminate against any bidder on the grounds of race, color, sex, national origin, or handicap in the project award.

Plans, specifications, and bidding information for the proposed work are available at Bid Express website www.bidx.com. You must subscribe to use this service. To subscribe, follow the instructions on the web site. Fees apply to downloading documents and plans and bidding access. The fee schedule is available on the web site. All fees are directly payable to Bid Express.
Plans, specifications, and bidding information may be inspected (BUT NOT OBTAINED) by contracting organizations at our various Design Field Offices at the following locations:
200 Stierli Court
One Executive Campus Rt. 70 West
Mt. Arlington, NJ 07856
Cherry Hill, NJ 08002
Phone: 973-601-6690
Phone: 856-486-6623

New Jersey Department of Transportation
Division of Procurement
Bureau of Construction Services
1035 Parkway Avenue
PO Box 600
Trenton, NJ 08625
August 15, 22, 29, 2013-
Fee:$221.13 (78) 3544429

BID NOTICE
NORTH HUDSON REGIONAL FIRE AND RESCUE HUDSON COUNTY, NEW JERSEY
PLEASE TAKE NOTICE that sealed bids for the purchase of an 81 FOOT MID MOUNT AERIAL LADDER APPARATUS will be received by the Executive Director of Administration, North Hudson Regional Fire & Rescue ("NHRFR"), on September 4, 2013, at 11:00 a.m. prevailing time, at NHRFR Headquarters, 11 Port Imperial Boulevard, West New York, New Jersey 07093, at which time said bids will be publicly opened and read.
The NHRFR provides fire protection services to North Bergen, West New York, Weehawken, Union City and Guttenberg.

All bids must be on the proposal forms obtained from the NHRFR. All bids must be enclosed in a sealed envelope bearing the name and address of the bidder and the words "Apparatus- Sealed Bid." The envelope must be addressed to Executive Director of Administration, North Hudson Regional Fire & Rescue, 11 Port Imperial Boulevard, West New York, New Jersey 07093, and may be delivered by hand, overnight courier or mail. The envelope containing the bid must be received by the NHRFR by the date and time set forth above. No late bids will be accepted.

Specifications and other bid documents may be examined and obtained at the NHRFR Headquarters, 11 Port Imperial Boulevard, West New York, New Jersey 07093, during business hours, 9:00 a.m. to 4:00 p.m. The fee for the complete bid package is $50, payable in cash or certified check to North Hudson Regional Fire and Rescue.

Each bid must be accompanied by a certified check, cashier's check or bid bond from a surety company licensed to do business in New Jersey, in the amount of ten percent (10%) of the base bid submitted, but not in excess of $20,000.00, made payable to the North Hudson Regional Fire & Rescue.

All bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. (P.L. 1975, c. 127 as amended) and N.J.A.C. 17:27-1.1 et seq.

The NHRFR reserves the right to waive any minor irregularities or to reject any or all bids or parts of bid.

By order of the NHRFR Management Committee.
Jeffrey C. Welz, Executive Director
of Administration
North Hudson Regional Fire & Rescue
August 22, 2013-fee:$62.37 (66) 3548068

PUBLIC NOTICE
Take notice that in accordance with N.J.S.A. 39:10-16* application has been made to the Chief Administrator of the Motor Vehicle commission Trenton, NJ to receive title papers authorizing and issue New Jersey certification of ownership for Make Seagrave Year 1963 VIN N5700 Objections if any should be made in writing immediately to the Chief Administrator of the Motor Vehicle Commission Special Title Unit PO Box 017 Trenton, NJ 08666-0017.
Aug 19,22,26, 2013-fee:$36.87 (13) 3546761

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
NOTICE OF AVAILABILITY and REQUEST FOR COMMENT
Draft Environmental Assessment
Runway Safety Area Enhancements
LaGuardia Airport, Flushing, New York

In accordance with the National Environmental Policy Act (NEPA), notice is hereby given that copies of a Draft Environmental Assessment (EA) for the Runway Safety Area Enhancements Project at LaGuardia Airport are available for public review and comment at the following locations:

The Port Authority of NY & NJ
LaGuardia Airport
Physical Plant & Redevelopment
Hangar 7, 3rd Floor (Marine Air Terminal Area)
Flushing, NY 11371
Attn: Teddy Chen
Hours: 9:00 am to 4:00 pm

The Port Authority of NY & NJ
Aviation Department
Aviation Technical Services
225 Park Avenue South, 9th Floor
New York, NY 10003
Attn: Edward Knoesel
Hours: 9:00 am to 5:00 pm

The Draft EA document for this project will be available at these locations until the close of the comment period, which is September 23, 2013.In addition, a copy of this document may be viewed online at: http://www.panyni.gov/about/pdf/environmental-assessment-rsae-laguardia.pdf

The Runway Safety Area Enhancements project includes extension of the two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runway 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located airside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Blvd. This undeveloped area would be partially cleared and graded creating an approximate 9 acre area for construction laydown and staging. A new access point to the airport would be created in the vicinity of 19th Avenue and 81st Street which will be limited to construction vehicles only. This project will not have any long-term effect on aircraft operations at LGA. It is being done to enhance runway safety and comply with a Congressional mandate affecting airports nationwide. The EA responds to all of the requirements of the Federal Aviation Administration (FAA) for preparation of an Environmental Assessment under NEPA and also documents compliance with Federal Executive Order 11988, Floodplain Management, and Section 106 of the National Historic Preservation Act of 1966. The Port Authority is inviting the Public to submit, in writing, comments on the Draft EA prepared for the Runway Safety Area Enhancements project. The Port Authority is accepting comments on this Draft EA document until the official comment period closes on September 23, 2013. Comments must be received 5:00 PM on September 23, 2013 in order to be considered.

All comments on this Draft EA should be sent to: The Port Authority of NY & NJ, 233 Park Avenue South, 9th Floor, New York, NY 10003, Attn: Edward Knoesel. In addition, comments may be emailed to LGARSAEEA@panynj.gov with the subject heading "LGA RSAEEA COMMENT." If you have any questions on this notice please contact Edward Knoesel at the address above.
August 22, 2013-Fee:$113.40 (120) 3547793

NOTICES

Legal Notices

Legal Notices

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

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All comments on this Draft EA should be sent to: The Port Authority of NY & NJ, 233 Park Avenue South, 9th Floor, New York, NY 10003, Attn: Edward Knoesel. In addition, comments may be emailed to LGARSAEEA@panynj.gov with the subject heading "LGA RSAEEA COMMENT." If you have any questions on this notice please contact Edward Knoesel at the address above.

Notice of Formation of Limited Liability Company. Name: ZENAR LLC ("LLC"). Art. of Organization filed with the Secretary of State of the State of New York ("SSNY") on 5/31/2013. NY office location: Queens County. The SSNY has been designated as agent of the LLC upon whom process against it may be served. The SSNY shall mail a copy of any process to: 84-43 120th St., apt# B5, Kew Gardens, NY 11415 Purpose any lawful act or activity

Notice of Formation of UPTOWN CREATIVE, LLC, a domestic Limited Liability Company (LLC). Articles of Organization filed with the Secretary of State of NY (SSNY) on 07/18/2013. Location: New York County. SSNY designated as agent of LLC upon whom process against it may be served. SSNY may mail copy of process to: 86 Broadway, Gardens City Park, NY 11040.

Notice of Formation of 459 Fifth Avenue LLC. Arts. of Org. filed with NY Dept. of State on 8/2/13. Office location: Queens County. Princ. bus. addr.: 616 Lowell Rd., Concord, MA 01742. Sec. of State designated agent of LLC upon whom process against it may be served and shall mail process to: c/o Mark B. Elefante, Hemenway & Barnes LLP, 60 State St., Boston, MA 02109. Purpose: all lawful purposes.

Notice of Formation of 89-65 216 ST LLC, Art. of Org. filed Sec'y of State (SSNY) 5/24/13. Office location: Queens County. SSNY designated as agent of LLC upon whom process against it may be served. SSNY shall mail copy of process to c/o Dhanpaul Naraine, 220-29 Jamaica Ave., Queens Village, NY 11428. Purpose: any lawful activities.

Notice of formation of McKee's

Legal Notices

NOTICE OF SALE
SUPREME COURT COUNTY OF QUEENS, DEUTSCHE BANK NATIONAL TRUST COMPANY, AS TRUSTEE UNDER NOVASTAR MORTGAGE FUNDING TRUST, SERIES 2006-4, Plaintiff, vs. MURIEL MACASKILL, ET AL., ET AL., Defendant(s).
Pursuant to a Judgment of Foreclosure and Sale duly filed on August 29, 2008, I, the undersigned Referee will sell at public auction at the Queens County Courthouse, Courtroom 25, 88-11 Sutphin Boulevard, Jamaica, NY on August 30, 2013 at 10:00 a.m., premises known as 224-16 141st Street, Laurelton, NY. All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Queens, County of Queens, City and State of New York, Block 13152 and Lot 53.Approximate amount of judgment is $330,968.07 plus interest and costs. Premises will be sold subject to provisions of filed Judgment Index #5463/08. Yves-Merry Telemaque, Esq., Referee. Peter T. Roach & Associates, P.C., 125 Michael Drive, Suite 105, Syosset, New York 11791, Attorneys for Plaintiff

Notice of formation of PKPATHWAYS LLC. Articles of Org. filed with the Secretary of State of the State of New York (SSNY) on 6/6/2013. Office located in Queens county. SSNY has been designated for service of process. SSNY shall mail copy of any process served against the LLC to; THE LLC at 215-20 40th Ave., Bayside, NY 11361. Purpose: Any lawful activity or purpose.

Notice of Formation of Bengal Investing Group LLC Arts of Org. filed with NY Secy of State (SSNY) on 6/5/13. Office: Queens. SSNY is designated as agent of LLC upon whom process against it may be served and shall mail process to 41-21 97th Pl. Corona, NY 11368. Purpose: any lawful activity.

Notice of formation of L.D.I. LLC. Art. of Org. filed w. Secy of State of NY (SSNY) on 04/25/2012. Office loc: Queens County. SSNY designated as agent of LLC upon whom process against it may be served. SSNY shall mail copy of process to: 196-17 53rd Avenue, Fresh Meadows, NY 11365. Purpose: Any lawful activity.

Notice of formation of NUSHINI CONCEPTS LLC. Articles of Org. filed with the Secretary of State of the State of New York (SSNY) on 5/13/2013. Office located in Queens county. SSNY has been designated for service of process. SSNY shall mail copy of any process served against the LLC to; THE LLC at 142-35 84th Dr., Unit 2J, Briarwood, NY 11435. Purpose: Any lawful activity or purpose.

Notice of formation of Street Paws LLC. Articles of Org. filed with the Secretary of State of the State of New York (SSNY) on 2013. Office located in Queens county. SSNY has been designated for service of process. SSNY shall mail copy of any process served against the LLC to THE LLC at; 38 Mineola Ave., Roselyn Estates, NY 11576. Purpose: Any lawful activity or purpose.

Park Regent Kissena LLC, Arts. of Org. filed with SSNY on 06/28/13. Office Location: Queens County, SSNY designated as agent of LLC upon whom process against it may be served. SSNY shall mail a copy of process to: The LLC, 41-25 Kissena

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NOTICES

Social Announcements

I NEED CIVIL ATTORNEY w/GUTS My Civil Rights were violated by Corrupt Judges who tampered with & removed evidence. I have overwhelming evidence which will prove my allegations. Call 718-956-5051 LETS BANKRUPT NYC!

Relatives of Ms. J. Reese and Mr. L. Washington, of late a resident of The 1775-77-79 Madison Avenue HDFC, please contact manager Antonio Carter at hdfcmaint2012@gmail.com for an urgent matter regarding the sale of your family's property.

AUTOS

Autos For Sale

2007 Chevrolet Tahoe Black 2007 Chevrolet Tahoe LTZ Stealth Special Edition 5.3L RWD,Automatic,72,000 mil,Price:$14,000 - Call/TXT:(917) 409-8138 $14,000 (917) 409

THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY

NOTICE IS HEREBY GIVEN by National Grid NY that it issued and filed with the New York State Public Service Commission tariff revisions to its Schedule for Gas Service, PSC No.12-GAS.

The purpose of this filing is to clarify the method National Grid NY uses to credit customers with refunds National Grid NY receives from gas suppliers, pipeline transporters and storage providers. These revisions are to become effective October 1, 2013.

Copies of the proposed revisions may be examined at any office of National Grid NY where applications may be made in person for gas service or from the Public Service Commission, Three Empire State Plaza, Albany, New York 12223.

THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY
Kenneth D. Daly, President
One MetroTech Center
Brooklyn, NY 11201

LEGAL NOTICE

NOTICE OF SALE
SUPREME COURT: QUEENS COUNTY; NYCTL 1998-2 TRUST AND THE BANK OF NEW YORK MELLON AS COLLATERAL AGENT AND CUSTODIAN OF THE NYCTL 1998-2 TRUST; Plaintiff(s) vs. MARYANN CAMHI; et al; Defendant(s). Attorney(s) for Plaintiff s): ROSICKI, ROSICKI & ASSOCIATES, P.C., 2 Summit Court, Suite 301, Fishkill, New York, 12524, 845.897.1600. Pursuant to judgment of foreclosure and sale granted herein on or about May 7, 2013, I will sell at Public Auction to the highest bidder at Queens County Supreme Court located at 88-11 Sutphin Boulevard, in Courtroom #25, Jamaica, NY 11435. On September 20, 2013 at 10:00 AM Premises known as 149-30 88 STREET, HOWARD BEACH, NY 11414 Block: 11417 Lot: 3501 ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Queens, County of Queens, City and State of New York. As more particularly described in the judgment of foreclosure and sale. Sold subject to all of the terms and conditions contained in said judgment and terms of sale. Approximate amount of judgment $21,176.01 plus interest and costs. INDEX NO. 5250/10 Susan Lynn Borko, Esq., REFEREE

LEGAL NOTICE

NOTICE OF SALE
SUPREME COURT: QUEENS COUNTY WELLS FARGO BANK, N.A. AS TRUSTEE UNDER POOLING AND SERVICING AGREEMENT DATED AS OF AUGUST 1, 2005 ASSET-BACKED PASS-THROUGH CERTIFICATES SERIES 2005-WHQ4; PLAINTIFF(S) vs. OSWALD RUSSELL; FAY A. RUSSELL; et al; Defendant(s) Attorney (s) for Plaintiff (s): ROSICKI, ROSICKI & ASSOCIATES, P.C., 2 Summit Court, Suite 301, Fishkill, New York, 12524, 845.897.1600 Pursuant to judgment of foreclosure and sale granted herein on or about July 9, 2010, I will sell at Public Auction to the highest bidder at Queens County Supreme Court located at 88-11 Sutphin Boulevard, Courtroom #25, Jamaica, NY 11435. On September 6, 2013 at 10:00 AM Premises known as 215-04 110th Avenue, Queens Village, NY 11429 Block: 11129 Lot: 1 All that certain plot, piece or parcel of land, situate, lying and being in the Fourth Ward of the Borough and County of Queens, City and State of New York. As more particularly described in the judgment of foreclosure and sale. Sold subject to all of the terms and conditions contained in said judgment and terms of sale. Approximate amount of judgment $377,789.82 plus interest and costs. INDEX NO. 3765/2007 Catherine R. Glover, Esq., REF-

SOPA DE LETRAS

Decisiones serenas/ Por Ma. Esther Rodríguez
© Calli Casa Editorial

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BUSCAR DESDE "REFLEXIONAR"
HASTA "CHECOSLOVACO"

ASUNTOS PENDIENTES

"REFLEXIONAR SERENA, MUY, SERENAMENTE ES MUCHO MEJOR QUE TOMAR DECISIONES DESESPERADAS".
FRANZ KAFKA, ESCRITOR CHECOSLOVACO - (1883-1924)

Preguntas, comentarios: oye@callieditorial.com

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

NOTICE OF AVAILABILITY and REQUEST FOR COMMENT

Draft Environmental Assessment
Runway Safety Area Enhancements
LaGuardia Airport, Flushing, New York

In accordance with the National Environmental Policy Act (NEPA), notice is hereby given that copies of a Draft Environmental Assessment (EA) for the Runway Safety Area Enhancements Project at LaGuardia Airport are available for public review and comment at the following locations:

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The Port Authority of NY & NJ
Aviation Department
Aviation Technical Services
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The Runway Safety Area Enhancements project includes extension of the two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runway 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located airside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Blvd. This undeveloped area would be partially cleared and graded creating an approximate 9 acre area for construction laydown and staging. A new access point to the airport would be created in the vicinity of 19th Avenue and 81st Street which will be limited to construction vehicles only. This project will not have any long-term affect on aircraft operations at LGA. It is being done to enhance runway safety and comply with a Congressional mandate affecting airports nationwide. The EA responds to all of the requirements of the Federal Aviation Administration (FAA) for preparation of an Environmental Assessment under NEPA and also documents compliance with Federal Executive Order 11988, Floodplain Management, and Section 106 of the National Historic Preservation Act of 1966.The Port Authority is inviting the Public to submit, in writing, comments on the Draft EA prepared for the Runway Safety Area Enhancements project. The Port Authority is accepting comments on this Draft EA document until the official comment period closes on September 23, 2013. Comments must be received 5:00 PM on September 23, 2013 in order to be considered.

All comments on this Draft EA should be sent to: The Port Authority of NY & NJ, 233 Park Avenue South, 9th Floor, New York, NY 10003, Attn: Edward Knoesel. In addition, comments may be emailed to LGARSAEEA@panynj.gov with the subject heading "LGA RSAEEA COMMENT." If you have any questions on this notice please contact Edward Knoesel at the address above.

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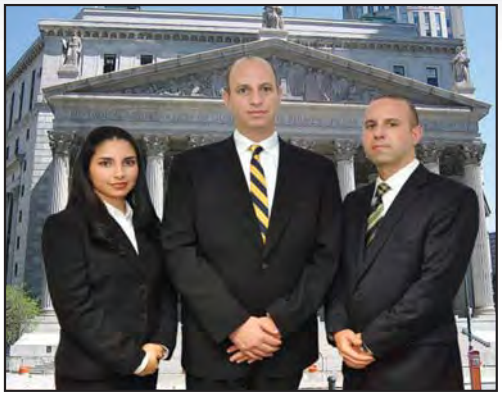

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718-841-7474
800-691-7472

LEGAL NOTICE

LC OPERATORS, LLC Articles of Org. filed NY Sec. of State (SSNY) 7/15/13 Office in Kings Co. SSNY design. Agent of LLC upon whom process may be served. SSNY shall mail copy of process to The LLC 2040 E 3rd St Brooklyn, NY 11223. Purpose: Any lawful activity. Registered Agent: Edward Dayan 2040 E 3rd St Brooklyn,NY 11223.

272899/18588

LEGAL NOTICE

PGN PROPERTIES LLC, a domestic LLC, Arts. of Org. filed with the SSNY on 6/13/13. Office location: Kings County. SSNY is designated as agent upon whom process against the LLC may be served. SSNY shall mail process to: The LLC, 6807 11th Ave., Brooklyn, NY 11219. General Purposes.

272927/10709

LEGAL NOTICE

SABOR BROOKLYN LLC, a domestic LLC, Arts. of Org. filed with the SSNY on 4/17/13. Office location: Kings County. SSNY is designated as agent upon whom process against the LLC may be served. SSNY shall mail process to: The LLC, 57 7th Ave., Brooklyn, NY 11217. General Purposes.

272887/10709

LEGAL NOTICE

FENNEL REALTY LLC Articles of Org. filed NY Sec. of State (SSNY) 6/21/13 Office in Kings Co. SSNY design. Agent of LLC upon whom process may be served. SSNY shall mail copy of process to The LLC 231 Suydam St Ste 2I. Brooklyn, NY 11237. Purpose: Any lawful activity.

272898/18588

LEGAL NOTICE

Point Cutters Salon, LLC. Articles of Org. Filed with SSNY 04/18/13. Office loc.: Nassau County. SSNY designated as agent upon whom process may be served. SSNY shall mail process to c/o: THE LLC, (1375 Jerusalem Avenue, Merrick, NY, 11566). General Purposes.

272946/18714

LEGAL NOTICE/PUBLIC NOTICE

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Attn: Teddy Chen
Hours: 9:00 am to 4:00 pm

The Port Authority of NY & NJ
Aviation Department
Aviation Technical Services
225 Park Avenue South, 9th Floor
New York, NY 10003
Attn: Edward Knoesel
Hours: 9:00 am to 5:00 pm

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Penelope Casas, 70, Helped Intuisine in United States

BUSINESS OF NEW JERSEY

C.R. Bard settles suit over mesh implants

By Jef Feeley
BLOOMBERG NEWS

C.R. Bard agreed to settle a woman's claims that its vaginal-mesh implants caused her injuries as the second federal trial of lawsuits over the devices was about to begin in West Virginia.

Attorneys for Wanda Queen of North Carolina notified a judge in Charleston, W.Va., yesterday that they had settled the case. She said Bard's Avaulta insert caused pain and forced her to have six surgeries. The accord came a week after a jury ordered Bard to pay $2 million in damages in another West Virginia suit involving the product.

Terms of the settlement weren't disclosed. Scott Lowry, a Bard spokesman, said yesterday's settlement covered only Queen's claims and wasn't part of a larger resolution of thousands of others that are pending.

"This is a large, complex litigation and Bard will consider each case based on the facts and merits," Lowry said in an e-mailed statement. "We will continue to vigorously defend against all other lawsuits involving Avaulta."

Bard, based in Murray Hill, faces more than 8,000 claims over Avaulta, which women allege can cause organ damage and make sexual intercourse painful when the devices erode. Johnson & Johnson, Endo Health Solutions and Boston Scientific face similar claims that their implants, threaded in place through vaginal incisions, shrink over time.

Shares of Bard rose about 1.3 percent, to $114.44, after the settlement was announced.

The implant cases against Bard and other manufacturers have been consolidated before U.S. District Judge Joseph Goodwin in Charleston for pretrial information exchanges.

Bard officials pulled the Avaulta implants off the market last year after the U.S. Food and Drug Administration ordered all makers of the devices to study rates of organ damage, infection and pain during sex linked to their products.

A California state court jury last year found Bard liable for a woman's injuries tied to an Avaulta implant in the first case to go trial in any U.S. court. Jurors said the company should pay $5.5 million in damages. Bard is liable for only $3.6 million under state law.

A West Virginia jury concluded Aug. 15 that Bard should pay $250,000 in compensatory damages and $1.75 million in punitive damages to Donna Cisson, a nurse from Georgia who had an Avaulta Plus device implanted. Cisson said the mesh damaged her organs and caused other ailments, in the first case to be tried in a U.S. federal court.

Queen, a bank executive from Raleigh, N.C., alleged that her Avaulta Solo device, implanted to reinforce falling pelvic organs, left her in severe pain and unable to comfortably have sex, according to court filings.

She was forced to switch to a less-demanding executive post at Vantage South Bank in Raleigh, according to the filings.

Goodwin has set two other Bard mesh cases for trial starting in October, according to court dockets. The bellwether cases are designed to allow both sides to see how juries evaluate different claims.

"We're pleased to have resolved the case, and we're preparing to try the next set of claims starting in October," Don Migliori, one of Queen's lawyers, said in an e-mailed statement.

Homes

CONTINUED FROM PAGE 26

below the year-earlier level of 6.3 months.

"The situation still remains tight, but other industry reports suggest that we appear to be in the early stages of a loosening up in the inventory situation," said Stephen Stanley, an economist at Pierpont Securities.

Rising prices may support inventories, as more sellers are willing and able to place their homes on the market.

NAR reported the median price of a home was $213,500 in July, up 13.7 percent from the year-earlier level.

NAR added that all-cash deals remained high in July, while there were relatively few first-time buyers and distressed sales.

If prices continue to rise as such high annual rates, that could spell trouble. The market needs home builders to ramp up production and expand inventories, said Lawrence Yun, NAR's chief economist.

But builders still face a variety of head winds.

Tomorrow, the government will report new-home sales, and economists expect the annual rate to decline to 485,000 in July, from a rate of 497,000 in June.

Hospital

CONTINUED FROM PAGE 26

tools to get patients more involved in their care also should reduce hospital readmissions, Larmore said, which is another factor affecting reimbursements.

"In the past, hospitals looked at bedside technologies that improved a patient's experiences as luxuries. But once they were mandated to focus on patient satisfaction, there was renewed interest," Larmore said. "Hospitals being built in the last eight years are starting to look more like hotels, which is the industry where some of this technology has come from."

Larmore estimates about 10 percent to 15 percent of acute-care hospitals nationwide currently have interactive patient terminals. Cost has been the reason many have held back, he said, as systems can run "several hundred dollars to a couple thousand dollars" per room.

"Project managers are used to spending millions of dollars on a fancy lobby, but not several hundred dollars on a television system," Larmore said.

Many of the early adopters have been children's hospitals, he said, "because kids focus on their environment and adapt to the technology."

Joe DiMaggio Children's Hospital in Hollywood, Fla., has replaced televisions with interactive monitors. The GetWell Town system, a pediatric product from GetWellNetwork, was part of the new Joe DiMaggio building construction in 2011, then later was expanded into the original hospital.

TAIMY ALVAREZ/SUN SENTINEL

Chuck Rivenburgh III, paralyzed while serving in Desert Storm, said the GetWellNetwork in his room has greatly improved his life.

"When we were doing the new building, we talked to the kids about what they wanted and they said a computer in their room," said Michelle Barone, director of patient and family centered care for Joe DiMaggio and Memorial Regional Hospital, also in south Florida. "They wanted to be able to get on the internet and watch movies without waiting for a volunteer to bring them a DVD."

GetWell Town does all that — plus has medical education videos, a hospital-wide game show and an interface that lets young patients bring in their own Xbox or Wii games.

Barone said Memorial has discussed bringing interactive systems to the adult hospitals, "but right now, it's all about the numbers," she said. "When kids are in the hospital, we go above and beyond to cheer them up. We forget that when you're an adult, you want to be coddled a little, too."

The VA, which has its own federal health care funding, believes the monitoring systems will greatly improve life for veterans residing in their Community Living Centers, which will be the among the first units to get the terminals.

The Miami VA, the first Florida veterans hospital to receive its systems, started the $2.4 million project in June, installing 230 units in the living center and some in-patient rooms.

Chuck Rivenburgh III, 43, is one of four paralyzed vets in Miami's living center who got a "sip and puff" adapter, allowing him to flip through 48 television channels and pick from among 30 recently released movies by blowing through what looks like a double-pronged straw.

The monitor is mounted on a flexible arm attached to the wall, allowing it to be pulled close to Rivenburgh's bedside.

Rivenburgh, who served in the Army during Desert Storm but was injured after returning home, has lived at the VA hospital for 14 years. Before the GetWell system, he said he was limited to 14 TV channels, none of which included NFL football.

He is thinking of adding a keyboard to his tray table so he can access the internet through his bedside monitor.

"My TV is on pretty much all day long, so all these functions are a huge improvement," he said.

HUDSON REGIONAL HEALTH COMMISSION
PUBLIC NOTICE

In Compliance with section 9.10 and 9.15 of the New Jersey Pesticide Control Code (N.J.A.C. Title 7, Chapter 30), the Hudson Regional Health Commission, Mosquito Control Unit, 595 County Avenue, Secaucus, New Jersey, may be applying pesticides for the control of adult mosquito populations on an area-wide basis, as needed, throughout Hudson County during the period of April 1st, 2013 through November 30th, 2013.

The pesticides used will be those recommended by the New Jersey Agricultural Experiment Station (NJAES), Rutgers University, which include: resmethrin and pineronyl butoxide (Scourge®); sumithrin, prallethrin and piperonyl butoxide (Duet®); etofenprox (Zenivex E20) and/or malathion (Fyfanon®, Atrapa®). Products may be applied by truck, handheld equipment, and/or by aircraft, all using thermal fog, low volume (LV) and/or ultra low volume (ULV) techniques. All applications will be made according to product labeling.

Upon request the Hudson Regional Health Commission shall provide a resident with notification at least 12 hours prior to the application, except for Quarantine and Disease Vector Control only, when conditions necessitate pesticide applications sooner than that time. For updated information on time and location of adult mosquito control application(s), call (201) 223-1133, or visit the Health Commission web site at http://www.hudsonregional.org/mosquito.

Contact the National Pesticide Information Center at (800) 858-7378 for routine pesticide related health inquiries. Call the New Jersey Pesticide Control Program at (609) 530-4070 for pesticide regulation information, pesticide complaints, and health referrals. In the case of any pesticide emergency please contact the New Jersey Poison Information and Education System at (800) 222-1222.

Those seeking further information regarding the Hudson Regional Health Commission mosquito control activities are invited to contact Dr. Gregory M. Williams, Superintendent of Mosquito and Vector Control, NJDEP LIC. No 29507B, at (201) 223-1133, 595 County Ave., Bldg. 1, Secaucus, NJ 07094.

6/27,7/25,8/22,9/19,10/17/2013 $609.00

ABANDONED CAR AUCTION NOTICE

In accordance with N.J.S.A. 39:10A-1 and N.J.S.A. 40A:14-157 the Township of West Orange will hold for sale at public auction on Wednesday September 4, 2013 at 2:00 pm prevailing time, the vehicles listed below. Sale will be held and vehicles may be inspected at Twin Towing, Inc., 1 Lakeside Avenue, West Orange, NJ 07052.

YEAR	MAKE	VEHICLE ID
2003	MIT	JA3AJ26EX3U055034
2002	DOD	2B4GP44312R507632
1995	TOY	JT2ST07N8S0017920
1970	CAD	6968069WD2449
1998	VOL	YV1LS5644W1418640

In accordance with N.J.S.A. 39:10A-1 and N.J.S.A. 40A:14-157 the Township of West Orange will hold for sale at public auction on Wednesday September 4, 2013 at 3:00 pm prevailing time, the vehicles listed below. Sale will be held and vehicles may be inspected at Select Towing, 52 Washington Street, West Orange, NJ 07052.

YEAR	MAKE	VEHICLE ID
1998	HON	1HGEJ8241WL091922

All of the above vehicles shall be sold as transferable titles. Sales are subject to payment of all accumulated towing and storage charges. A 25% deposit will be required in cash and the balance payable in payable in 24 hrs. Vehicles will be removed from the storage premises at buyer's expense within 48 hours of the sale date.

Anne DeSantis
Purchasing Agent

$135.72

ORDINANCE OF THE BOARD OF FREEHOLDERS
COUNTY OF ESSEX

ORDINANCE NO. O-2013-00010 AUTHORITY FOR ORDINANCE: N.J.S.A. 40:41A-38(n)
PROPOSED BY: COUNTY EXECUTIVE AUTHORITY FOR ACTION: N.J.S.A. 40:41A-36(i)

SUBJECT: AUTHORIZATION TO AMEND ORDINANCE NO. O-1987-00019 AS AMENDED FOR THE YEAR 2013 FEE SCHEDULE FOR COUNTY PARKS AND RECREATIONAL FACILITIES

WHEREAS, pursuant to N.J.S.A. 40:32-7.11, Essex County Ordinance No.O-1987-00019, as amended, established admission charges and fees for County parks and recreational facilities and activities; and

WHEREAS, the County Executive through the Department of Parks Recreation and Cultural Affairs, has submitted for Freeholder approval, a revised schedule of fees for County Parks and Recreational Facilities and Activities specifically for the New Rope Courses and Zip Line at the Turtle Back Zoo; now, therefore, be it

ORDAINED, by the Essex County Board of Chosen Freeholders:

1. That Ordinance No.O-1987-00019, as amended, is hereby further amended by the establishment of the fees schedules attached hereto and incorporated herein specifically for the New Rope Courses and Zip Line at the Turtle Back Zoo, referred to therein as "Amended 2013 Proposed Fees schedule" effective as of the adoption of this Ordinance.
2. Any provision of any prior ordinances inconsistent with the provisions of this Ordinance shall be deemed repealed to the extent of such inconsistency.
3. The Clerk of the Board is hereby directed to publish and distribute this Ordinance in accordance with law.
4. A public hearing on this Ordinance shall be held on Wednesday, September 11, 2013, @ 7:00 PM at the Hall of Records, Room 506, 465 Dr. Martin Luther King, Jr., Blvd., Newark, NJ
5. Upon adoption, the Clerk of the Board shall forward certified copies of this Ordinance to Daniel K. Salvante, Director, Department of Parks, Recreations and Cultural Affairs.

Approved as to form and legality James Paganelli, County Counsel

RECORD OF VOTE (X=Vote N.V.=Abstention ABS=Absent)

FIRST READING		Beasley		
MOVED BY FREEHOLDER		Johnson		
SECONDED BY FREEHOLDER				
FREEHOLDER	YES	NO	N.V.	ABS
BEASLEY	X			
BOBADILLA				X
CLARK	X			
GILL	X			
JOHNSON	X			
LUCIANO	X			
OWENS	X			
SEBOLD, V.P.	X			
WATSON, PRES.	X			

It is hereby certified that the foregoing Resolution was adopted by a roll call vote at a Regular meeting of the Freeholders of the County of Essex, New Jersey, held on August 14, 2013

Blonnie R. Watson, President

Essex County
Department of Parks Recreation & Cultural Affairs
AMENDED
2013
Fee Schedule
(CHANGES ONLY)
ESSEX COUNTY PARKS, RECREATION AND CULTURAL AFFAIRS
TURTLE BACK ZOO FEE STRUCTURE

CATEGORY	CURRENT RATE	PROPOSED RATE
Ropes Course Admission	$20	N/A
30 Element Ropes Course 54" and Above	N/A	$25
300 Foot Zip Line Only 54" and Above	N/A	$10
30 Element Ropes Course and 300 Foot Zip Line 54" and Above	N/A	$30
"Junior Course" 54" and Below	N/A	$15
Zoo / Ropes Course Combo Adult (includes 30 element Ropes Course) (Price if purchased separately $36)	$27	$35
Zoo / Ropes Course Combo Child (includes "Junior" Ropes Course) (Price if purchased separately $23)	$25	$21
SWRC Complex Combo Adult (admission tickets to Zoo, 30 Element Ropes Course, Arena and skate rental -- Price if purchased separately $48)	$44	$45
SWRC Complex Combo Child (admission tickets to Zoo, "Junior" Ropes Course, Arena and skate rent -- Price if purchase separately $33)	$39	$30

$403.68

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
NOTICE OF AVAILABILITY and REQUEST FOR COMMENT
Draft Environmental Assessment
Runway Safety Area Enhancements
LaGuardia Airport, Flushing, New York

In accordance with the National Environmental Policy Act (NEPA), notice is hereby given that copies of a Draft Environmental Assessment (EA) for the Runway Safety Area Enhancements Project at LaGuardia Airport are available for public review and comment at the following locations:

The Port Authority of NY & NJ
LaGuardia Airport
Physical Plant & Redevelopment
Hangar 7, 3rd Floor (Marine Air Terminal Area)
Flushing, NY 11371
Attn: Teddy Chen
Hours: 9:00 am to 4:00 pm

The Port Authority of NY & NJ
Aviation Department
Aviation Technical Services
225 Park Avenue South, 9th Floor
New York, NY 10003
Attn: Edward Knoesel
Hours: 9:00 am to 5:00 pm

The Draft EA document for this project will be available at these locations until the close of the comment period, which is September 23, 2013.In addition, a copy of this document may be viewed online at: http://www.panynj.gov/aboutpdf/environmental-assessment-rsae-laguardia.pdf

The Runway Safety Area Enhancements project includes extension of the two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runway 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located airside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Blvd. This undeveloped area would be partially cleared and graded creating an approximate 9 acre area for construction laydown and staging. A new access point to the airport would be created in the vicinity of 19th Avenue and 81st Street which will be limited to construction vehicles only. This project will not have any long-term affect on aircraft operations at LGA. It is being done to enhance runway safety and comply with a Congressional mandate affecting airports nationwide. The EA responds to all of the requirements of the Federal Aviation Administration (FAA) for preparation of an Environmental Assessment under NEPA and also documents compliance with Federal Executive Order 11988, Floodplain Management, and Section 106 of the National Historic Preservation Act of 1966. The Port Authority is inviting the Public to submit, in writing, comments on the Draft EA prepared for the Runway Safety Area Enhancements project. The Port Authority is accepting comments on this Draft EA document until the official comment period closes on September 23, 2013. Comments must be received 5:00 PM on September 23, 2013 in order to be considered.

All comments on this Draft EA should be sent to: The Port Authority of NY & NJ, 233 Park Avenue South, 9th Floor, New York, NY 10003, Attn: Edward Knoesel. In addition, comments may be emailed to LGARSAEEA@panynj.gov with the subject heading "LGA RSAEEA COMMENT." If you have any questions on this notice please contact Edward Knoesel at the address above.

Township of Manalapan Fire District No. 2

Synopsis of audit report of the Township of Manalapan Fire District No. 2, Monmouth County, New Jersey for the years ended December 31, 2012 and 2011 as required by N.J.S. 40A:5A-16.

Statements of Net Assets

	2012	2011
Assets		
Cash and Investments	$1,280,304	$1,200,659
Prepaid Insurance	4,864	6,931
Capital Assets, net	2,436,836	2,550,302
Total Assets	$3,722,004	$3,757,892
Liabilities and Net Assets		
Current Liabilities:		
Accounts Payable	$30,493	$19,977
Encumbrances Payable	7,273	19,475
PERSPP	9,132	9,535
Reserve for LOSAP Trust	124,115	110,639
Accrued Interest	6,300	7,088
Capital Lease Payable - Current	41,810	39,914
Serial Bonds Payable - Current	160,000	150,000
Other Liabilities	379,123	356,628
Capital Lease Payable - Long Term	43,796	85,606
Serial Bonds Payable - Long Term	580,000	740,000
Total Liabilities	1,002,919	1,182,234
Net Assets:		
Invested in Capital Assets, Net of Accumulated Depreciation and Related Debts	1,604,930	1,527,694
Restricted for Capital Acquisitions	300,276	207,926
Unrestricted	813,879	840,038
Total Liabilities and Net Assets	2,719,085	2,575,658
	$3,722,004	$3,757,892

Statements of Revenues, Expenses and Changes in Net Assets

Revenue and Other Financing Sources		
District Taxes	$1,057,156	$1,032,482
Supplemental Fire Service Grant	2,631	2,631
Interest on Deposits and Investments	6,214	7,542
Miscellaneous Income	11,569	206
Loss on Disposition of Fixed Assets	(2,280)	(491)
Total Revenue and Other Financing Sources	1,075,290	1,042,370
Expenditures		
Operating	931,863	895,459
Excess of Revenues Over Expenditures	143,427	146,911
Net Asset Beginning of the Year	2,575,658	2,428,747
End of the Year	$2,719,085	$2,575,658

Recommendations
None

The above synopsis was prepared from the report of the audit of the Manalapan Township Fire District No. 2, County of Monmouth, for the years ended December 31, 2012 and 2011.

The report of audit, submitted by Ronald C. Petrics, CPA, RMA, is on file at the Board of Fire Commissioners office and may be inspected by any interested person.

J. Spevak
Secretary of the Board
Manalapan Township Fire District No. 2

$267.96

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

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1 New Accounts and new money only. APY effective August 12, 2013. Annual percentage yield assumes principal and interest remain on deposit for a full year at current rate. Minimum deposit balance of $5,000 is required. IRAs are not eligible. Funds cannot be transferred from an existing Flushing Bank account. Premature withdrawals may be subject to bank and IRS penalties. Rates and offer are subject to change without notice. 2 New accounts and new money only. Existing checking account customers are not eligible. An existing checking customer is defined as anyone who currently has or has had a Flushing Bank checking account within the last 24 months. New money is defined as money not currently on deposit with Flushing Bank. The APY is effective March 1 2013. The annual percentage yield (APY) for BestRate Checking is 1.00% and will remain in effect for 90 days after account opening. At the end of this 90-day period the rate will revert to 0.60% and rate may change at any time without notice. You must maintain a daily balance of $5,000 for the statement cycle to receive the disclosed yield and to avoid the monthly maintenance fee of $10. A daily balance below $5,000 will be assessed a lower Annual Percentage Yield. Fees may reduce earnings. 3 New accounts and new money only. Existing checking account customers are not eligible. An existing checking customer is defined as anyone who currently has or has had a Flushing Bank checking account within the last 24 months. This offer is limited to one checking account per household. Minimum deposit required to open a new checking account is $100. Debit Card Purchases – You will receive $75 for the completion of 5 debit card purchases. Each debit card purchase must be $25 or more. Online Banking Bill-payments OR Direct Deposit – You will receive $75 for completing 5 online banking bill-payments via Flushing Bank's Online Banking portal OR signing up for and receiving a recurring direct deposit of $250 or more. Each online bill-pay must be $25 or more. Tax refund checks do not qualify as direct deposit. Online Bill payments, Debit Card Purchases and Direct Deposits must be completed prior to 60 days after the account is opened. THE MAXIMUM AMOUNT ANY CUSTOMER CAN RECEIVE IS $150. The compensation will be credited to the checking account on or about 75 days after the account is opened. A 1099 will be issued in the amount credited to your account. Other fees and restrictions may apply. Speak with a Flushing Bank representative for more information. All offers are subject to change and termination without prior notice at any time. From Forbes.com March 18, 2013. © 2013 Forbes.com LLC. All rights reserved. Used by permission and protected by the Copyright Laws of the United States. The printing, copying, redistribution, or retransmission of this Content without express written permission is prohibited.

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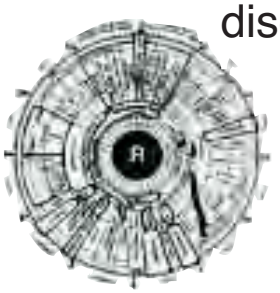

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For Free Consultation: 718-766-8875
sandeepayurvedic.com
drmohsin203@gmail.com

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Queens DA's Office Scores High On Performance Charts

BY JOHN TOSCANO

A report issued last week by Mayor Michael Bloomberg and the city's criminal justice officials gave high performance ratings to Queens D.A., Richard A. Brown's office, which continues to be a leader in many of the critical areas that are the focus of the report.

The city's Summer 2013 Criminal Justice Indicator Report found Brown's office has the highest conviction rates for violent felony arrests, the lowest re-arrest rate in the city, and continues to have the quickest arraignment times in the city.

Commenting on the report, Brown stated:

"The report's statistical evidence offers, without a doubt, substantial proof that Queens County is and continues to be a citywide leader in many categories, including consistently maintaining the best arrest to arraignment time in the city and the highest violent felony conviction rate.

"The bottom line is that we—together with our law enforcement colleagues—are providing a safer environment in which to live for the 2.3 million residents of Queens County, as well as for those working [in] or are just visiting our great county."

The report provides insight on how the city's criminal justice system is functioning and also how it is changing. Also, the report is designed to promote public awareness and the use of data-informed decision-making.

Statistics in the report are based on data from the judiciary, the city's five elected district attorneys and the Office of the New York City Special State Narcotics Prosecutor and other New York City criminal justice agencies.

Among the Indicator Report's key findings were:

•Queens County's conviction rate for violent felony arrests in 2012 was the highest among the city prosecutors—60 percent. The citywide average was 52 percent.

•Queens County continues to have the best arrest-to-arraignment time in the city for the first six months of 2013. The citywide average for this category is 21.71 hours, while Queens County arraigns defendants in 20.27 hours.

•Queens County maintains the lowest re-arrest rate in the city with just 26 percent of people being re-arrested for a crime within a year and 10 percent being re-arrested for a felony within a year. Citywide, 33 percent of people arraigned in 2009 (the last year for which there is available data) were re-arrested for another crime within a year and 13 percent were re-arrested for a felony crime within a year.

•In Queens County, 86 percent of all Supreme Court defendants arrested for possession of an illegal gun are sentenced to incarceration and 77 percent are sentenced to prison. Citywide, 80 percent of defendants are sentenced to incarceration and 54 percent are sentenced to prison.

•Queens County, together with New York County, lead the city in the percentage of Operation Spotlight defendants who were sentenced to jail between April 2012 and September 2012—62 percent. Operation Spotlight was created in October 2003 to target the most persistent misdemeanor offenders.

•Queens County has the second lowest rate of "high risk" felony defendants being released at arraignment—26 percent—and is well below the citywide average of 33 percent. High risk defendants are those defendants who are classified as not being recommended for release because of their high risk for flight by the New York City Criminal Justice Agency, a private, nonprofit corporation providing pre-trial release services in New York City's Criminal Courts.

"The report's statistical evidence offers, without a doubt, substantial proof that Queens County is and continues to be a citywide leader in many categories, including consistently maintaining the best arrest to arraignment time in the city and the highest violent felony conviction rate..."

•Similarly, 54 percent of felony defendants were detained at arraignment in Queens County in 2012 compared to 53 percent citywide.

•The failure-to-appear rate for released defendants in Queens County in 2011 (the last year for which there is available data) was nine percent, the lowest in the city. The success in driving down the rate at which defendants fail to appear in court can be attributed, in part, to the fact that in 2012, Queens County brought 46.1 percent of New York City's felony bail jumping indictments and 87.1 percent of the city's misdemeanor bail jumping complaints.

Police arrest alleged Sunnyside arsonist

Former councilman's car burned

by Josey Bartlett
Editor

A 22-year-old man was arrested Monday for allegedly lighting several piles of garbage and the car of a former councilman on fire early Sunday morning, police said.

Devon Page, who lives a couple blocks from the incidents, was charged with five counts of arson.

Former Sunnyside councilman Eric Gioia's SUV went up in flames while it was sitting in his driveway across from Sunnyside Garden Park on 49th Street and 39th Avenue. Police responded at 5 a.m. on Sunday, but did not suspect that the politician was specifically targeted. The home suffered some heat damage, according to District Attorney Richard Brown.

"We are fine! The car not so much," Gioia posted on Facebook, "Just went up fast while sitting in my driveway."

Former Councilman Eric Gioia's car was burned by an unknown suspect. FACEBOOK PHOTO

Two rubbish fires were found on the block and two more on 50th Street and 39th Avenue.

Police have video footage of the alleged arsonist. He faces up to 25 years in prison if convicted.

Interracial couple attacked in LIC

Charges could be upgraded to hate crime

by Josey Bartlett
Editor

An interracial couple was attacked leaving a waterfront bar in Long Island City early Saturday morning, police said.

A group of three men yelled racial slurs at Jacob James-Vogel, 37, and his wife, Billie, 40, as they left the restaurant Shi on Center Boulevard at 2 a.m. As the couple began to walk away, one of the suspects assaulted them, according to the NYPD.

Police charged Nikolaos Katsos, 28, with assault and harassment. The charges could be upgraded, police said.

James-Vogel sustained non-life threatening injuries to his face. His wife was thrown to the ground when she tried to stop the assault and blacked out as her head hit the sidewalk.

There were reports that the restaurant's management refused to allow the couple back in after the incident. In an online statement on its website they "vehemently" deny such claims.

"We were not aware of the incident until it was over," the statement reads. "Neither Billie or Jacob Vogel was turned away."

"As a business serving Long Island City and beyond, we have a very diverse clientele and are very involved in the community. We strongly condemn discrimination in all forms and under no circumstances would we turn away anyone who needed help for whatever reason," the statement adds.

Police are still looking for the other two men.

The James-Vogels could not be reached by press time.

Billie, left, and Jacob James-Vogel were attacked by three men early Saturday morning outside an LIC restaurant. FACEBOOK PHOTO

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Nomination requirements are:

A) That the student excel in academics in addition to participation in extra-curricular school activities.

B) A nominating letter from your school's guidance counselor and instructors describing the student's abilities and why they would be worthy of this recognition.

C) Please make sure that the student's bio and a recent photo are included with the nomination.

D) Categories are:
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If you have any questions, you may contact me at:
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QueensWay supporters announce cost analysis

BY BIANCA FORTIS

Andy Stone, the New York City program director of the Trust for Public Lands, leads a walking tour through the abandoned Rockaway Beach Branch. Photo by Bianca Fortis

Two New York design firms have been chosen to conduct a feasibility study for the QueensWay, a proposed project that would transform 3 1/2 miles of an abandoned railway into a linear park, the Trust for Public Land and Friends of the QueensWay announced Tuesday.

WXY Architecture and dlandstudio, both based in New York, were chosen to determine engineering cost estimates and to create a "community vision" for the park, according to Marc Matsil, the New York state director of the trust.

Twenty-nine proposals for the project were considered and they came from as far away as China, according to Andy Stone, director of the New York City program of the trust. The study is expected to begin by early September and will take about 10 months, he said.

The concept for the park was inspired by Manhattan's High Line. It would reach from Rego Park to Ozone Park, crossing through Forest Park.

The trust, a land conservancy group, secured a $467,000 grant from Gov. Andrew Cuomo's office in order to do the study.

Matsil said supporters of the project believe it could be the city's most iconic and economically transformative project.

About 250,000 people reside within a mile of the park and could benefit from it, he said.

Andrea Crawford, a member of Community Board 9, said park space, especially in Queens, is being threatened.

"How exciting is it that we're creating 55 new acres of linear park space when we're being told there is no park space?" she said.

Crawford said access to Forest Park can be difficult, but the QueensWay would help solve that problem.

"Whether we're taking our kids to school, eating in restaurants, simply talking to neighbors, the level of excitement in central and southern Queens for the QueensWay is off the charts," she said.

She said the QueensWay would give parkgoers better access to the "retail and food offerings in the culturally rich neighborhoods" through which the park would run.

She also referenced a New York Times op-ed, "A High Line in Queens: Just Imagine the Food," which envisions small shops and stands along the walkway that could feature "cheese guava buns, dim sum dumplings, pani puri or yam fufu."

More than 2,000 people have signed an online petition asking the city to create the greenway.

The railway was built as part of the old Rockaway Beach Branch of the Long Island Rail Road system. It was decommissioned in 1962 and has sat dormant ever since.

One group, primarily residents of the Rockaways, would rather see train service reactivated.

Train service would not only be a way to speed up travel times, but it could be a boost to economic development, according to the proponents of reactivating the line.

A 2001 Metropolitan Transportation Authority feasibility study, however, determined that running trains on the track would be cost prohibitive.

Another group of residents, who live immediately adjacent to the railway, oppose both projects.

One of those residents, Neil Giannelli, was present Tuesday.

"The devil is in the details," he said after the announcement.

His primary concern is that safety and privacy would be compromised for the individuals who live immediately next to the railway if a park is created because some of their homes are so close to it.

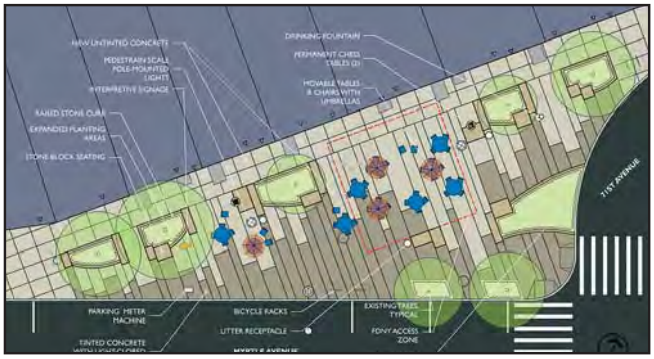
In response to Crawford's comments about food, he said he is concerned that food options within the park can suck away foot traffic from the mom-and-pop shops in the surrounding neighborhoods.

"It worries me that this could be the ignition point for gentrification," he said. "Then all this wonderful diversity we have disappears."

WESTERN QUEENS THIS WEEK

Revised Ridgewood Pedestrian Plaza Presented

BY LUIS GRONDA
Staff Writer



A rendering of the proposed Plaza in Ridgewood.

Ridgewood residents voiced their opinions on plans for a pedestrian plaza in the neighborhood including bike racks and space to grow agriculture.

The second version of the Ridgewood pedestrian plaza was shown at a public workshop Monday night. The workshop gave residents and community leaders another chance to see what the Dept. of Transportation has in store for the plaza, which will be on 71st Avenue between Myrtle Avenue and Stephen Street.

This is the second public meeting the agency has hosted, in conjunction with the Dept. of Design and Construction and three engineering companies involved with the project, since it was announced last year.

Ryan Kovac, a representative from Mathews Nielsen, one of the companies involved with the project, said this version of their proposal changed many aspects of the plaza based on the public's suggestions from the first workshop held earlier this year. This includes the call for more green space in Ridgewood, to make the plaza flexible to host community events and live concerts and the need for bike racks close to the space.

One thing they were not able to accommodate in the new design is to maximize the number of trees in the proposed plaza.

Kovac said the utility lines and water mains that run underground prohibit planting trees. He said the lines occupy almost the entire space and, therefore, cannot add more trees as part of the plan.

"It really goes back to, not all that long ago, this was a thru street and the utilities typically run down, if not the center, aligned within the curbs and within the streets," he said.

However, they did heed several community requests, including expanded planting areas for flowers, two bicycle racks and a larger "buffer zone" between the plaza and Myrtle Avenue. There would be two gathering spaces for live performances, the primary space would be 900 square feet and the secondary area would be 450 square feet.

Ted Renz, Executive director of the Ridgewood Local Development Corporation and the Myrtle Avenue Business Improvement District, was happy overall with the proposal and the agencies listened to what the residents suggested for the plaza.

"We like that there's space for community events…and by having an area for movable furniture, it allows for diversified entertainment and events," he said.

One resident asked about possibly having wi-fi at the plaza. Renz said that they are looking into adding that to the space and it would be paid for by the BID.

A DOT spokesperson said the agency will present an updated plan to Community Board 5 next week.

Reach Luis Gronda at (718) 357-7400, Ext. 127, lgronda@queenstribune.com, or @luisgronda.

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Green Party Candidate Lynne Serpe Runs For CD22

BY TRISHA SAKHUJA
Staff Writer

Green Party candidate and local Astoria resident, Lynne Serpe, is vying for Council District 22, currently occupied by Councilman Peter Vallone Jr. (D-Astoria), who is term-limited and campaigning for the Queens Borough President's seat.

Lynne Serpe

Serpe welcomed the community to her new office on Astoria Boulevard between 27th Street and Crescent Street on Aug. 15 with refreshments, T-shirts and greener ideas for CD 22, which encompasses Long Island City, Astoria, Elmhurst and parts of Jackson Heights.

She spoke about "building from last time," when she opposed Vallone in 2009, receiving 24 percent of the vote.

"This time around, I am meeting the same people, but I am getting to know them better during this election cycle," Serpe said.

Serpe said she differentiates herself from six of the other candidates by saying she is not a "political machine."

Her ideas for CD 22 urge sustainable development, access to healthy food, expanding compost and recycling programs, energy-efficient affordable housing, more green jobs and election reform.

During her previous campaign, Serpe spoke about expanding library service, which inspired her to become the consultant for the Greening Libraries Initiative at Queens Library. She said she will continue to work on expanding library service through Sundays if elected for CD 22.

Serpe is active in many local organizations, including Two Coves Community Garden near Astoria Houses, which allows her to speak on behalf of the residents who encompass affordable housing in the area. Serpe wants to see new residential developments like Hallets Point and Astoria Cove become sustainable developments that will bring in 11,000 new residents in the next decade.

Serpe said she would like to see more green spaces in Astoria, which goes in line with advocating for the once rejected proposal by Community Board 1 of creating a pedestrian plaza at the intersection of 30th Avenue, 33rd Street and Newtown Avenue.

Aside from having experiencing within the community, Serpe said she has worked for the New Zealand Parliament for two years, as the National Voting System Reform Coordinator, while managing a parliamentary office, which constituted of constituency services.

Serpe said she understands her "voters are the most important people of the district. I do not report to party bosses."

The six candidates competing in the race for CD 22 are: Costa Constantinides, Constantinos "Gus" Prentzas, Danielle De Stefano, Gerald Kann, Daniel Peterson, and John Ciafone.

Reach Trisha Sakhuja at (718) 357-7400, Ext. 128, tsakhuja@queenstribune.com, or @Tsakhuja13.

北美11/15上市 定價$399

PlayStation 4 11月發售

索尼（Sony）下一代遊戲主機PlayStation 4已有推出日期。索尼在德國Gamescom的一個記者會上公布，PS4將於11月15日在北美市場正式推出，兩星期後的11月29日在歐洲推出。主機定價399元。 本報訊

索尼同時公布在主機推出後至年底期間，會有15款遊戲光碟推出。連同數碼下載的遊戲，年底前合共有33款遊戲可應市。

配合PS4在今年底前推出的零售版遊戲如下：

2K：《美國職籃2K14》（NBA 2K14）；

動視（Activision）：《使命召喚：幽靈》（Call of Duty: Ghosts）、《小龍斯派羅：交換力量》（Skylanders Swap Force）；

藝電（Electronic Arts）：《極速快感：生存競速》（Need for Speed: Rivals）、《戰地風雲 4》（Battlefield 4）、《勁爆美式足球25》（Madden NFL 25）、《國際足盟大賽 14》（FIFA 14）、《勁爆美國職籃14》（NBA Live 14）；

索尼：《殺戮地帶：闇影墮落》（Killzone: Shadow Fall）、《駕駛俱樂部》（#DRIVECLUB）、《百戰百變》（Knack）；

Ubisoft：《刺客教條4：黑旗》（Assassin's Creed 4: Black Flag）、《看門狗》（Watch Dogs）、《舞力全開2014》（Just Dance 2014）；

華納兄弟（Warner Bros. Interactive）：《樂高：驚奇超級英雄》（LEGO Marvel Superheroes）

索尼PS4向著關鍵的聖誕季度進發有不俗的勢頭。相比即將於年底以499元推出的Xbox One這對手，PS4便宜了100元。

隨著PS4推出，這平台將會加入一些新功能，例如串流服務Twitch以及熱爆遊戲《當個創世神》（Minecraft）。

PS Vita、PS3均減價

索尼亦開始削價行動，同時把PlayStation 3及PlayStation Vita（PSV）便攜遊戲機的售價調低，12GB版的PS3即將降價至199元。

還有，購買即將推出的《戰地風雲4》、《使命召喚：幽靈》、《刺客教條4》，以及《看門狗》遊戲的玩家，可於限期內以折扣價升級至PS4版。

索尼電腦娛樂歐洲總裁Jim Ryan表示，PSV的售價即將減至199元，適用的記憶卡亦會「大幅」減價。

各款型號的PSV皆會減價。記憶卡減價幅度將由5元至20元。例如32GB記憶卡將由99.99元減至79.99元，16GB則由59.99元減至39.99元。

在去年二月推出的PSV，受歡迎程度不及任天堂的3DS。與此同時，智能手機及平板電腦繼續在流動遊戲平台站穩陣腳。

在Gamescom上亮相的還有數款遊戲，當中包括PSV版的射擊遊戲《邊緣禁地2》（Borderlands 2）及《非斯》（Fez）。

■索尼在今年E3電子展上首次展示PS 4主機，昨日宣布將於11月15日正式在北美市場發售PS 4。 美聯社

智能手機五花八門 蘋果推金色iPhone

本報訊

一些與別不同的智能手機設計相繼在本月出現。率先出場是谷歌的Moto X智能手機，顧客還快將可選擇木紋外殼。

要是你鍾情一些更閃耀的，據報蘋果計劃推出金色版的iPhone。

據TechCrunch及All Things D報道，蘋果下一款智能手機的顏色選擇，除黑、白之外，還有金色。

兩則報道皆指出金色版iPhone不會看似金磚那麼俗氣，而是較似香檳色。這款手機將採用白色的面板，機背及機框則用上金色。

在9月10日蘋果一項活動舉辦之前，有關下一款iPhone的消息傳過不停，今次的金iPhone只是其中一則。消息並指這款iPhone將配備指紋掃瞄器，並可能推出一款廉價版。

為防止被比下去，對手三星搶先一周在9月4日舉行活動。預期三星不單會展示下一款Galaxy Note智能手機，還會推出一款全新的智能手錶。

■谷歌地圖整合Waze的實時交通報告。

Waze實時交通訊息併入谷歌地圖程式

本報訊

谷歌今年初夏以11億元收購Waze的消息曾哄動一時，但谷歌表示會讓這家以色列社交交通程式自由發展。雖然當時這麼說，但周二谷歌地圖及Waze的更新，證明兩者已逐漸走近。

谷歌把Waze的實時交通報告整合在地圖程式內，在美國的iOS及Android用戶將可看到詳盡的車禍報告而非簡單的「交通擠塞」提示。英國、法國、德國、巴西及墨西哥等多個國家的用戶亦可享有這功能。

Waze周二再次向用戶保證，在谷歌地圖程式上所包括的報告不會展示用戶資訊，而提交交通報告及地圖修正的Waze用戶仍可累積分數。Waze依賴實時的眾包資訊，因此它利用獎賞來吸引用戶提交他們在路上看到的封路、意外及其他重大交通事故報告。

谷歌最好用的功能，周二亦現身在Waze上。程式加入了功能強大的谷歌搜尋，連同Foursquare及Yelp等讓用戶選擇。目前Waze地圖編輯人員可取用谷歌地圖的街景圖及衛星圖來令地圖更加精確。

Waze正逐步加入更多谷歌功能，而谷歌地圖則取得Waze最有用的部分，但雙方並無公布計劃要正式合二為一。聯邦貿易委員會（Federal Trade Commission）仍在按反壟斷法來調查這宗合併，因此完全整合的地圖服務，相信要一段日子才可看到。

NHTSA撞擊測試 Tesla Model S最高分

■Tesla Model S取得NHTSA最高撞擊測試評分。 摘自Tesla網站

本報訊

看來電動車Tesla Model S取得了國家公路交通安全管理局（National Highway Traffic Safety Administration, NHTSA）的最高撞擊測試評分。

總部設在波羅阿多（Palo Alto）的Tesla在周二早上發出的新聞公告裡表示，Model S的評分甚至比運動型多功能車（SUV）及廂型客車還要高，在一些車禍中，這些體型較大的汽車一般會被視為比房車更安全。

安全評分高過五星

Telsa在公告中表示：「聯邦測試的所有汽車，約有1%是在所有類別中皆取得五星。NHTSA並無公布五星以上的評分，然而，在提供予生產商的整體汽車安全評分（Vehicle Safety Score, VSS）裡是有記錄比五星還要高的安全水平。Model S在VSS取得5.4星總成績。」換句話說，Tesla的成績超班。

Tesla表示取得高分，部分原因是沒有汽油引擎，騰出的空間可造出「更長的緩衝區來抵消高速撞擊」。

NHTSA的評分未公布前，馬斯克（Elon Musk）領導的Tesla剛交出亮麗的業績報告，在2013年第二季Tesla已向客戶付運了5,150輛Model S房車，創下了新的季度紀錄。

已贏得「車市新聞2013年最佳汽車」（Motor Trend's 2013 Car of the Year）大獎的Model S，基本型號售59,000元而高性能版則要94,400元。Motor Trend在Model S的測試中，表示一次充電可跑234英哩。

《模擬市民4》感情豐富

本報訊

Maxis極成功的《模擬市民》（The Sims）（又譯：模擬人生）系列遊戲將在第四版加入更多感情豐富的虛擬人物，讓玩家操縱他們的生活起居。《模擬市民4》（The Sims 4）製作人Lyndsay Pearson表示，今次開發人員專注在創造更多令人信服的模擬人物，「他們」可同時做出多項動作，例如一路行一路講。

雖然這些模擬人物一向也是情緒化，他們在明年推出的電腦版《模擬市民4》裡的行為，將會更受心情影響。上周在美商藝電（Electronic Arts）公司裡的一次遊戲示範裡，名為Andre的人物在友人Ollie調戲一名女性人物時感到妒忌。他試圖介入但遭到拒絕後感到沮喪。之後他選擇用打拳來發洩。

Pearson表示：「《模擬市民4》情緒的關鍵在於沒有任何東西是特別好或特別壞。你可以用不同方法來處理那情緒。要是你的模擬人物怒髮衝冠，這可能看來不妙，但事實上這意味著他們可以寫出一部特別的書或繪出一張特別的畫，亦可以拼命跑來出一身汗。」

今集可讓玩家更容易為他們的模擬人物建房子，只需選擇預先設計好的房間把它們組合便可建成房子。之後可加入傢具及其他物品來啟發人物的不同情緒。部分物品要在人物達成一些個人或專業目標後才可取得。

《模擬市民4》在模擬人物身上加設18處特點，玩家可用來為人物造出不同面貌及體型。開發人員並加設新地點讓這些模擬人物WooHoo（模擬市民做愛的代名詞）。例如Ollie最終在一艘停放在家中後院的火箭船裡與那名女角「攪」上。

已為這系列遊戲工作了十年的Pearson表示：「《模擬市民4》與《模擬市民》一向以來皆是富幽默感。對我們而言，這是一個機會為你的人物提供新地點來找些樂趣及WooHoo，甚至是去死的新方法。我們把這遊戲有趣的部分全數保留在《模擬市民4》裡。」

■《模擬市民》第四版的人物將更加「感情豐富」。 美聯社

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
NOTICE OF AVAILABILITY and REQUEST FOR COMMENT
Draft Environmental Assessment
Runway Safety Area Enhancements
LaGuardia Airport, Flushing, New York

In accordance with the National Environmental Policy Act (NEPA), notice is hereby given that copies of a Draft Environmental Assessment (EA) for the Runway Safety Area Enhancements Project at LaGuardia Airport are available for public review and comment at the following locations:

The Port Authority of NY & NJ
LaGuardia Airport
Physical Plant & Redevelopment
Hangar 7, 3rd Floor (Marine Air Terminal Area)
Flushing, NY 11371
Attn: Teddy Chen
Hours: 9:00 am to 4:00 pm

The Port Authority of NY & NJ
Aviation Department
Aviation Technical Services
225 Park Avenue South, 9th Floor
New York, NY 10003
Attn: Edward Knossel
Hours: 9:00 am to 5:00 pm

The Draft EA document for this project will be available at these locations until the close of the comment period, which is September 23, 2013. In addition, a copy of this document may be viewed online at: http://www.panynj.gov/about/pdf/environmental-assessment-rsae-laguardia.pdf

The Runway Safety Area Enhancements project includes extension of the two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runway 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located alnside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Blvd. This undeveloped area would be partially cleared and graded creating an approximate 9 acre area for construction laydown and staging. A new access point to the airport would be created in the vicinity of 19th Avenue and 81st Street which will be limited to construction vehicles only. This project will not have any long-term affect on aircraft operations at LGA. It is being done to enhance runway safety and comply with a Congressional mandate affecting airports nationwide. The EA responds to all of the requirements of the Federal Aviation Administration (FAA) for preparation of an Environmental Assessment under NEPA and also documents compliance with Federal Executive Order 11988, Floodplain Management, and Section 106 of the National Historic Preservation Act of 1966. The Port Authority is inviting the Public to submit, in writing, comments on the Draft EA prepared for the Runway Safety Area Enhancements project. The Port Authority is accepting comments on this Draft EA document until the official comment period closes on September 23, 2013. Comments must be received 5:00 PM on September 23, 2013 in order to be considered.

All comments on this Draft EA should be sent to: The Port Authority of NY & NJ, 233 Park Avenue South, 9th Floor, New York, NY 10003, Attn: Edward Knossel. In addition, comments may be emailed to LGARSAEEA@panynj.gov with the subject heading "LGA RSAEEA COMMENT." If you have any questions on this notice please contact Edward Knossel at the address above.

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N13911RJA

THE PORT AUTHORITY OF NY & NJ

LaGuardia Airport
Runway Safety Area Enhancements
Final Environmental Assessment

G Hydrodynamic Modeling Report

December 2013

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Hydrodynamic Modeling Report

Potential changes to the hydrodynamics (currents and flushing) from the LaGuardia Airport (LGA) Runway 4-22 and Runway 13-31 extensions were evaluated with a two-dimensional depth-averaged hydrodynamic model of the East River developed on the Delft3D modeling platform[1]. The model was calibrated to measured and predicted water levels and currents throughout the East River and Harlem River.

Study Area

LaGuardia Airport (LGA) is located along Rikers Island Channel within the East River. The East River flows through New York City forming the boundary between Manhattan, Brooklyn, Queens, and the Bronx. The River connects Upper New York Bay to the Long Island Sound (Figure 1-1). Near Randall's Island, the Harlem River connects to the East River, linking the Hudson and East Rivers. The East River is relatively narrow and deep with depths along the channel ranging from 35 to 100 feet (NAVD88). At Rikers Island the flow diverges, with a portion flowing through the Rikers Island Channel. Depths along the Rikers Island Channel range from 20 to 50 feet (NAVD88). Existing pile-supported LGA runways extend into the Rikers Island Channel. The minimum distance between Runway 4-22 and Rikers Island is approximately 300 feet.

Normal water level variations are generally dominated by astronomical tides. Tidal elevations in the East River are affected by tides in Upper New York Bay and the Long Island Sound. A phase lag exists between the tide in Upper New York Bay and the Long Island Sound. High tide is approximately 3 hours earlier in the Upper New York Bay than in the Long Island Sound. In addition, the tidal range in the Sound is several feet greater than in Upper New York Bay. Astronomical tides in the vicinity of LGA are semidiurnal with a mean tide range of 6.6 feet and a spring tide range of 8.2 feet.

Flow patterns in the East River are predominately tidally driven. As previously discussed, a 3 hour phase lag exists between the tidal elevations at the western end (Upper New York Bay) and eastern end (Long Island Sound) of the East River. In addition, the tidal range in the Long Island Sound is several feet greater than in

1 WL | Delft Hydraulics, 2008. "Delft3D-FLOW: Simulation of Multi-Dimensional Hydrodynamic Flows and Transport Phenomena, Including Sediments."

Upper New York Bay. This phase lag and inequality in tidal elevations produces a gradient in the water surface elevation which affects tidally driven currents in the East River. During the rising limb of the tide (tidal flooding) the water elevations in Upper New York Bay are greater than the water elevation in the Long Island Sound, resulting in flow directed towards the Sound (east). On the falling limb of the tide (tidal ebbing) the water elevations in Upper New York Bay are lower than in the Long Island Sound, resulting in flow directed towards the Bay (west).

Model Development

Delft3D Overview

Modeling was performed using the Delft3D modeling system. Delft3D, developed by Deltares, is a state of the art integrated surface water modeling system based on a flexible framework capable of simulating two- and three-dimensional flow, waves, water quality, ecology, sediment transport, and bottom morphology and the interactions between those processes. The system gives direct access to state-of-the-art process knowledge, accumulated and developed at one of the world's oldest and most renowned hydraulic institutes. Delft3D consists of a number of well-tested and validated modules, which are linked to and integrated with one-another.

The hydrodynamic module Delft3D-FLOW simulates two-dimensional (2D, depth averaged) or three-dimensional (3D) unsteady flow and transport phenomena resulting from tidal and/or meteorological forcing, including the effect of density differences due to a non-uniform temperature and salinity distribution (density-driven flow). This model can be used to predict the flow in shallow seas, coastal areas, estuaries, lagoons, rivers and lakes. It aims to model flow phenomena where the horizontal length and time scales are significantly larger than the vertical scales. When the fluid is regarded as vertically homogeneous with respect to temperature, salinity, and thus, density, a depth-averaged approach is appropriate. Delft3D-FLOW is able to run in two-dimensional mode (one computational layer), which corresponds to solving the depth-averaged equations.

Delft3D-FLOW's system of equations consists of the horizontal equations of motion, the continuity equation and the transport equations for conservative constituents. The equations are formulated in orthogonal curvilinear coordinates. In curvilinear coordinates, the free surface level and bathymetry are related to a flat horizontal plane of reference. Flow forcing may include tidal variation at the open boundaries, wind stress at the free surface, and pressure gradients due to free surface gradients (barotropic) or density gradients (baroclinic). Source and sink terms are included in the equations to model the discharge and withdrawal of water. Delft3D-FLOW solves the Navier Stokes equations for an incompressible fluid, under the shallow water and the Boussinesq assumptions. In the vertical momentum equation the vertical accelerations are assumed to be negligible and are neglected; this leads to the hydrostatic pressure equation.

Computational Grid and Bathymetry

The model grid extends over the East River and Harlem River (Figure 1-2). The model grid consists of several subgrids at varying resolutions. The subgrids are developed in order to accurately solve the hydrodynamic equations and provide adequate resolution of flow conditions near the LGA runway extensions. Delft3D has the

capability to use multiple domains within a model, transferring the momentum between domains at the interfaces. This capability is termed domain decomposition. It allows for local grid refinement without transferring the resolution to the full model domain. In addition, each domain can be parallelized on a multiple processor computer. This can significantly decrease computational time if the sub-domains are constructed at similar sizes. In this study, the model was broken up into 3 sub-domains with varying resolution. The East River and Harlem River are generally resolved with 9 and 6 grid cells across the river. Grid resolution in these areas varies from 50 to 150 feet in across-channel direction and 50 to 650 feet in the along-channel direction. Near the LGA runways the grid resolution is finer with grid a typical grid resolution of 30 feet.

The model bathymetry (Figure 1-3) was constructed from several data sources. The bathymetry in Rikers Island Channel near the LGA runway extensions was obtained from a multibeam survey conducted by Rogers Surveying in July 2012. The multibeam survey does not extend underneath the runway decks. Anecdotal evidence[2] suggests that Rikers Island Channel continues beneath the runway decks and the model bathymetry was interpolated underneath the decks accordingly. The bathymetry in the East River from Upper New York Bay to Randall's Island was primarily obtained from a National Oceanographic and Atmospheric Administration (NOAA) National Ocean Service (NOS) multibeam survey (H11353) conducted from July 29, 2004 to August 4, 2004. The bathymetry in the remainder of the modeling domain was obtained from MIKE CMAP and NOAA NOS Charts 12335, 12339, 12366. MIKE CMAP is a software program from the Danish Hydraulic Institute (DHI) which extracts depth soundings and tidal information from a worldwide catalogue of nautical charts.

Boundary Conditions

The model was constructed with three open boundaries: at the confluence of the East River and Upper New York Bay; confluence of the Harlem River and the Hudson River; and the confluence of the East River and Long Island Sound. The three open boundaries are forced with harmonic tidal elevations and a meteorological component derived from measured water levels in Upper New York Bay. Harmonic tidal constituents at three NOAA stations (The Battery, Spuyten Duyvil, and Willets Point) were used to construct a harmonic tidal signal at the three open boundaries. In order to facilitate meaningful calibration and validation against measured water levels an estimate of the meteorological component was derived from the measured water levels at The Battery and included in all three open boundaries. This meteorological component (also referred herein as the "residual") is obtained by subtracting the harmonic water level from the measured water level. The residual water elevation is added to the harmonic water levels at the three open boundaries. It is noted that this approach does not account for potential relative differences in residual water elevation between the Upper New York Bay and Long Island Sound; however, as shown below, it does allow for a reliable model calibration against measured water levels.

2 Port Authority of New York and New Jersey, 2009. "Port Authority Facility Condition Survey Program, LaGuardia Airport, Runway Extensions 4-22 & 13-31 and Bower Bay Bulkhead."

Pile Density Representation

Hydrodynamic models such as Delft3D, which are typically applied to coastal, river, and estuarine areas, are not able to explicitly solve for the momentum loss caused by current-induced drag force on piles due to the generally large difference between the pile dimension and the model grid size. The effect of piles, is therefore in these types of models a subgrid effect. A commom approach to circumvent this limitation is to account for the resistance to flow caused by piles by appling an equivalent roughness coefficient[3,4] since energy losses in Delft3D are primarily due to bottom friction. The equivalent roughness coefficient is derived from the expression for the drag force exerted by piles on the flow:

$$F_{drag} = C_D h D \rho \frac{V^2}{2}$$

where F_{drag} is the drag force on the pier
C_D is drag coefficient for the piles
h is the water depth
D is the pile diameter
V is the mean current speed

The equivalent roughness coefficient is determined according to the following expression:

$$n_e = \left(n_0 + \frac{C_D D h^{\frac{4}{3}}}{2 g S_x S_y} \right)^{\frac{1}{2}}$$

where n_e is the equivalent Mannings's Number
n_0 is the existing (no piles) Manning's Number
S_x is the pile spacing in the x direction
S_y is the pile spacing in the y direction.

Increasing roughness will result in increasing bottom shear stress or decreasing flow velocities according to the Manning formula:

$$\tau_b = \rho g \frac{n_e V^2}{h^{1/3}}$$

3 San Francisco International Airport, 2002. "SFO – Airfield Development Program, Preliminary Report No. 8, Phase 2 & 3 – Water Circulation, Sedimentation and Water Quality Studies".
4 Halcrow, 2011. "Design Development Package", prepared for the Port Authority of NY& NJ.

where τ_b is the bottom shear stress.

Higher equivalent Manning's n values represent higher equivalent roughness and therefore, as described above, potentially reduced velocities in the vicinity of the piles.

A spatially varying map of Manning's n values were applied in the model simulations. In the grid cells over the footpring of the existing LGA Runways and the Runway 4-22 and 13-31 extensions the equivalent Mannings's n values were applied. The existing runway deck pile configuration (spacing and diameter) was obtained from the Port Authority's December 2006, condition survey report, "Port Authority Facility Condition Survey Program: LaGuardia Airport Runway Extension 4-22 and 13-31." The report states that there are a total of 3,215 piles of 16- or 18-inch diameter. Based on the footprint of the runway decks and the total number of piles, an average pile spacing of 24 feet was determined and applied together with 18-inch diameter piles.

The pile configuration for the Runway 4-22 and 13-31 extensions is modeled based on 24 inch diameter piles on a nominal 30 by 35 feet grid. For the purposes of the hydrodynamic modeling an representative pile spacing of 32 feet is assumed.

Manning's n values of 0.053 $s/ft^{1/3}$ (0.078 $s/m^{1/3}$) and 0.047 $s/ft^{1/3}$ (0.070 $s/m^{1/3}$) were determined for the existing and runway extension pile configurations.

Model Calibration and Validation

Hydrodynamic model calibration and validation was performed over two separate time periods in April, May, and June of 1981 using predicted and measured water levels and currents. This time period was selected for model calibration and validation because it coincides with an extensive NOAA NOS sponsored data acquisition program for New York Harbor[5].

Field Data

The field data used in the model calibration and validation is grouped into two categories: measured water levels and currents; and predicted tidal water levels and tidal currents. As discussed above, the measured data was collected in April, May, and June of 1981 by a NOAA NOS sponsored data acquisition program for New York Harbor. Several water level sensors and single point current sensors were deployed in the East River and Harlem River. Each sensor was deployed over a separate time period and consequently there is no single time period in which all the sensors were deployed. Figure 1-4 and Figure 1-5 show the location of the NOAA tidal stations and NOAA NOS current stations respectively. Both Figure 1-4 and Figure 1-5 also show the time frame in which the measured data is available. Figure 1-4 also indicates whether predicted tidal levels are available at the station. At many of the temporary NOAA NOS tidal stations the duration of the measured data is not sufficiently long to accurately determine the harmonic tidal constituents and make tidal water level predictions.

5 Richardson P.H., Schmalz R.A. Jr., "NOS Historical Circulation Survey Data Restoration: New York Harbor (1980-1981)," CSDL Informal Technical Note No. 9, Silver Spring, MD

There are two NOAA tidal stations, Queensboro Br. and Willets Point, which do not have measured water levels over the calibration and validation time periods but do have predicted tidal levels.

During the NOAA NOS data acquisition program current sensors were deployed at various elevations throughout the water column. At some locations multiple current sensors were deployed, capturing the bottom, mid, and surface currents. At other locations a single current sensor may have been deployed near the bottom, middle, or surface. Figure 1-5 indicates whether the current measurements were collected in the bottom third, middle third, or upper third of the water column.

Tidal current predictions from NOAA Tides and Currents[6] are available at 30 locations in the East River and Harlem River (Figure 1-6). Estimates of the maximum ebb and flood tidal current over each tidal cycle as well as the average of the maximum ebb and flood tidal currents are available. Tidal current predictions are based on tidal harmonic analyses of measured data. There are two types of NOAA tidal current prediction stations: reference stations and subordinate stations. At reference stations, tidal current predictions are derived from tidal harmonic analyses of measured data. Whereas at subordinate stations, the maximum ebb and flood tidal current speeds are determined by applying specific differences to the time and speed of the maximum ebb and flood currents relative to a nearby reference station. The water depth corresponding to the predicted tidal currents is only given at a few of the stations (14 to 15 feet below MLLW). Since the majority of the NOAA tidal current stations are located in the channel where water depths are generally between 35 and 100 feet (NAVD88) it is likely that the current predictions are representative of a near-surface current. Due to the qualitative nature of the NOAA tidal current predictions, this data set is only used as an additional source of model validation.

Model Calibration

Model calibration was performed from April 1, 1981 to June 1, 1981 using measured and predicted water levels as well as measured current speeds.

Calibration Procedure

Model calibration was performed by adjusting the model bed roughness parameter until an acceptable agreement between the modeled and measured data was obtained. During model calibration, it became apparent that a spatially variable bed roughness was required to achieve the best overall calibration. The bed roughness was split into three regions:

- East River, from Upper New York Bay to Hell Gate (Manning n = 0.025 $s/ft^{1/3}$);
- East River, from Hell Gate to the Long Island Sound (Manning n = 0.021 $s/ft^{1/3}$);
- Harlem River (Manning n = 0.013 $s/ft^{1/3}$).

The bed roughness in the model was computed according to the Manning formulation using the Manning's Number, n. Manning Numbers in the domain ranged from 0.013 to 0.025 $s/ft^{1/3}$ and are given above for each region. Figure 1-7 shows the Manning Numbers used in the final calibration.

6 US Department of Commerce Coast and Geodetic Survey, 2013. "Tidal Current Predictions."

Previous hydrodynamic modeling application of New York Harbor have also used a spatially variable bed roughness. For example, Yang et al.[7] also used a spatially variable bed roughness, with a similar pattern of decreasing roughness in the East River from Upper New York Bay towards the Long Island Sound, to calibrate an Advance Circulation (ADCIRC) Model of New York Harbor.

Model calibration and validation results are assessed both graphically and quantitatively using statistical metrics. Two different types of figures are used in the graphical comparison. The first type of figure compares the parameters of tidal harmonic constituents (amplitude and phase) between measured data and model results. The second type of figure compares the time series of measured data and modeled results over the calibration period.

The quantitative statistical measures used in calibration are defined as follows:

- Root Mean Square (RMS) Error: Compares the square root of the average square of the difference (error) between the two data sets

$$\varepsilon_{RMS} = \sqrt{\overline{(x-y)^2}}$$

- RMS Error Percentage: Computes the RMS error as a percentage of the normalized range of the measured data. This gives perspective on the magnitude of the RMS error. A one hour low-pass filter was applied to the measured data and a trend x_f is determined. The normalized range is determined from the maximum and minimum of x_f

$$\varepsilon_{norm} = \frac{\varepsilon_{RMS}}{x_{f,\max} - x_{f,\min}} \cdot 100\%$$

where $x_{f,max}$ and $x_{f,min}$ are the maximum and minimum values of the trend xf.

- Correlation Coefficient: Uses the Pearson product moment correlation coefficient, R, (a dimensionless index that ranges from −1.0 to +1.0) to reflect the extent of a linear relationship between two data sets. This parameter indicates how closely the modeled data are in phase with the calibration data. An index of 1.0 indicates that the two data sets match perfectly in phase; and index of −1.0 indicates that the data are 180 degrees out of phase.
- Mean absolute error (MAE):

$$MAE = \overline{|x-y|}$$

7 Yang Z., Myers E.P., Wong A.M, White S.A., 2010. "VDATUM for Great South Bay, New York Bight and New York Harbor: Tidal Datums, Marine Grids, and Sea Surface Topography," NOAA Technical Memorandum NOS CS 21, Silver Springs, MD.

Calibration Results

Water Levels

The calibrated model results were compared to harmonic constituents at three locations and measured water levels at six locations. Figure 1-8 compares the amplitude and phase of the harmonic constituents and Figure 1-9 and Figure 1-10 show time series of the measured and modeled water levels. Table 1-1 presents quantitative calibration statistics for measured water levels.

In general, modeled water levels are in very good agreement with the data. The correlation coefficient, Table 1-1, for all six data stations is 0.99, indicating that measured and modeled water levels are in phase. The RMS error percentage is between 3 and 6 percent, indicating that the tidal amplitudes are also reproduced by the model.

Table G-1 Model Calibration Results: Measured Water Levels

Station	RMS Error (feet)	RMS Error Percentage (percent)	Mean Absolute Error (feet)	Correlation Coefficient
College Pt.	0.37	4.37	0.30	0.99
Port Morris	0.37	4.60	0.30	0.99
Wards Island	0.50	6.01	0.41	0.99
Horns Hook	0.27	3.64	0.21	0.99
E. 41st Street Pier	0.23	3.19	0.18	0.99
Wallabout Bay	0.25	3.37	0.20	0.99

Source: NOAA Tidal Stations

Currents

The calibrated model results were compared to measured current speeds and directions at nine locations. Figure 1-11 to Figure 1-15 show time series of the measured and modeled current speed and direction. Note, that the model only computes depth-averaged currents, whereas the measured data were collected at various depths in the water column. The measured currents are color coded based on the approximate location within the water column of the measurement. Quantitative model calibration statistics, Table 1-2, were generally restricted to current measurements collected in the middle third of the water column.

In general, modeled currents are in good agreement with the data. The correlation coefficients are between 0.73 and 0.86 indicating fairly good agreement between the phase of the measured and modeled currents. However, any slight phase lag will negatively affect the RMS errors. At C-58 (Figure 1-11) for example, the model is able to match the maximum flood (east) and ebb (west) current speeds but because the peaks are slightly out of phase the RMS error percentage is 20.2 percent. Figure 1-11 also shows that the model is able to reproduce the large tidal asymmetry in the currents. Ebb (west) current speeds are two to three times as large as the flood (east) current speeds at C-58. Throughout the modeling domain fairly large tidal asymetries are present in both the measured and modeled currents. Overall, the RMS error percentages are within the range of acceptable values and are between 19 and 32 percent (Table 1-2).

It is important to recognize that the measured data weres collected in 1981 whereas the model bathymetry is derived from more recent bathymetric surveys (circa. 2000s). In addition, local effects which are not captured by the model may reduce the apparent model skill. For example, at C-46 (Figure 1-12), the model captures the flood (east) current speeds but severely over predicts the ebb (west) current speeds when compared with the data. The measured velocities during tidal ebbing at C-46 are very low and the current direction changes several times during a single ebb tidal cycle. These two observations may indicate the presence of of eddies at C-46. The model resolution in this area is not fine enough to resolve eddies which occur as a result of the strong currents and sharp bend in the channel. Tidal current predictions from NOAA, discussed in mored detail in model validation section, indicate that the current speeds near C-46 (Hell Gate) are more in line with the model predictions than the measured data.

Table G-2 Model Calibration Results: Measured Current Speeds

Station	RMS Error (feet/s)	RMS Error Percentage (percent)	Mean Absolute Error (feet/s)	Correlation Coefficient
C-58	0.69	20.19	0.51	0.77
C-51	0.79	31.61	0.65	0.74
C-49	0.71	28.13	0.56	0.79
C-45	1.25	21.11	0.97	0.8
C-43	0.99	27.84	0.77	0.81
C-42	0.99	19.52	0.67	0.85
C-35	1.76	28.91	1.36	0.75

Source: Richardson P.H., Schmalz R.A. Jr., "NOS Historical Circulation Survey Data Restoration: New York Harbor (1980-1981),"

Model Validation

Model validation was performed from June 1, 1981 to July 1, 1981 using measured and predicted water levels as well as measured current speeds. In addition, a qualitative model validation was performed using NOAA tidal current predictions a 30 locations.

Validation Results

Water Levels

The calibrated model results were compared to measured water levels at nine locations. Figure 1-16 to Figure 1-18 show time series of the measured and modeled water levels. Table 1-3 presents quantitative calibration statistics for measured water levels during the validation period.

In general, modeled water levels are in very good agreement with the data. The correlation coefficient, Table 1-3, for all nine data stations is between 0.98 and 0.99, indicating that measured and modeled water levels are in phase. The RMS error percentage is between 3 and 6 percent, indicating that the tidal amplitudes are also reproduced by the model.

Table G-3 Model Validation Results: Measured Water Levels

Station	RMS Error (feet)	RMS Error Percentage (percent)	Mean Absolute Error (feet)	Correlation Coefficient
Whitestone	0.40	3.84	0.31	0.99
College Pt.	0.39	3.96	0.33	0.99
Hunts Pt.	0.41	4.09	0.35	0.99
Port Morris	0.40	4.33	0.34	0.99
Wards Island	0.50	5.70	0.43	0.99
Horns Hook	0.26	3.69	0.22	0.99
Randalls Is.	0.28	4.05	0.23	0.99
E. 41st Street Pier	0.19	2.88	0.16	0.99
Wallabout Bay	0.33	4.93	0.26	0.98

Source: NOAA Tidal Stations

Currents

The calibrated model results were compared to measured current speeds and directions at nine locations during the validation period. Figure 1-19 to Figure 1-25 show time series of the measured and modeled current speeds and directions. As previously mentioned, the model results are depth-averaged, whereas the measured data was collected at various depths in the water column. The measured currents are color coded based on the approximate location of the measurement. Quantitative model calibration statistics, Table 1-4, were generally restricted to current measurements collected in the middle one-third of the water column.

In general, modeled currents are in good agreement with the measured data. The correlation coefficients are between 0.61 and 0.91 indicating fairly good agreement between the phase of the measured and modeled currents. The RMS error percentage is between 17 and 30 percent. Near the Project Area (C-54, C-59, C-55) the RMS errors tend to be lower. Given the inherent difficulty in matching modeled depth-average currents to measurements collected at various depths in the water column, the model calibration and validation results are viewed as acceptable.

Table G-4 Model Validation Results: Measured Current Speeds

Station	RMS Error (feet/s)	RMS Error Percentage (percent)	Mean Absolute Error (feet/s)	Correlation Coefficient
C-61	0.61	26.63	0.49	0.61
C-60	0.71	21.30	0.54	0.73
C-59	0.66	21.16	0.5	0.81
C-56	0.62	20.60	0.49	0.77
C-55	0.59	17.88	0.46	0.84
C-54	0.32	17.92	0.27	0.91
C-51	0.77	30.37	0.64	0.77
C-50	0.62	18.77	0.47	0.89
C-35	1.61	27.32	1.23	0.79

Source: Richardson P.H., Schmalz R.A. Jr., "NOS Historical Circulation Survey Data Restoration: New York Harbor (1980-1981),"

In order to further validate the model, model results are compared to NOAA tidal current predictions at 30 locations. As discussed previsiouly, the tidal current predictions should be viewed through a more qualitatively lens since the exact depth of the current predictions is unknown and at many locations the predictions are determined by applying specific differences relative to a nearby reference station. Nonetheless, the tidal current predictions provide additional coverage particularly in Hell Gate and the Harlem River. Table 1-5 compares the predicted and modeled average maximum ebb and flood current speed at 30 locations. Figure 1-26 presents a scatter plot of the predicted and modeled averaged maximum ebb and flood current speeds. The majority of the data points fall within 25 percent error band. It is apparent from Figure 1-26 that the predicted current speeds are generally greater than the modeled current speeds. This difference should be expected, considering the majority of the predicted currents are most probably based on near-surface current measurements while the model results are representing depth-averaged currents.

Table G-5 Model Validation Results: Predicted Average Maximum Current Speeds

Station	NOAA Predicted Flood Current (feet/s)	NOAA Predicted Ebb Current (feet/s)	Modeled Flood Current (feet/s)	Modeled Ebb Current (feet/s)
Cryders Point	2.2	1.9	1.9	2.0
Bronx-Whitestone Bridge	2.9	1.7	2.5	2.2
Clason Point	2.5	2.7	2.4	2.4
College Point	2.5	2.4	2.4	2.2
Rikers Island	1.9	2.2	1.5	1.9
Hunts Point	2.9	2.2	4.5	3.0
South Brother Island	2.5	2.0	1.8	1.6
Winthrop Ave	5.7	4.2	4.8	3.9
Mill Rock NE	3.9	1.0	4.1	2.2
Mill Rock W	2.0	1.7	2.3	1.4
Hell Gate	5.7	7.8	3.7	6.0
75th Street	6.4	7.9	6.5	6.4
36th Ave	5.9	5.7	4.9	4.8
67th Street	6.1	6.8	5.3	5.4
63rd Street	4.7	4.9	4.0	3.8
Roosevelt Island	4.7	4.4	3.7	3.5
31st Street	2.5	3.5	2.4	2.9
Pier 67	3.0	3.2	3.0	2.9
Williamsburg Bridge	4.6	4.9	3.6	3.7
Manhattan Bridge	4.2	3.7	3.6	3.5
Brooklyn Bridge	4.6	4.7	3.7	4.2
Brooklyn Bridge SW	4.9	5.9	3.2	4.1
East 107th Street	1.4	1.4	1.1	1.3
Willis Ave Bridge	2.0	2.2	2.3	2.4
Madison Ave Bridge	3.0	2.9	2.8	2.7
Macombs Dam Bridge	2.9	2.4	2.8	2.8
High Bridge	3.4	3.4	3.1	3.0
West 207th Street Bridge	3.4	3.4	2.4	2.1
Broadway Bridge	3.5	3.9	4.0	4.5
Henry Hudson Bridge	3.0	2.2	1.7	2.2

Source: US Department of Commerce Coast and Geodetic Survey, 2013. "Tidal Current Predictions."

Model Results

Existing Conditions

Model results capture the general flow patterns and are able to reproduce the inequality in ebb and tidal current speeds throughout the East River. Modeled flow patterns during spring tidal flooding, Figure 1-27, show that currents are flowing from west to east and current speeds in the main stem of the East River are generally greater than in Rikers Island Channel. Currents speeds in the East River exceed 4 feet/s during peak tidal flooding and generally are between 1.4 and 2 feet/s in Rikers Island Channel. Modeled flow patterns during spring tidal ebbing, Figure 1-28, show that water is flowing from east to west. During tidal ebbing, the relative difference between the current speeds in the main stem of the East River and Rikers Island Channel is lower than during tidal flooding. Maximum current speeds reach approximately 3.5 feet/s in the East River during peak tidal ebbing and generally are between 1.8 and 2.4 feet/s in Rikers Island Channel.

Runway 4-22 and Runway 13-31 Extensions

Indirect effects due to potential changes to the hydrodynamics (currents and flushing) within the Study Area were evaluated. An equivalent roughness coefficient is applied in the model to represent the resistance to flow caused by the piles beneath the deck (as described in Section 0 and presented in Figure 1-7).

Figure 1-29 shows the modeled change in currents during spring tidal flooding. Spring tidal flooding current speeds downdrift of RW End 4 are reduced by up to 0.20 feet/s and an increase in current speeds up to 0.20 feet/s is estimated between RW End 4 and Rikers Island. Figure 1-30 shows the modeled change in currents during spring tidal ebbing. Spring tidal ebbing current speeds downdrift of RW End 4 are reduced by up to 0.20 feet/s. Changes to the modeled current speeds are limited to Rikers Island Channel and extend approximately 2,000 feet west and 2,000 feet northeast of RW End 4. Since current speeds in Rikers Island Channel are estimated to reach up to 2 feet/s, the greatest estimated changes represent a 10 percent increase or decrease in current speeds. Based on the modeled change in current speeds, the Runway 4 deck extension is anticipated to result in neglible effects on erosion or sedimentation patterns in the Study Area.

Figure 1-29 shows the modeled change in currents during spring tidal flooding. Spring tidal flooding current speeds downdrift of RW End 31 are reduced by up to 0.12 feet/s and an increase in current speeds up to 0.08 feet/s is estimated north and south of RW End 31. Figure 1-30 shows the modeled change in currents during spring tidal ebbing. Spring tidal ebbing current speeds downdrift of RW End 4 are reduced by up to 0.12 feet/s and an increase in current speeds up to 0.12 feet/s is estimated south of RW End 4. Changes to the modeled current speeds are limited to Rikers Island Channel and extend approximately 4,000 feet west and 2,000 feet northeast of RW End 31. Since current speeds in Rikers Island Channel are estimated to reach up to 2 feet/s, the greatest estimated changes represent a 6 percent increase or decrease in current speeds. Based on the modeled change in current speeds, the Runway 31 deck extension is anticipated to result in neglible effects on erosion or sedimentation patterns in the Study Area.

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H Port Authority of New York and New Jersey Board of Commissioners Program Authorization, April 24, 2013

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LAGUARDIA AIRPORT – RUNWAY AREA SAFETY ENHANCEMENTS PROGRAM – PROGRAM AUTHORIZATION

It was recommended that the Board authorize: (1) a LaGuardia Runway Area Safety Enhancements Program (Program) for the design and construction of certain runway area safety enhancements at LaGuardia Airport (LGA), at an estimated total Program cost of $202.9 million, which would include: (a) design and construction of deck extensions at the approach ends of Runways 13 and 22, at a total estimated project cost of $119.1 million; (b) installation of Engineered Material Arrestor Systems (Arrestor Systems) at the ends of the extended decks for Runways 13 and 22, at a total estimated project cost of $23.2 million; (c) design and construction of a restricted vehicle service roadway (Restricted Roadway) around the south end of Runway 4, at a total estimated project cost of $57.5 million; and (d) planning and design of a contractor mobilization and laydown area within the boundaries of LGA, at an estimated planning cost of $3.1 million; and (2) the Executive Director to: (a) award Contract LGA-124.185 to perform the design and construction of deck extensions at the approach ends of Runways 13 and 22, at an estimated construction cost of $74.4 million; (b) enter into a contract for the design and construction of two Arrestor Systems with Zodiac Aerospace (or an affiliate thereof); (c) award Contract LGA-124.195 to perform the construction of a Restricted Roadway around the south end of Runway 4, at an estimated construction cost of $35.2 million; and (d) submit an application to the Federal Aviation Administration (FAA) for the collection and use of up to an additional $41 million in Passenger Facility Charges (PFCs) for expenditures in connection with the foregoing Program, which is the balance above the funding level of $161.9 million for PFC applications previously approved by the FAA for this Program.

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Project for Deck Extensions for Runways 13 and 22

Federally designated airports must comply with a Congressional mandate to meet FAA standards for Runway Safety Areas (RSAs) by the end of December 2015. Generally, a RSA is a rectangular graded area that extends 250 feet on each side of the runway's centerline and 1,000 feet beyond a runway's end, which is intended to serve as a buffer zone for aircraft excursions from the runway. As an alternative for airports such as LGA, with limited airport property to accommodate a standard 1,000-foot RSA, the FAA permits the installation of an Arrestor System to decelerate and stop aircraft that overrun a runway. In order not to limit LGA's operational capacity, the proposed project would require structurally extending the decks for Runways 13 and 22 to accommodate the related Arrestor System project. The proposed scope of work for the runway deck extension project includes the design and construction of pile-supported structural beams with a cast in-place concrete deck surface.

The proposed authorization also includes the award of Contract LGA-124.185 to construct the deck extensions, which would be procured via a publicly advertised process, with award to the lowest qualified bidder.

Project for Installation of Engineered Material Arrestor Systems

The project provides for installation of Arrestor Systems (consisting of lightweight, crushable concrete) at the ends of the extended decks for Runways 13 and 22, to comply with RSA requirements at space-constrained airports. LGA currently has two such systems at the approach ends of Runways 4 and 31. The currently proposed project is required to meet the Congressional mandate at LGA for Runways 13 and 22.

The contract for the design and installation of the two Arrestor Systems would be negotiated with Zodiac Aerospace (or an affiliate thereof), due to the proprietary nature of the technology and an FAA requirement to use Zodiac Aerospace (or an affiliate thereof), the sole approved contractor.

Construction of the runway deck extensions and Arrestor Systems would be completed during nights and weekends, to minimize disruption to airport operations.

Project for Restricted Vehicle Service Road on the South End of Runway 4

The project provides for the construction of a continuous Restricted Roadway around the approach end of Runway 4, which is a critical safety enhancement consistent with the FAA's National Runway Safety Plan, and would minimize the potential for runway incursions. By connecting the existing bifurcated Restricted Roadway located on the east and west sides of Runway 4-22, authorized vehicles would be able to traverse the aeronautical area without having to seek authorization to cross the runway or exit and re-enter public roadways. The proposed project would benefit airport operations safety by removing fuel truck traffic from public roads.

The proposed authorization also would include the award of Contract LGA-124.195 to construct the Restricted Roadway, which would be procured via a publicly advertised process, with award to the lowest qualified bidder.

Planning for Contractor Mobilization and Laydown Area

Due to limited space availability at LGA and the surrounding environs, the proposed Program includes $3.1 million for the planning and design of a contractor mobilization and laydown area that would optimize construction staging to support the implementation of the Program, as well as certain other projects at LGA.

The FAA has approved the collection and use of a total of $161.9 million in PFC funding for this Program. The proposed authorization would amend the previous PFC approvals to provide for up to $41 million in additional authority for program expenditures. Any costs not funded by PFCs would be fully recoverable through flight fees.

Pursuant to the foregoing report, the Board adopted the following resolution, with Commissioners Bagger, Lynford, Moerdler, Rechler, Samson, Schuber and Steiner voting in favor. General Counsel confirmed that sufficient affirmative votes were cast for the action to be taken, a quorum of the Board being present.

> **RESOLVED**, that a LaGuardia Runway Area Safety Enhancements Program (Program) for the design and construction of certain runway area safety enhancements at LaGuardia Airport (LGA), at an estimated total Program cost of $202.9 million, which would include: (1) design and construction of deck extensions at the approach ends of Runways 13 and 22, at a total estimated project cost of $119.1 million; (2) installation of Engineered Material Arrestor Systems (Arrestor Systems) at the ends of the extended decks for Runways 13 and 22, at a total estimated project cost of $23.2 million; (3) design and construction of a restricted vehicle service roadway (Restricted Roadway) around the south end of Runway 4, at a total estimated project cost of $57.5 million; and (4) planning and design of a contractor mobilization

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and laydown area within the boundaries of LGA, at an estimated planning cost of $3.1 million, be and it hereby is authorized; and it is further

RESOLVED, that the Executive Director be and he hereby is authorized, for and on behalf of the Port Authority, to: (1) award Contract LGA-124.185 for the construction of the deck extensions at the approach ends of Runways 13 and 22 at LGA, at an estimated construction cost of $74.4 million; (2) enter into a contract for the design and construction of two Arrestor Systems with Zodiac Aerospace (or an affiliate thereof); (3) award Contract LGA-124.195 for the construction of a Restricted Roadway around the south end of Runway 4, at an estimated construction cost of $35.2 million; and (4) submit an application to the Federal Aviation Administration (FAA) for the collection and use of up to an additional $41 million in Passenger Facility Charges (PFCs) for expenditures in connection with the foregoing Program, which is the balance above the funding level of $161.9 million for PFC applications previously approved by the FAA for the foregoing Program; and it is further

RESOLVED, that the Executive Director be and he hereby is authorized, for and on behalf of the Port Authority, take action with respect to construction contracts, contracts for professional and advisory services and such other contracts and agreements as may be necessary to effectuate the foregoing Program, pursuant to authority granted in the By-Laws or other resolution adopted by the Board; and it is further

RESOLVED, that the form of all contracts, agreements and documents in connection with the foregoing Program shall be subject to the approval of General Counsel or his authorized representative.

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I Acronyms & Glossary of Terms

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Acronyms

µg/m³	micrograms per cubic meter
AC	Advisory Circular
ACM	Asbestos-Containing Materials
ALP	Airport Layout Plan
AOA	Airport Operations Area
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ARC	Airport Reference Code
ATC	Air Traffic Control
BMPP	Best Management Practices Plan
CAA	Clean Air Act (as amended in 1990)
CBRA	Coastal Barrier Resources Act of 1982
CEQ	Council on Environmental Quality
CEQR	City Environmental Quality Review
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
C&GS	United States Department of Commerce Coastal & Geodectic Survey
CMP	New York State Coastal Management Program
CO	Carbon Monoxide
CRP	Comprehensive Restoration Plan
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CTB	Central Terminal Building
CWA	Clean Water Act
cy	Cubic Yards
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
dB	Decibel
dBA	A-weighted Scale Decibel
dBA (L_{eq})	Equivalent Steady-state Sound Level
DNL	Day-Night Average Sound Level

DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EMAS	Engineered Materials Arresting System
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
feet/s	Feet per second
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gases
GP	guard posts
GSE	ground support equipment
HAPs	Hazardous Air Pollutants
HIRL	High Intensity Runway Lights
Hz	Hertz
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
JFK	John F. Kennedy International Airport
kHz	Kilohertz
LGA	LaGuardia Airport
LOS	Level of Service
LPC	New York City Landmarks Preservation Commission
LWRP	Local Waterfront Revitalization Programs
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights
MHW	Mean High Water
MLW	Mean Low Water
MOA	Memorandum of agreement
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NAVAIDS	Navigational Aid System
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act of 1969, as amended
NGVD 29	National Geodetic Vertical Datum of 1929 (Sea Level Datum of 1929)
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Parks Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NYCDCP	New York City Department of City Planning
NYCDEP	New York City Department of Environmental Protection
NYCDPR	New York City Department of Parks and Recreation
NYCEDC	New York City Economic Development Corporation
NYMTC	New York Metropolitan Transportation Council
NYNHP	New York Natural Heritage Program
NYSARAP	New York State Amphibian and Reptile Atlas Project
NYSBBA	New York State Breeding Bird Atlas
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of the State
NYSECL	New York State Environmental Conservation Law
NYSM	New York State Museum
O_3	Ozone
OPRHP	Office of Parks, Recreation, and Historic Preservation
Pb	Lead
PCB	polychlorinated biphenyls
PCE	Passenger Car Equivalent
$PM_{2.5}$	inhalable particulate matter less than 2.5 microns in diameter
PM_{10}	inhalable particulate matter less than 10 microns in diameter
Port Authority	Port Authority of New York and New Jersey
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
RCNM	Roadway Construction Noise Model
REIL	Runway End Identifier Lights
RHA	Rivers and Harbors Act
ROD	Record of Decision
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVSR	Restricted Vehicle Service Road
SDWA	Safe Drinking Water Act
sf	square feet
SIP	State Implementation Plan
SMIA	Significant Maritime and Industrial Area

SO_2	Sulfur Dioxide
SPCC	Spill Prevention Control and Countermeasures Plan
SPDES	State Pollution Discharge Elimination System
SPL	sound pressure level
SWO	stormwater overflows
SWPPP	Storm Water Pollution Prevention Plan
TDZ	Touchdown Zone
TMDL	Total Maximum Daily Load
tpy	tons per year
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WRCRA	Waterfront Revitalization and Coastal Resources Act
WRP	Waterfront Revitalization Program
WWTP	Wastewater Treatment Plan

Glossary of Terms

100-year floodplain — An area of land that would be inundated by a flood having a one percent chance of occurring in any given year. Also referred to as the base or 100-year flood.

500-year floodplain — An area of land that would be inundated by a flood having a 0.2 percent chance of occurring in any given year.

A

A-weighted Sound Level — A measure of sound level with weighted frequency characteristics that correspond to human subjective response to noise.

Acoustical Blanket or Shroud —Sound control products that minimize noise by blocking and absorbing sounds associated with construction activities.

Advisory Circulars — The Advisory Circular (AC) provides a single, uniform, agency-wide system that the Federal Aviation Administration (FAA) uses to deliver advisory material to FAA customers, industry, the aviation community, and the public. They do not create or change a regulatory requirement.

Air Traffic Control (ATC) — The ground-based personnel and equipment that direct aircraft on the ground and through controlled airspace. The primary purpose of ATC is to improve safety and increase the efficiency of the flow of air traffic.

Air Quality Emissions — Ambient air pollutant concentrations and emissions, their temporal and spatial distribution, and their relationship to health-based standards and criteria.

Air Quality Control Region (AQCR) — A federally-designated area that is required to meet and maintain federal ambient air quality standards. May include nearby locations in the same state or nearby states that share common air pollution problems.

Air Quality Standard — A legal requirement for air quality, usually expressed in terms of maximum allowable pollutant concentration, averaged over a specified time interval.

Aircraft/Airport Operations — The total number of aircraft movements in terms of landings (arrivals) plus takeoffs (departures) from an airport.

Airport Capacity — The capacity of an airport is the number of passengers or aircraft operations that can be accommodated in a specified time period. It is usually determined by the capacity of the runways, which is defined as the number of aircraft operations that can land and take off in an hour.

Airport Layout Plan (ALP) — A scaled drawing of existing and proposed land and facilities necessary for the operation and development of the airport. The ALP shows boundaries and proposed additions to all areas owned or controlled by the sponsor for airport purposes, the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed non-aviation areas and improvements thereon. The ALP requires FAA approval.

Airport Operations Area (AOA) — The AOA encompasses all portions of the airport designed and used for landing, taking off, or surface maneuvering of aircraft. The AOA includes the runways, taxiways, ramps, aprons, parking areas, and tie-down areas.

Airspace — Airspace refers to the air available for aircraft to fly. The FAA designed and implemented the New York/New Jersey/Philadelphia metropolitan air traffic control services over 8,000 flights a day.

Airspace Redesign Project (ARD) — The purpose of the New York/New Jersey/Philadelphia Metropolitan Airspace Redesign Project is to improve the flow of air traffic once aircraft leave the immediate environment of the major airports in the New York, New Jersey, and Philadelphia areas. The FAA Air Traffic Organization (ATO) has completed an EIS for this project and issued a Record of Decision (ROD).

Ambient— Concentration of a pollutant in the ambient air that can be sensed or measured at a monitoring site, and usually expressed as mass or volume of pollutant in a given volume of air.

Ambient, or Background, Noise Level — The level of noise that is all encompassing within a given environment for which a single source cannot be determined. It is usually a composite of sounds from many and varied sources near and far from the receiver.

Anthropogenic — Of, relating to, or resulting from the influence of human beings on nature; man-made.

Approach Lighting — Approach lighting systems are designed to facilitate the pilot's transition from instrument flying to visually locating the runway.

Apron — The defined area of the airport provided for the stationing of aircraft for the enplaning and deplaning of passengers, the loading or unloading of cargo, and parking.

Aquatic — Of, or relating to, being in water.

Aquifer — Rock or sediment that is saturated with water and sufficiently permeable to transmit economically significant quantities of water to wells and springs.

Area of Potential Effects (APE) — The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.

Arrival — The act of an aircraft approaching and landing at an airport.

Attainment Area — An area that meets all of the National Ambient Air Quality Standards (NAAQS) for a particular pollutant (see NAAQS).

Avian — Of, or relating to, birds.

B

Bathymetry — the measurement of the depth of bodies of water, often represented as underwater topographical maps.

Benthic Community — Aquatic organisms and plants that live on the bottom of lakes or rivers, such as algae, insects, worms, snails, and crayfish. Benthic plants and organisms contribute significantly to the diets of many reservoir fish species.

Best Management Practices (BMPs) — Operating procedures or treatment systems intended to manage the flow of water and prevent water pollution. Stormwater BMPs typically control both the quantity and quality of runoff, preventing increases in flooding or pollution due to the construction or operation of any new development. Street sweeping and detailed emergency response plans are examples of procedural BMPs, while infiltration basins, detention ponds, and oil/water separators are examples of structural BMPs.

Biodiversity — An assessment of the numbers, types, and relative abundance of plant and animal species in natural (biotic) communities. Biodiversity encompasses species richness as well as the genetic differences among individuals, abundance or variety of habitats, communities, ecosystems, and landscapes where species occur.

C

Carbon Monoxide (CO) — A colorless, odorless toxic gas produced by the incomplete combustion of organic materials used as fuels.

Census Block — A subdivision of a census block group, a block is the smallest geographic unit for which the U.S. Census Bureau tabulates 100-percent data. Many census blocks correspond to individual city blocks bounded by streets; but census blocks – especially in rural areas – may include many square miles and may have some boundaries that are not streets.

Census Tract — A small, relatively permanent statistical subdivision of a county or statistically equivalent entity, delineated for data presentation purposes by a local group of census data users or the geographic staff of a regional census center in accordance with Census Bureau guidelines. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time they are established, census tracts generally contain between 1,000 and 8,000 people, with an optimum size of 4,000 people. Census tract boundaries are delineated with the intention of being stable over many decades, so they generally follow relatively permanent visible features.

Centerline (of a runway) **—** A line that vertically bisects a runway.

Commercial Service Airports — Airports with public scheduled passenger service and having 2,500 or more enplaned passengers per year.

Combined Sewer Overflow (CSO) — The discharge of wastewater and stormwater from a combined sewer system directly into a river, stream, lake, or ocean, usually occurring during heavy rain events.

Combined Sewer System (CSS) — A type of sewer system that collects sanitary sewage and stormwater runoff in a single pipe system.

Conformity — The process of meeting Section 176(c)(1) of the Clean Air Act Amendments that requires Federal Actions to conform to the State Implementation Plan for air quality.

Construction Staging Area — A designated area where vehicles, supplies, and construction equipment are positioned for access and use to a construction site.

Control Delay — The overall delay experienced by a vehicle at a given intersection, including phases of deceleration, stopped and acceleration.

Criteria Pollutants — The six pollutants listed in the Clean Air Act that are regulated by the U.S. Environmental Protection Agency through the National Ambient Air Quality Standards (NAAQS) because of their health

and/or environmental effects. The criteria pollutants are nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, particulate matter, and lead.

Culvert — An enclosed conduit for water that generally passes under a road, railway, or embankment.

Cumulative Impacts —Defined in 40 CFR Section 1508.7 as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions."

D

Day-Night Average Sound Level (DNL) — A noise measure used to describe the average sound level over a 24-hour period, typically an average day over the course of a year. In computing DNL, an extra weight of 10 decibels is assigned to noise occurring between the hours of 10 PM and 7 AM to account for increased annoyance when ambient noise levels are lower and people are trying to sleep. DNL may be determined for individual locations or expressed in noise contours.

***De minimis* —** So small as to be negligible or insignificant.

Decibel (dB) — A measure of sound, in terms of its pressure or energy. The decibel scale is logarithmic. For example, if two sound sources each produce 100 dB and they are operated together, they produce only 103 dB – not 200 dB as might be expected. The A-weighted scale (expressed as dBA) is the relative loudness of sound as perceived by the human ear.

Deicing — Melting or keeping free of ice. In aviation, deicing refers to melting and removing ice in order to prevent unsafe conditions on airplanes and on other airport surfaces and vehicles, including runways, taxiways, apron areas, and ground service vehicles and equipment.

Demersal — Dwelling at or near the bottom of a body of water.

Departure — The act of an aircraft taking flight and leaving an airport.

Detritus — Particulate organic matter (including bodies of dead organisms, fragments of organisms, or fecal material) suspended in water.

Direct Impacts — The physical effects of a proposed project that would occur in the same place as the project at the time when the project is completed.

Discharge — Any addition, direct or indirect, of oil and/or hazardous material to surface water, groundwater, the sewer system, ground surface, or subsurface.

Displaced Threshold – A displaced threshold is used when siting a threshold other than at the runway end is necessary. At LGA, this relocation can provide a full runway safety area.

Dissolved Oxygen — The oxygen freely available in water, vital to fish and other aquatic life and for the prevention of odors. Dissolved oxygen levels are considered an important indicator of a water body's ability to support desirable aquatic life.

Distinct Population Segment (DPS) — A vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species.

E

Ecosystem — An ecological community, together with its environment, functioning as a unit.

Effluent — Water discharged, either as surface water or groundwater, from a potential source of pollutants such as a septic system or wastewater treatment facility.

Emission Factor — The rate at which a pollutant is emitted into the atmosphere by a source.

Emission Inventory — A complete list of sources and rates of pollutant emissions within a specific area and time interval.

Endangered Species — An "Endangered" species is one that is in danger of extinction throughout all or a significant portion of its range.

Engineered Material Arresting Systems (EMAS) — Collapsible blocks made of water, foam, and cement that deform readily under the weight of an aircraft tire. As the tires crush the material the drag forces decelerate the aircraft, bringing it to a safe stop.

Environmental Justice Population — Minority, Hispanic, and low income populations that may be in the area of a Proposed Action. The Environmental Justice analysis determines if any minority, Hispanic, and low income populations are present; and if those populations will be subject to disproportionate high and adverse impacts as a result of the Proposed Action, when compared to the impacts to non-minority populations.

Epibenthic / Epifaunal Communities— the aggregate of organisms living on the sea bottom between low tide and 100 fathoms (180 meters).

Equivalent Noise Level (L_{eq}) — L_{eq} is a cumulative level of a steady tone that provides an equivalent amount of sound energy for any specific period.

Essential Fish Habitat (EFH) — Bodies of water and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Estuary — A tidal body of water where salt water from an ocean mixes with fresh water from a river.

Estuarine — Relating to, formed in, or found in an estuary. Specific to wetlands, the estuarine wetland system consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, in which ocean water is at least occasionally diluted by freshwater runoff from the land.

Eutrophic — Having waters rich in mineral and organic nutrients that promote a proliferation of plant life, especially algae, which reduces the dissolved oxygen content and often causes the extinction of other organisms.

F

Federal Action — An action initiated by a Federal agency that has effects that may be major and potentially subject to Federal control and responsibility.

Federal Aviation Administration (FAA) — The FAA constructs, operates, and maintains the National Airspace System and the facilities which are a part of the system; allocates and regulates the use of the airspace; ensures adequate separation between aircraft operating in controlled airspace; and through research and development programs, provides new systems and equipment to improve utilization of the nation's airspace.

Finding of No Significant Impacts — A document issued when environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment. The FONSI document is the EA modified to reflect all applicable comments and responses.

Flight Procedures — Flight procedures are established routes that pilots must use to depart or approach an airport.

Fugitive Dust — Fugitive dust is particulate matter that becomes airborne and has the potential to adversely affect human health or the environment. The most common forms of particulate matter are known as PM10 (particulate matter with a diameter of 10 microns or less) and PM2.5 (particulate matter with a diameter of 2.5 microns or less).

Functional Values - The benefits individuals experience, indirectly, as a consequence of the primary ecological function of a given resource. Functional values include such elements as flood control, terrestrial wildlife

habitat, aquatic habitat, groundwater recharge, aesthetics, shore and bank line geometry, water temperature, scenic and wild rivers designation, endangered species habitat, and contaminant abatement.

Floodplain — The lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year (i.e., the area that would be inundated by a 100-year flood).

G

Greenhouse Gas — Any gas that absorbs infrared radiation in the atmosphere, contributing to the greenhouse effect – the process that warms the Earth's surface. Greenhouse gases are both naturally occurring and man-made, and include carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride.

Ground Support Equipment (GSE) —GSE is the equipment used to service aircraft between flights. GSE frequently includes equipment to provide ground power operations, aircraft mobility, and loading cargo and passengers.

Groundwater — Water below the earth's surface in the zone of saturation.

Groundwater Recharge — Groundwater recharge refers to the addition of surface water to subsurface groundwater by infiltration through permeable soils.

H

Habitat — The environment occupied by individuals of a particular species, population, or community.

Hazardous Air Pollutants — Those pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. EPA is required to control 187 hazardous air pollutants. Examples of toxic air pollutants include benzene, which is found in gasoline; perchlorethlyene, which is emitted from some dry cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries.

Hazardous Material — Material, including, but not limited to, any material in whatever form which, because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious, or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or the environment when improperly stored, treated, transported, disposed of, used, or otherwise managed.

Herpetofauna — the reptiles and amphibians of a particular region, habitat, or geological period.

Hibernacula — Protective cases, coverings, or structures in which an organism remains dormant for the winter.

Hydroacoustic —Of or pertaining to sound in water.

Hydrocarbons — Compounds of hydrogen and carbon including methane and ethane. Gases that are generated by unburned and wasted fuel and come from incomplete combustion of fossil fuels and from evaporation of liquid fuels.

Hydrodynamic — Of, relating to, or operated by the force of liquid in motion.

I

Impaired Waters— Water bodies that do not or cannot meet water quality standards even with all required pollution controls in place. As these standards may vary depending on how a water body is used, a water body is typically considered impaired when it cannot safely support one or more of its designated uses. For example, a river that was open to the public for swimming could be impaired if the pollutants in the river could threaten the health of swimmers. Water quality standards and designated uses for specific water bodies are determined by NYSDEC and EPA.

Impervious Surface — Relating to hydrology. A surface through which precipitation cannot penetrate, causing direct runoff or perching (examples include asphalt paving, roofs, and densely compacted gravel).

Indirect Impacts — The consequences of a project's direct impacts. These impacts are generally not quantifiable and may occur over a larger area or a longer time frame.

Infaunal Community —Community of aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom.

Instrument Approach — A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

Instrument Landing System (ILS) — An instrument landing system is a guidance system that provides both vertical and horizontal information used to align an aircraft with the centerline of a runway.

Instrument Meteorological Conditions (IMC) — Weather conditions where visibility is reduced and an airplane pilot must rely on instrument guidance for final approach and landing.

Intertidal — Of or being in the area between the high tide mark and the low tide mark.

L

Level of Service (LOS) — A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers, with LOS "A" being the best rating, and LOS "F" being the worst. Generally describes conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience and safety.

Low Income — Department of Transportation (DOT) Order 5610.2 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 United States Department of Health and Human Services.

M

Maintenance Area — Any geographic area of the U.S. that had been previously designated by USEPA as a nonattainment area pursuant to the Clean Air Act Amendments of 1990 and subsequently redesignated to attainment.

Mean Low Water (MLW) — The average of all the low water heights observed over the National Tidal Datum Epoch.

Mechanoreception — Ability of an animal to detect and respond to certain kinds of stimuli in its environment, notably touch, sound, and changes in pressure or posture—in its environment.

Minority — According to the 2000 U.S. Census, a minority person is defined as an individual who is a member of one of the following population groups: Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian; Other Pacific Islander; some other race alone; and two or more races.

Mitigation — Actions that avoid, minimize, or compensate for potential adverse impacts.

N

National Ambient Air Quality Standard (NAAQS) — Air quality standards established by USEPA to protect human health (primary standards) and to protect property and aesthetics (secondary standards).

National Environmental Policy Act of 1969, as amended (NEPA) — The Federal legislation that requires an interdisciplinary approach in planning and decision-making for federal-aid actions. The Act includes requirements

for the contents of Environmental Assessments. The interdisciplinary study approach includes the analysis of potential impacts to the natural, social, and economic environment.

National Pollutant Discharge Elimination System (NPDES) – Permit program authorized under the Clean Water Act that controls water pollution by regulating point sources that discharge pollutants into waters of the United States. In 1975, the EPA authorized New York State to implement the NPDES program, which it does with its State Pollutant Discharge Elimination System (SPDES) program (see SPDES).

National Priority List (NPL) — A list maintained by the U.S. Environmental Protection Agency (EPA) of certain inactive hazardous waste sites. The list is produced and updated periodically by the EPA.

National Wetland Inventory (NWI) — A series of topical maps that show wetlands and deepwater habitats. The goal of the NWI is to provide current geospatially-referenced information on the status, extent, characteristics, and functions of wetland, riparian, deepwater, and related aquatic habitats in priority areas, in order to promote the understanding and conservation of these resources.

Navigational Aid (NAVAID) — Any visual or electronic device, airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight. Runway End Identifier Lights (REIL) are approach lighting located on both corners of a runway threshold which provide synchronized flashing to identify the runways end. High Intensity Runway Lights (HIRL) aid in early identification of the approach end of the runway. Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) is a medium approach intensity lighting system (ALS) installed in airport runway approach zones along the extended centerline of the runway.

NGVD 29 / NAVD 88 — NGVD 29 and NAVD 88 are both vertical datum that define a system for comparing elevations. For many years, the zero point used throughout the U.S. was based on "mean sea level" at 26 separate tidal stations in the U.S. and Canada. This datum was referred to as the National Geodetic Vertical Datum of 1929 (NGVD 29). The main assumption used to create NGVD 29 - water level is equal all along the coast and thus represents the same zero- later proved to be erroneous and was shown to create errors in the elevation data obtained using this datum. The new official vertical datum used in the U.S. is the North American Vertical Datum of 1988 (NAVD 88).

Nitrogen Oxides (NO_x) — Poisonous and highly reactive gases produced when fuel is burned at high temperatures, causing some of the ambient nitrogen in the air to burn also.

Noise Exposure — The cumulative sound energy affecting a person over a specified period of time.

Noise-Sensitive Sites — An area where noise interferes with normal activities associated with its use. Normally, noise-sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites.

Non-attainment Area — Any geographic area of the U.S. that is in violation of any NAAQS and therefore has been designated by USEPA as non-attainment pursuant to the Clean Air Act (as amended in 1990).

Non-native (Invasive) Species — Introduced species that have adverse economic, environmental, and/or ecological effects on the habitats they invade. Such invasive species may be either plants or animals and may disrupt by dominating a region, wilderness areas, particular habitats, or wildland-urban interface land from loss of natural controls (such as predators or herbivores).

O

Operation — A takeoff or landing by an aircraft. The arrival and subsequent departure of one aircraft is counted as two operations.

Outfall — A pipe box culvert discharging stormwater at the end of a closed drainage system or channel.
Ozone (O_3) — A colorless, toxic gas formed by the photochemical reactions in the atmosphere of VOCs with nitrogen oxides.

P

Passenger Car Equivalent (PCE) —The impact that a mode of transport has on traffic variables (such as headway, speed, density) compared to a single car.

Pelagic — Living or occurring within the open sea. Pelagic fish are those species that live at the surface or within the water column, but not the bottom of the ocean.

Pile drivers — Large pieces of equipment used to drive piles or foundation supports into the ground.

$PM_{2.5}$ — Particulate matter that is made up of small solid particles and liquid droplets (aerosols), in which particles are 2.5 micrometers or less in diameter.

PM_{10} — Particulate matter that is made up of small solid particles and liquid droplets (aerosols), in which particles are 10 micrometers or less in diameter.

Pollutant — Substance in air, water, or soil that can cause disease or harm to the environment.

Pollution — Change in the physical, chemical, radiological, or biological quality of a resource (air, land, or water), caused by people or due to human activities, that is injurious to existing, intended, or potential uses of the resource.

Polychaetes — A class of annelid worms (or "ringed worms"), with species that can tolerate the coldest ocean temperatures and extreme high temperatures.

Polychlorinated Biphenyls (PCBs)— Man-made organic chemicals that have a range of toxicity, demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979.

ppm — Parts per million, by volume.

Precursor — A chemical compound that leads to the formation of a pollutant, e.g., VOCs and NOx are precursors to ozone formation.

Project Area —The area that would be physically altered by construction of the Proposed Action.

Proposed Action – The actions, or set of actions, proposed by an airport sponsor.

R

Record of Decision (ROD) — The document that provides the Federal agency's rationale for selecting the preferred alternative and the mitigation requirements to implement the project. The agency uses information in the Final Environmental Assessment to prepare the ROD.

Release — Spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of a regulated substance into the environment.

Riffle and Pool Complex— Develops as a stream's flow alternates areas of relatively shallow and deepwater in a stream channel. Riffles are characterized by water flowing rapidly over a coarse substrate, and pools are characterized as deeper areas of water associated with riffles.

Runoff — The portion of rainfall, melted snow, or other precipitation that flows across the ground surface to a drain, sewer, stream, lake, pond or river.

Runway — A defined rectangular area on an airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees in the direction of aircraft travel, e.g., Runway 4, Runway 31.

Runway Arrival End — The end of the runway upon which an aircraft first touches down. For example at LaGuardia Airport, aircraft arriving *from* the northeast over the East River would use the Runway 22 Arrival End.

Runway Departure End — The end of the runway at which an aircraft starts its takeoff. For example at LaGuardia Airport, aircraft departing *to* the northeast over the East River would use the Runway 4 Departure End.

Runway Incursion — A runway incursion is any unauthorized intrusion onto a runway, regardless of whether or not an aircraft presents a potential conflict.

Runway Object Free Area (ROFA) — The runway object free area is an area centered on the runway; it is free of objects, except for those items needed for air navigation or aircraft ground maneuvering (e.g., lights, signs), in order to improve safety for aircraft operations.

Runway Protection Zone (RPZ) — An area off the end of the runway to enhance the protection of people and property on the ground.

Runway Safety Area (RSA) — A defined surface surrounding the runway that is suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Runway Threshold — The beginning of the portion of the runway that is available for takeoff or for landing.

Runway Use — Runway use (or, runway utilization) refers to the frequency (expressed as a percent) with which aircraft utilize each runway during the course of a year, as dictated or permitted by wind, weather, aircraft weight, air traffic control, and according to established, voluntary noise abatement procedures.

S

Scour — The hole or indentation left behind when sediment is washed away from the bottom of a river due to stream or tidal action, particularly during a flood.

Sediment — Fragmental mineral particles from soil and rock materials created by the process of erosion and transported by water, wind, ice, and gravity.

Semidiurnal — Occurring or coming approximately once every 12 hours, as the tides.

Soil — Unconsolidated mineral and organic material that supports, or is capable of supporting, plants, and which has recognizable properties due to the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over time.

Sole Source Aquifer — An aquifer designated by USEPA as the sole or principal source of drinking water for an area pursuant to Section 1424(e) of the Federal Safe Drinking Water Act, as amended. USEPA defines a sole or principal source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area

overlying the aquifer. These areas can have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

Sound Pressure Level (SPL) — Sound pressure level is sound pressure converted to the decibel scale, which represents the physical intensity of a sound.

Spill Prevention Control and Countermeasures (SPCC) — Regulations applied to those businesses that exceed certain designated oil storage capacities, in order to prevent oil from entering navigable waters through the prevention, control, and mitigation of oil spills.

State Implementation Plan (SIP) — The strategy to be used by a state to control air pollution in order that NAAQS violations will be eliminated.

State Pollution Discharge Elimination System (SPDES) — A state's permit program, authorized under the Clean Water Act through the Environmental Protection Agency's NPDES program, to control water pollution by regulating point sources that discharge pollutants into waters of the United States. An organization's SPDES permit would include requirements to regulate discharge, such as developing a Stormwater Pollution Prevention Plan and/or implementing BMPs.

Stopway — A stopway is an area at the end of a runway (with the same width and marked with chevrons) that is able to support an aircraft during an aborted takeoff without causing structural damage.

Stormwater Overflows — Occur during prolonged or heavy rainfall events, in which stormwater overflow chambers and sewer systems.

Stormwater Pollution Prevention Plan (SWPPP) — A plan that identifies controls (such as BMPs) that will be put in place to minimize negative impacts caused by stormwater runoff to the environment. Developing a SWPPP is often a requirement under an organization's NPDES/SPDES permit.

Stormwater Runoff — The portion of precipitation that flows over land areas toward stream channels, lakes, or other water bodies.

Study Area — The area that is being studied in the Draft EA for potential impacts that would result from the No-Action Alternative and the Proposed Action.

Subtidal — Those areas that lie below the low-tide mark, but are still shallow and close to shore. These areas are submerged most of the time, but can be exposed briefly during extreme low tides.

Sulfur Dioxide (SO_2) — Sulfur dioxide is a corrosive gas produced mainly from the burning of fuels containing sulfur compounds.

Surface Water — Water that is open to the atmosphere and subject to runoff. All waters other than groundwater, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and vernal pools.

T

Taxa — A group of organisms which are considered to be a part of the same unit (phylum, order, family, genus, or species).

Taxiway — A defined path within the airport established for the taxiing of aircraft and intended to provide a link between one part of the airport and another.

Terrestrial — Of, relating to, or composed of land.

Threatened Species — A "Threatened" species is one that is likely to become endangered in the foreseeable future.

Total Maximum Daily Load (TMDL) — A calculation of the amount of a pollutant that a water body can receive, while still safely meeting water quality standards.

Touchdown Zone Lighting — Touchdown zone lighting assists pilots on their arrival; this lighting includes rows of white light bars (with three in each row) at 200′ intervals on either side of the centerline for 3,000 feet.

Trophic System — System the feeding habits or food relationship of different organisms in a food chain.

Turbidity — The cloudiness or haziness of a fluid caused by individual particles that are normally invisible to the eye. Measuring turbidity is often used in water quality tests.

U

Upland — Any area that has sufficiently dry conditions that indicators of hydrophytic vegetation, hydric soils, and/or wetland hydrology are lacking. Any area that is neither a wetland, a deepwater aquatic habitat, nor other special aquatic site.

V

Vegetation — The sum total of plants that occupy a given area.

Vertical Stratification — The vertical distribution of water density in bodies of fresh or salt water.

Vibratory Hammer — A type of pile driver which uses vibrations to change the form of soils in order to drive piles into the ground.

Volatile Organic Compounds (VOCs) — VOCs are a general class of compounds containing various levels of hydrogen and carbon that are chemically active in the atmosphere. VOCs are created when fuels or organic materials are burned or evaporate into the atmosphere. Most hydrocarbons are presumed to be VOCs in the regulatory context, unless specified otherwise by USEPA.

W

Waterfront Revitalization Program (WRP) — New York City policies regulating the development and use of waterfront areas.

Watershed — The contributing region or area from which surface runoff from precipitation flows into a stream or body of surface water.

Wetland — Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Z

Zoning — The designation that a municipality gives to land that controls the type, size, lot coverage, and other characteristics of the site.

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J Comments on the Draft EA and Responses to Comments

The following federal and state agencies, and individuals provided comments on the Draft EA for the LaGuardia Airport Runway Safety Area Enhancements project:

- Letter 1: United States Environmental Protection Agency
- Letter 2: New York City Department of City Planning
- Letter 3: New York City Department of Transportation
- Letter 4: New York City Department of Economic Development
- Letter 5: Julissa Ferreras, Council Member, 21st District, Queens
- Letter 6: Phil Konigsberg
- Letter 7: Jimmy Chao
- Letter 8: Kathy
- Letter 9: Aline and Henry Euler
- Letter 10: Susan Carroll
- Letter 11: Cecilia Cody
- Letter 12: James Cody
- Letter 13: Mary Ann Cornell, Resident of Eastern Queens
- Letter 14: Edward Faraday
- Letter 15: Bob Whitehair
- Letter 16: Unknown commenter (email address only given)
- Letter 17: Giovanna Reid, District Manager, Community Board 3, Queens

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Letter 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP - 4 2013

Mr. Edward Knoesel
The Port Authority of New York and New Jersey
233 Park Avenue South, 9th Floor
New York, NY 10003

Dear Mr. Knoesel:

The Environmental Protection Agency (EPA) has reviewed the August 2013 Draft Environmental Assessment (EA) analyzing the potential effects associated with the proposed LaGuardia Airport Runway Safety Area Enhancements at LaGuardia Airport, Borough of Queens, New York. The proposed action includes extension of two runway decks by approximately 180 feet to accommodate Engineered Material Arrestor Systems to comply with a Congressional mandate for enhancing the Runway Safety Areas of the ends of Runways 4 and 31, as well as constructing a new section of the Restricted Vehicle Service Road located airside around the south end of Runway 22. Construction staging area for this project would be located on airport at employee parking lot 10E as well as at an undeveloped property in the airport leasehold located 0.2 miles west of the airfield and bounded by the Riker's Island Bridge, 19th Avenue, 45th Street, and Berrian Boulevard.

EPA concurs that the project is unlikely to have a significant impact on the environment when coupled with the proposed environmental performance commitments and mitigation.

Thank you for the opportunity to comment on the Draft EA.

Sincerely,

Grace Musumeci

Grace Musumeci, Chief
Environmental Review Section
Sustainability and Multimedia Programs Branch

cc: Marie C. Jenet, FAA

Letter #:	**1**
From:	**United States Environmental Protection Agency**

	Comment	Response
1	EPA concurs that the project is unlikely to have a significant impact on the environment when coupled with the proposed environmental performance commitments and mitigation.	Thank you for your comment.

Letter 2

From: JESSICA FAIN <JFAIN@planning.nyc.gov>
Sent: Thursday, September 05, 2013 12:07 PM
To: LGA RSAE EA
Cc: Jeffrey.Zappieri@dos.ny.gov; MICHAEL MARRELLA; Sturn, Terra (DOS)
Subject: LGA RSEA EA Comment _ WRP comments from the Dept of City Planning

The NYC Department of City Planning has reviewed the LaGuardia Airport Runway Safety Area Enhancements project for consistency with the NYC Waterfront Revitalization Program. We have several questions with respect to the WRP policies.

1. Will there be any local land use actions required as part of this project? We understand that the on-land portions of the project are within the LaGuardia lease agreement area, but do the in-water extensions of the runways require a land disposition action? Please confirm.

2. The response to Policy 3.1 (5-8) describes that the project will have no impact on navigation. Please clarify if the deck extension would further push out the Dept. of Homeland Security exclusion zone to maintain a 200 foot buffer from the deck. How would this impact navigation? A map of the navigational areas and their relationship with the project would be helpful to illustrate this.

2. In the response to Policy 6 on flooding and erosion, please include information about whether there will be other project elements (besides the deck) included in the flood zone, and what precautions will be taken to ensure their resiliency in the event of a coastal storm. For example, will any new electrical equipment installed and will it be flood-proofed?

3. While chapter on Hydrodynamics (5.1.2.2) states that the impacts on erosion or sedimentation will be negligible for the Runway 31 extension, it also states: "Overall, the Runway 4 End deck extension is expected to cause small, localized changes to the erosion and sedimentation patterns"(5-54). Please clarify this statement and provide additional detail about the impacts of sedimentation.

5. Will the planned relocation of the staff parking lot be permanent or temporary?

Please feel free to provide any immediate responses electronically, and incorporate revisions into the WRP policy responses in the EA as needed. If you have any questions, you can contact me at 212-720-3525.

Sincerely,

JESSICA FAIN
PLANNER, WATERFRONT AND OPEN SPACE DIVISION

NYC DEPT OF CITY PLANNING
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www.nyc.gov/planning
Follow us on Twitter @NYCPlanning

Letter #:	**2**
From:	**New York City Department of City Planning**

	Comment	Response
1	Will there be any local land use actions required as part of this project? We understand that the on land portions of the project are within the LaGuardia lease agreement area, but do the in-water extensions of the runways require a land disposition action? Please confirm.	Section 1.4, p1-7 and 1-8 describes the process for acquiring from the State of New York the property interests for the land under water, on which the deck extensions would be built. Included in Appendix A, Agency Coordination, of the Final EA is a letter dated August 13, 2013 from the New York State Office of General Services, supporting the Port Authority's request to obtain an easement through lands underwater of the People of the State of New York for the purpose of extending runway decking.
2	The response to Policy 3.1 (5 8) describes that the project will have no impact on navigation. Please clarify if the deck extension would further push out the Dept. of Homeland Security exclusion zone to maintain a 200 foot buffer from the deck. How would this impact navigation? A map of the navigational areas and their relationship with the project would be helpful to illustrate this.	Determination as to whether the exclusion zone will be extended will be coordinated with the Department of Homeland Security. The project will not affect navigation because the RSA enhancements are a minimum of 2,000 feet from the existing navigation channel.
3	In the response to Policy 6 on flooding and erosion, please include information about whether there will be other project elements (besides the deck) included in the flood zone, and what precautions will be taken to ensure their resiliency in the event of a coastal storm. For example, will any new electrical equipment installed and will it be flood proofed?	As documented in Section 5.5.2 of the Draft EA, excavation or filling for the Ingraham's Mountain Construction Staging Area would not encroach on the 100- or 500-year floodplains due to its higher elevation. Section 5.5.3 of the Draft EA states that only a small portion of the Restricted Vehicle Service Road would be within the 500-year and 100-year floodplains. The majority of the work would occur on existing paved surfaces and would not increase the flooding risk at downstream properties. Electrical equipment will not be flood-proofed. The proposed RSA Enhancements are in the 100-year floodplain. New electrical equipment associated with the RSAs will be installed and flood-proofed to the fullest extent possible.
4	While chapter on Hydrodynamics (5.1.2.2) states that the impacts on erosion or sedimentation will be negligible for the Runway 31 extension, it also states: "Overall, the Runway 4 End deck extension is expected to cause small, localized changes to the erosion and sedimentation patterns"(5 54). Please clarify this statement and provide additional detail about the impacts of sedimentation.	The statement has been revised as follows: "Based on the modeled change in current speeds, the Runway 4 End deck piles are anticipated to result in negligible effects on erosion or sedimentation patterns in the Study Area." The supporting technical report defines the maximum extent of changes observed in the currents which extends approximately 2,000 feet west and 2,000 feet northeast of the Runway 4 End.
5	Will the planned relocation of the staff parking lot be permanent or temporary?	As documented in Section 3.4.1.4, no employee parking will be relocated. Employee Parking Lot 10E is currently underutilized. The unutilized portion of the parking lot would be converted to a construction staging area during RSA construction, and then would revert to employee parking following the RSA project.

Letter 3

NEW YORK CITY DOT

Department of Transportation

JANETTE SADIK-KHAN, Commissioner

To: Robert Kulikowski, Director
Mayor's Office of Environmental Coordination

From: for Naim Rasheed, Director
Traffic Planning

Re: LaGuardia Airport –Runway Safety Area Enhancements
Draft Environmental Assessment
CEQR No.:14FAA001Q

Date: September 23, 2013

We have reviewed Draft Environmental Assessment (EA) for the above referenced project and submit the following comments:

1. Please have the consultant provide all back-up materials, including the following:
   a. ATR, TMC, vehicle classification data
   b. Official signal timing sheets
   c. Physical inventory
   d. Field notes and observations
   e. HCS analyses
   f. Calculation sheets (PHF, HV%, etc.)
   g. Calculations for daily construction vehicle (worker vehicles and PCE construction trucks), distribution, and assignment, etc.
   h. Volume maps for the Existing, No-Action and with Action (construction period)
   i. Reverse Journey-to-Work 2010 U.S. Census data
   j. Schematic scaled drawings of 19th Avenue and 81st Street Construction Access Road and planned signal timing sheets
   k. Parking utilization survey supporting the statement that the employee parking lot (10e) is underutilized.

2. In the first paragraph under Section 5.14.7.1 *Methodology*, the assessment of potential significant impacts is based on other traffic studies conducted by the Port Authority. Please note that the 2012 CEQR Technical Manual must be utilized, as the project site is located in New York City.

3. The construction schedules of the LaGuardia Central Terminal Building (LGA CTB) and Runway Safety Area enhancements overlap. Please verify that the consultant has included both construction sites in the traffic analyses. In addition, both EAs analyze different hours as the AM peak, different impact criteria, etc. Both projects should develop one common baseline network for construction, as well as utilize HCS for the traffic analyses. Please have the consultant ensure both EAs are consistent.

4. Please have the consultant revise the EA by adding text to Section 4.2.9 describe the existing street network and the traffic data collection (ATR, TMC, vehicle classification, etc.).

NYC Department of Transportation
Division of Traffic and Planning
55 Water Street, 6th Floor, New York, NY 10041
T:212- 839-7710 F: 212-839-7777
www.nyc.dot.gov

5. The second paragraph in Section 5.11.2 *Proposed Action* states that the elimination of the channelized right turn lane on Runway Drive approach resulting in a shared through and right lane is not anticipated to adversely affect traffic operations. Please have the consultant perform analyses at this location to determine the validity of this statement. Although this roadway is not under DOT's jurisdiction, it should be noted that the HCS analysis performed as part of the LGA CTB draft EA (which is currently under review by DOT), shows when the channelized right turn lane and through lane is replaced with one shared through and right lane, the LOS and delay goes from LOS D with 36.3 seconds of delay on the through lane and LOS A with 5.9 seconds of delay in the right turn lane to a LOS E with 56.7 seconds of delay for the shared through and right turn lane during the Existing AM peak (7:30 – 8:30), which is considered a significant impact according to the CEQR Technical Manual impact criteria. Please have the consultant clarify the discrepancies and revise the analyses accordingly.

6. Will the Runway Drive remain open to the public and airport service vehicles during the construction of the Restricted Vehicle Service Road (RVSR)? Section, 5.14.7.3 *Proposed Action* does not provide this information. Please include detailed text on how traffic will be maintained on the Runway Drive or any planned detours during RVSR construction.

7. The fourth paragraph under Section 5.14.7.3 *Proposed Action* states the following:

   "The Port Authority (Traffic Engineering) would coordinate with NYCDOT regarding construction of the new intersection at 19th Avenue and 81st Street. This coordination would occur once the access point design is finalized."

   Please have the consultant revise the text as coordination between the Port Authority and NYCDOT for the access point design should occur before the design is finalized. In addition, if the design has not been finalized then how was this intersection analyzed in Synchro?

8. Please have the consultant provide DOT's signal warrant study booklet for the proposed traffic signal at the intersection of 19th Avenue and 81st Street.

9. Please have the consultant revise Table 5-11 as the intersection of 19th Avenue and 81st Street is listed twice.

If you have any questions or need additional information, please call me at (212) 839-7710 or Michele Samuelsen-Jaiswal at (212) 839-7758.

c: A/C R. Russo, B/C D. Hall, S. Ahmed, M. Samuelsen-Jaiswal, File
e:\Samuelsen\LGARunwaySafety

NYC Department of Transportation
Division of Traffic and Planning
55 Water Street, 6th Floor, New York, NY 10041
T:212- 839-7710 F: 212-839-7777
www.nyc.dot.gov

Letter #:	**3**
From:	**New York City Department of Transportation**

#	Comment	Response
1	Please have the consultant provide all back-up materials, including the following: a. ATR, TMC, vehicle classification data b. Official signal timing sheets c. Physical inventory d. Field notes and observations e. HCS analyses f. Calculation sheets (PHF, HV%, etc.) g. Calculations for daily construction vehicle (worker vehicles and PCE construction trucks), distribution, and assignment, etc. h. Volume maps for the Existing, No-Action and with Action (construction period) i. Reverse Journey-to-Work 2010 U.S. Census data j. Schematic scaled drawings of 19th Avenue and 81st Street Construction Access Road and planned signal timing sheets k. Parking utilization survey supporting the statement that the employee parking lot (10e) is underutilized.	The Port Authority of New York and New Jersey (Port Authority) will provide these materials. Port Authority is in the process of determining whether a signal is necessary at the intersection of 19th Avenue and 81st Street. The Port Authority will coordinate the design with the New York City Department of Transportation (NYCDOT).
2	In the first paragraph under Section 5.14.7.1 *Methodology,* the assessment of potential significant impacts is based on other traffic studies conducted by the Port Authority. Please note that the 2012 CEQR Technical Manual must be utilized, as the project site is located in New York City.	Since the LaGuardia Airport Runway Safety Area Enhancements project is a short-term construction project with modest traffic volumes during the construction AM and PM peak hours, the traffic impact criteria used were deemed to be more appropriated, as described in the Draft EA. These impact criteria have been used on other Port Authority Environmental Assessments on New York City streets, including the World Trade Center Vehicle Security Center Environmental Assessment (EA).
3	The construction schedules of the LaGuardia Central Terminal Building (LGA CTB) and Runway Safety Area enhancements overlap. Please verify that the consultant has included both construction sites in the traffic analyses. In addition, both EAs analyze different hours as the AM peak, different impact criteria, etc. Both projects should develop one common baseline network for construction, as well as utilize HCS for the traffic analyses. Please have the consultant ensure both EAs are consistent.	*NOTE: In the development of the Draft EA for the LaGuardia Airport Central Terminal Building Redevelopment project (CTB), Port Authority coordinated with NYCDOT to confirm assumptions and analysis methodology. The Draft EA has not yet been released for public comment.* The construction schedule and estimated vehicle distribution patterns were evaluated for the LGA Central Terminal Building Redevelopment (CTB) project. It was determined that during the peak quarter of the LaGuardia Airport Runway Safety Area Enhancement construction evaluated for traffic impacts (third quarter of 2014), there would be a negligible amount of construction traffic from the LGA CTB project. The LGA CTB project forecasts that the peak construction would occur in the fourth quarter of 2015, and substantial construction would not begin before the third quarter of 2014.

Letter #:	**3**
From:	**New York City Department of Transportation**

#	Comment	Response
4	Please have the consultant revise the EA by adding text to Section 4.2.9 describe the existing street network and the traffic data collection (ATR, TMC, vehicle classification, etc.).	Since this Draft EA had no significant impacts, Port Authority did not prepare a detailed roadway network write-up. Description of the existing street network and traffic data collection has been included in Appendix D, *Surface Transportation*.
5	The second paragraph in Section 5.11.2 *Proposed Action* states that the elimination of the channelized right turn lane on Runway Drive approach resulting in a shared through and right lane is not anticipated to adversely affect traffic operations. Please have the consultant perform analyses at this location to determine the validity of this statement. Although this roadway is not under DOT's jurisdiction, it should be noted that the HCS analysis performed as part of the LGA CTB draft EA (which is currently under review by DOT), shows when the channelized right turn lane and through lane is replaced with one shared through and right lane, the LOS and delay goes from LOS D with 36.3 seconds of delay on the through lane and LOS A with 5.9 seconds of delay in the right turn lane to a LOS E with 56.7 seconds of delay for the shared through and right turn lane during the Existing AM peak (7:30- 8:30), which is considered a significant impact according to the CEQR Technical Manual impact criteria. Please have the consultant clarify the discrepancies and revise the analyses accordingly.	Because the approach in question would experience a net decrease in vehicle trips, Port Authority did not analyze that intersection on that basis in this Draft EA. Changes to the right turn lanes on Runway Drive would not adversely affect operations, because the Port Authority would make minor reallocations of green time at this signalized intersection.
6	Will the Runway Drive remain open to the public and airport service vehicles during the construction of the Restricted Vehicle Service Road (RVSR)? Section, 5.14.7.3 *Proposed Action* does not provide this information. Please include detailed text on how traffic will be maintained on the Runway Drive or any planned detours during RVSR construction.	Yes, a minimum of one lane each way will be maintained in existing Runway Drive during construction. Preliminary maintenance of traffic plans are under development at this time, and will be made available to NYCDOT before they are finalized.

Letter #:	**3**
From:	**New York City Department of Transportation**

#	Comment	Response
7	The fourth paragraph under Section 5.14.7.3 *Proposed Action* states the following: "The Port Authority (Traffic Engineering) would coordinate with NYCDOT regarding construction of the new intersection at 19th Avenue and 81st Street. This coordination would occur once the access point design is finalized." Please have the consultant revise the text as coordination between the Port Authority and NYCDOT for the access point design should occur before the design is finalized. In addition, if the design has not been finalized then how was this intersection analyzed in Synchro?	The EA has been revised to indicate that coordination with NYCDOT will occur before the design has been finalized. The conceptual design of the construction vehicle access road and signal were not complete at the time the Draft EA was prepared. The Synchro analysis in the Draft EA assumed a two-phase signal with signal timing consistent with the nearby intersection of 81st Street and Ditmars Boulevard, which provides signal progression along 81st Street. The EA has been revised as follows: The Port Authority (Traffic Engineering) would coordinate with NYCDOT regarding construction of the new intersection at 19th Avenue and 81st Street. This coordination would occur before the access point design is finalized. All necessary permits and approvals would be secured prior to construction. Because the conceptual design of the construction vehicle access road and signal were not complete at the time this EA was prepared, the analysis in the EA assumed a two-phase signal with signal timing consistent with the nearby intersection of 81st Street and Ditmars Boulevard, which provides signal progression along 81st Street
8	Please have the consultant provide DOT's signal warrant study booklet for the proposed traffic signal at the intersection of 19th Avenue and 81st Street.	The Port Authority will provide the signal warrants when the conceptual design of the signal and driveway are developed.
9	Please have the consultant revise Table 5-11 as the intersection of 19th Avenue and 81st Street is listed twice.	Table revised as requested

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Letter 4

NYCEDC
New York City Economic Development Corporation

September 23, 2013

Bob-

Thank you for the opportunity to comment on the Draft Environmental Assessment for the LaGuardia Airport Runway Safety Area Enhancements project. Our questions are listed below.

- The Environmental Assessment refers to construction material being shipped to the site by barge. Will a temporary dock be built? If so, where will it be built?

- Would Ingraham's Mountain only be used for employee parking or would construction staging occur there as well?

- We are unclear about how the grade of Ingraham's Mountain would change over the course of the project.

- Please provide a graphic showing how the three intersections would be realigned for the RVSR. We are unclear about how the roadway configurations would change and what the geometries would be. (Section 5.11.2)

- What would be the procedure on Ingraham Mountain that "ensures the safe handling of fill" during excavation? (Section 5.14.3)

- The text says that all construction activity would happen on the weekends, would all of the truck activity happen on the weekends as well? (Section 5.14.5.2) Would construction materials be driven to the staging area during the week and then distributed throughout the site at night?

- Where are the local and through truck routes that the construction trucks will use to access the site? (Section 5.14.7.3)

110 William Street, New York, NY 10038 ▪ 212.619.5000 ▪ www.nycedc.com

- Given that New York City Economic Development Corporation, through the Department of Small Business Services, holds the airport lease, please include NYC EDC when distributing future material to the city agencies (ES-8).

- In general, and particularly for the section that names preferred mitigation sites (6.2.4.3), what were the criteria used to choose sites – it is unclear from the language in that section exactly how these choices were made.

- More specific focus is needed on quantifying exactly how much mitigation is needed, particularly the expected mitigation ratios.

- For each mitigation site, it is important to identify both in-kind and out-of-kind mitigation. Some of the sites include some potentially in-kind work such as pier removal that might increase the attractiveness of a mitigation package.

- Hallet's Cove may be a viable option, though it did not make it to the four preferred alternatives. Please discuss why it wasn't chosen as a viable option.

- The New York City Parks Department's Natural Resources Group is working on projects in many of the sites. Will the Port Authority coordinate with NRG on Puglsey Creek, Ferry Point, and Powell's Cove?

- Turtle Cove in Pelham Bay Park, which is not on the list on the wetland mitigation list, may be worth consideration. It includes a derelict pier. The Queens side of the Whitestone Bridge is another possibility.

- We had a few comments about the South Bronx Greenway. Sanitation is working on removing the marine transfer terminal and while they may be using it for their own mitigation, this could be a useful site.

- Please provide more detail in the avoidance and minimization section (6.2.3). It would be helpful to explain using the FAA mandate why the impact is unavoidable, and also what specifications make it impossible to minimize impacts.

Letter #:	**4**
From:	**New York City Economic Development Corporation**

#	Comment	Response
1	The Environmental Assessment refers to construction material being shipped to the site by barge. Will a temporary dock be built? If so, where will it be built?	Some construction material will be barged to the Airport and moored offshore west of the existing runway deck. A temporary ramp for crew boat may be required if the existing boat ramp north of parking lot 10E is unsuitable for the contractor's use.
2	Would Ingraham's Mountain only be used for employee parking or would construction staging occur there as well?	As stated in Section 3.4.1.4, Ingraham's Mountain would be used only for construction staging and construction worker parking. Airport employee parking will be accommodated at the existing employee parking lot 10E.
3	We are unclear about how the grade of Ingraham's Mountain would change over the course of the project.	As shown on Figure 3-12, Ingraham's Mountain would be re-graded from its current elevation of 88 feet to a new elevation of 67 feet, a 21-foot decrease in height.
4	Please provide a graphic showing how the three intersections would be realigned for the RVSR. We are unclear about how the roadway configurations would change and what the geometries would be. (Section 5.11.2)	Figure 3-9 shows the realigned intersections at Runway Drive/Bowery Boulevard and Runway Drive/Marine Terminal Road. Figure 3-12 shows the proposed temporary Controlled Airport Access Road for construction vehicles at the 81st Street and 19th Avenue intersection. This temporary intersection would not require any physical roadway reconfigurations.
5	What would be the procedure on Ingraham Mountain that "ensures the safe handling of fill" during excavation? (Section 5.14.3)	The procedure is covered under the contract document following typical PA standard specifications and notes.
6	The text says that all construction activity would happen on the weekends, would all of the truck activity happen on the weekends as well? (Section 5.14.5.2) Would construction materials be driven to the staging area during the week and then distributed throughout the site at night?	As described in Section 5.14.7, RSA Enhancement construction would occur on weekends during the day and overnight on weekdays, RVSR construction would occur on weekends and weekdays during the day and overnight; and development of the Ingraham's Mountain Construction Staging Area would occur on weekdays. Deliveries to these sites would only be permitted during construction hours as described above.
7	Where are the local and through truck routes that the construction trucks will use to access the site? (Section 5.14.7.3)	81st/82nd Streets, Astoria Boulevard and 19th Avenue are the local and through truck routes that construction trucks would use to access the site.
8	Given that New York City Economic Development Corporation, through the Department of Small Business Services, holds the airport lease, please include NYC EDC when distributing future material to the city agencies (ES-8).	NYC EDC will be added to the distribution list.
9	In general, and particularly for the section that names preferred mitigation sites (6.2.4.3), what were the criteria used to choose sites – it is unclear from the language in that section exactly how these choices were made.	Sites identified as preferred mitigation sites were chosen based on their proximity to LaGuardia Airport, and their ability to replace functions and values of the subtidal and intertidal habitats that would be lost or altered by the proposed project.
10	More specific focus is needed on quantifying exactly how much mitigation is needed, particularly the expected mitigation ratios.	The Port Authority's next steps in the mitigation planning process are: 1. <u>Obtain written concurrence from FAA and/or USDA concerning on-site mitigation options:</u> Resource agencies are likely to prioritize on-site mitigation which may be determined by the Federal Aviation Administration (FAA) or U.S. Department of

Letter #:	**4**
From:	**New York City Economic Development Corporation**

#	Comment	Response
		Agriculture Animal and Plant Health Inspection Service (USDA-APHIS) Wildlife Services to be a wildlife hazard. It may be necessary to obtain a written opinion in order to eliminate on-site options. 2. Gaining approval on the mitigation ratio: Developing an understanding of the aerial extent of the mitigation coverage will be critical to determine the mitigation opportunities available to the Port Authority. It is possible that the New York State Department of Environmental Conservation (NYSDEC) and the United States Army Corps of Engineers (USACE) may accept different ratios for different types of mitigation projects (i.e. subtidal enhancements could achieve different ratios than enhancing or creating intertidal vegetated habitats). Established ecological functional assessment methodologies could be used to develop a rationale to support mitigation ratios ranging from 0.5:1 to 3:1 depending upon the habitat type and expectation of environmental benefit (e.g., enhancement or creation). 3. Gaining approval on the spatial boundaries of the area within which off-site mitigation would receive credit: Because mitigation opportunities may be limited or infeasible in the vicinity of the airport, it will be necessary to obtain NYSDEC and USACE concurrence that mitigation sites within the larger Upper East River watershed would be acceptable. 4. Meeting with Port Authority Partners / Restoration Practitioners: The Port Authority sits on the NY/NJ Harbor Estuary Program's Restoration Workgroup (RWG) along with the major environmental stakeholders in the region (e.g., the USACE, the U.S. Environmental Protection Agency, the National Oceanographic and Atmospheric Administration, NYSDEC, New York State Department of Parks and Recreation, and non-governmental organizations). This group was formed to assist and guide the comprehensive ecosystem restoration planning process. Meeting with the RWG to discuss the need for the Runway Safety Area (RSA) Enhancements and need for mitigation opportunities may reveal upcoming projects or high priority restoration opportunities that could assist the Port Authority in developing a mitigation proposal. 5. Developing Conceptual Mitigation Proposal: Develop a mitigation proposal to be included in the permit application. The proposal will state the need for mitigation, the objectives of mitigation and discuss the timing in relation to project implementation. The timing of mitigation will be in accordance with requirements of the permitting agencies.

Letter #:	**4**
From:	**New York City Economic Development Corporation**

#	Comment	Response
11	For each mitigation site, it is important to identify both in-kind and out-of- kind mitigation. Some of the sites include some potentially in-kind work such as pier removal that might increase the attractiveness of a mitigation package.	Agreed. This is included in the "next steps" outlined above as part of the permit application process.
12	Hallet's Cove may be a viable option, though it did not make it to the four preferred alternatives. Please discuss why it wasn't chosen as a viable option.	As noted on page 6-7 of Section 6.2.4.2 of the Draft EA, Hallet's Cove was identified as one of a number of potential sites for enhancement of shorelines and shallows, habitat for fish and invertebrates, as well as other ecosystem benefits. Hallet's Cove is also shown on Figure 6-1, *Potential Off-Site Aquatic Habitat Mitigation Sites.* Additional site specific information would be required to determine the feasibility of restoring habitats on these sites to serve as mitigation.
13	The New York City Parks Department's Natural Resources Group is working on projects in many of the sites. Will the Port Authority coordinate with NRG on Puglsey Creek, Ferry Point, and Powell's Cove?	Yes, PA will coordinate with the NRG as mitigation options are further developed in the permitting process.
14	Turtle Cove in Pelham Bay Park, which is not on the list on the wetland mitigation list, may be worth consideration. It includes a derelict pier. The Queens side of the Whitestone Bridge is another possibility.	Thank you for the suggestion. The PA will consider these sites as mitigation options are further developed in the permitting process.
15	We had a few comments about the South Bronx Greenway. Sanitation is working on removing the marine transfer terminal and while they may be using it for their own mitigation, this could be a useful site.	Thank you for the suggestion. The PA will consider these sites as mitigation options are further developed in the permitting process.
16	Please provide more detail in the avoidance and minimization section (6.2.3). It would be helpful to explain using the FAA mandate why the impact is unavoidable, and also what specifications make it impossible to minimize impacts.	Section 6.2.3 has been revised to provide additional detail on avoidance and minimization.

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Letter 5

DISTRICT OFFICE
32-33A JUNCTION BLVD.
EAST ELMHURST, NEW YORK 11369
TEL: (718) 651-1917
FAX: (718) 565-5937

CITY HALL OFFICE
250 BROADWAY, RM 1805
NEW YORK, NEW YORK 1000
TEL: (212) 788-6862
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THE COUNCIL
OF
THE CITY OF NEW YORK

JULISSA FERRERAS
COUNCIL MEMBER, 21ST DISTRICT, QUEENS

CHAIR
WOMEN'S ISSUES

COMMITTEES
CIVIL RIGHTS
CONSUMER AFFAIRS
ECONOMIC DEVELOPMENT
FINANCE
HEALTH
PARKS AND RECREATION

September 23, 2013

Edward Knoesel
The Port Authority of NY & NJ
233 Park Ave South, 9th Floor
New York, NY 10003

Dear Mr. Knoesel:

I am writing to request that the Environmental Assessment (EA) for the LaGuardia Airport Runway Safety Area Enhancement project include a careful analysis and consideration of four areas that could adversely affect my district and constituents. While I understand this enhancement will take place to comply with a Congressional mandate, I still have several concerns. For example, I anticipate the potential for significant negative effects on our environment, and I welcome this opportunity to direct the Port Authority of NY & NJ attention to these four areas: cumulative impacts of USTA, Willets Points construction projects; community outreach; impact of parking garages on traffic demand and congestion; and further analysis of indirect effects of the project due to noise.

The Scope of Work predicts a 2015 completion date for the runway safety enhancement within La Guardia Airport. Nowhere in the draft environmental assessment does it address the fact that the USTA expansion and the Willets Point and Willets West projects would be going on at literally the exact same time within less than a mile radius of the LaGuardia Airport.

The potential impacts of these three construction projects happening at the same time are staggering:

- Increased local traffic (trucks, workers, etc.)
- Enormous increase in truck traffic on local streets (bringing in new materials and removing demolition debris)
- Loss of untold amounts of parking spaces for equipment staging
- Increased noise levels from demolition and construction activity
- Heightened air pollution from truck traffic and demolition

I want to ensure the DEA models the impacts of this project and related construction under the assumption that it will happen <u>in tandem with the other proposals,</u> not in isolation.

Although the DEA contends that "The proposed action is not expected to be controversial on environmental grounds; therefore, a public hearing or meeting is not warranted at this time" (DEA,p. Transmittal-letter). I urge The Port Authority to conduct a public hearing

and/or informational session with local Community Boards 1 and 3 as well as invite local elected officials before proceeding any further.

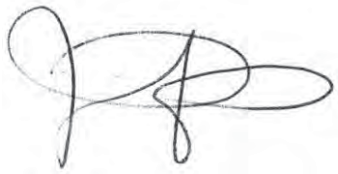
I recommend further examining the impact this construction project will have on local street parking spaces, which are currently being used at their maximum capacity by local residents and businesses. By removing the Employees parking garage for staging areas, this project will be taking away countless parking spaces within the community.

Additionally, I recommend the DEA to study more intersections in the area. These include: 94th Street and Grand Central Parkway Service Road; 94th Street and Astoria Boulevard; 111th Street and Ditmars Boulevard; 126th St and Northern Boulevard.

Furthermore, I ask that you study the noise analysis. The DEA states that there is a noise wall, which separates residential dwellings; however, in 2010, the property owners on Ditmars Boulevard rejected a plan from NYS DOT to construct a noise wall.

I hope careful consideration of these concerns in the Environmental Assessment will serve to illuminate and mitigate any negative impacts of this proposal. I look forward to discussing and better understanding how this proposal will impact my community and its constituents.

Sincerely,



Julissa Ferreras
Council Member
21st District, Queens

Letter #:	**5**
From:	**Julissa Ferreras, Council Member , 21st District, Queens**

#	Comment	Response
1	The Scope of Work predicts a 2015 completion date for the runway safety enhancement within La Guardia Airport. Nowhere in the draft environmental assessment does it address the fact that the USTA expansion and the Willets Point and Willets West projects would be going on at literally the exact same time within less than a mile radius of the LaGuardia Airport. The potential impacts of these three construction projects happening at the same time are staggering: • Increased local traffic (trucks, workers, etc.) • Enormous increase in truck traffic on local streets (bringing in new materials and removing demolition debris) • Loss of untold amounts of parking spaces for equipment staging • Increased noise levels from demolition and construction activity • Heightened air pollution from truck traffic and demolition I want to ensure the DEA models the impacts of this project and related construction under the assumption that it will happen in tandem with the other proposals, not in isolation.	The surface transportation analysis for the LaGuardia Airport Runway Safety Area Enhancements Draft EA considered the United States Tennis Association (USTA) expansion and Willets Point construction projects, but no construction traffic from those projects are anticipated to overlap at our study intersections during our peak construction period of the third quarter of 2014. Furthermore, very modest peak hour traffic volumes are expected to be generated by the LaGuardia Airport Runway Safety Area Enhancements project. Based on the Draft EA traffic projections, in the early AM construction peak hour of 6-7 AM, a maximum of 5 vehicles would travel along 23rd Avenue and 9 vehicles would cross south of Astoria Boulevard or travel along it; most of these vehicles would be construction worker autos. In the early PM construction peak hour of 3-4 PM, these volumes would be 2 vehicles and 4 vehicles, respectively
2	Although the DEA contends that "The proposed action is not expected to be controversial on environmental grounds; therefore, a public hearing or meeting is not warranted at this time" (DEA,p. Transmittal-letter). I urge The Port Authority to conduct a public hearing and/or informational session with local Community Boards 1 and 3 as well as invite local elected officials before proceeding any further.	The Port Authority has coordinated with Council Member Ferreras, who has agreed to have Port Authority staff attend a meeting in the 21st City Council District in Queens to provide additional information on the project to interested parties. This meeting is scheduled for October 30th at Council Member Ferreras' office at 32-33A Junction Boulevard in East Elmhurst, NY.
3	I recommend further examining the impact this construction project will have on local street parking spaces, which are currently being used at their maximum capacity by local residents and businesses. By removing the Employees parking garage for staging areas, this project will be taking away countless parking spaces within the community.	No loss in on-street parking is expected because staging and construction worker parking associated with the LaGuardia Airport Runway Safety Area Enhancements project would be accommodated on-site at Ingraham's Mountain. Only unused portions of Employee Parking Lot E will be used while the Ingraham's Mountain Construction Staging Area is prepared, resulting in no loss in airport employee parking and no loss in on-street parking.

Letter #:	**5**
From:	**Julissa Ferreras, Council Member , 21st District, Queens**

#	Comment	Response
4	Additionally, I recommend the DEA to study more intersections in the area. These include: 94th Street and Grand Central Parkway Service Road; 94th Street and Astoria Boulevard; 111th Street and Ditmars Boulevard; 126th St and Northern Boulevard.	Based on the single-digit volumes of peak hour traffic expected to travel south of 23rd Avenue or east of 82nd Street during the analysis peak hours, the need for traffic analyses at intersections on 94th Street was screened out.
5	Furthermore, I ask that you study the noise analysis. The DEA states that there is a noise wall, which separates residential dwellings; however, in 2010, the property owners on Ditmars Boulevard rejected a plan from NYS DOT to construct a noise wall.	There is an existing noise wall along 81st street, as described in the Draft EA. This noise wall was taken into consideration in the evaluation of construction noise impacts.

Letter 6

From: Phil Konigsberg <bayterracephil@msn.com>
Sent: Saturday, September 21, 2013 12:19 AM
To: LGA RSAE EA
Subject: COMMENT ON RUNWAY SAFETY ENHANCEMENTS AT LGA

Attn.: Edward Knoesel:

I would like to make the following comments regarding the proposed Runway Safety Enhancements at La Guardia Airport:

The draft Environmental Assessment inadequately analyzes the three alternatives.

Alternative A would shorten the runway, and alternative B would move the landing threshold. To the layman, alternatives A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and reduced airport capacity. The Port Authority dismissed the first two alternatives out of hand because the Port wants even more capacity!

Never considered in the assessment of Alternatives A and B were the potentially positive results for residents of Queens, from fewer flights and smaller planes on the runways. A properly-prepared EA would have included and discussed the information and alternatives so casually and inappropriately dismissed by the Port Authority here. Instead of basing conclusions on detailed, impartial analysis, the Agency reached the conclusion it wished by reach by ignoring all the relevant information.

Alternative C is too narrowly designed. Runway 4/22 would be lengthened to the southwest. According to the Environmental Assessment, this would require a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast end, into the water, placing the runway safety area at the southwest end of Runway 4. This alternative would result in significantly less noise for residents around the airport because planes would arrive and depart 1000 feet farther from their homes.

The same is true for Runway 13/31. In alternative C, the Environmental Assessment did not address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. This would move departing aircraft 1000 feet farther away from homes, resulting in a benefit to residents of Queens and Nassau Counties.

We ask that the EA be expanded to include:

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights.
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes.

Phil Konigsberg
bayterracephil@msn.com
Smokefree Community Advocate
Queens Tobacco Control Coalition

Letter 7

From: Jimmy Chao <Jimmy.Chao@geminifund.com>
Sent: Friday, September 20, 2013 2:23 PM
To: LGA RSAE EA
Subject: LGA RSAE EA COMMENT

The draft Environmental Assessment inadequately analyzes the three alternatives.

Alternative A would shorten the runway, and alternative B would move the landing threshold. To the layman, alternatives A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and reduced airport capacity. The Port Authority dismissed the first two alternatives out of hand because the Port wants even more capacity!

Never considered in the assessment of Alternatives A and B were the potentially positive results for residents of Queens, from fewer flights and smaller planes on the runways. A properly-prepared EA would have included and discussed the information and alternatives so casually and inappropriately dismissed by the Port Authority here. Instead of basing conclusions on detailed, impartial analysis, the Agency reached the conclusion it wished by reach by ignoring all the relevant information.

Alternative C is too narrowly designed. Runway 4/22 would be lengthened to the southwest. According to the Environmental Assessment, this would require a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast end, into the water, placing the runway safety area at the southwest end of Runway 4. This alternative would result in significantly less noise for residents around the airport because planes would arrive and depart 1000 feet farther from their homes.

The same is true for Runway 13/31. In alternative C, the Environmental Assessment did not address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. This would move departing aircraft 1000 feet farther away from homes, resulting in a benefit to residents of Queens and Nassau Counties.

We ask that the EA be expanded to include:

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights.
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes.

Thanks,
Jimmy Chao

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Letter 8

From: Kathy <kathro@aol.com>
Sent: Friday, September 20, 2013 12:15 PM
To: LGA RSAE EA
Subject: LGA RSAE EA COMMENT

Dear Mr. Knoesel

The draft Environmental Assessment inadequately analyzes the three alternatives.

Alternative A would shorten the runway, and alternative B would move the landing threshold. To the layman, alternatives A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and reduced airport capacity. The Port Authority dismissed the first two alternatives out of hand because the Port wants even more capacity!

Never considered in the assessment of Alternatives A and B were the potentially positive results for residents of Queens, from fewer flights and smaller planes on the runways. A properly-prepared EA would have included and discussed the information and alternatives so casually and inappropriately dismissed by the Port Authority here. Instead of basing conclusions on detailed, impartial analysis, the Agency reached the conclusion it wished to reach by ignoring all the relevant information.

Alternative C is too narrowly designed. Runway 4/22 would be lengthened to the southwest. According to the Environmental Assessment, this would require a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast end, into the water, placing the runway safety area at the southwest end of Runway 4. This alternative would result in significantly less noise for residents around the airport because planes would arrive and depart 1000 feet farther from their homes.

The same is true for Runway 13/31. In alternative C, the Environmental Assessment did not address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. This would move departing aircraft 1000 feet farther away from homes, resulting in a benefit to residents of Queens and Nassau Counties.

We ask that the EA be expanded to include:

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights.
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes.

Letter 9

From: Henry Euler <hpeuler28@aol.com>
Sent: Monday, September 23, 2013 10:45 PM
To: LGA RSAE EA
Subject: LGA RSAE EA

We concur with Queens Quiet Skies' testimony on this issue. Below, we have reprinted their position.

The draft Environmental Assessment inadequately analyzes the three alternatives.

Alternative A would shorten the runway, and alternative B would move the landing threshold. To the layman, alternatives A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and reduced airport capacity. The Port Authority dismissed the first two alternatives out of hand because the Port wants even more capacity!

Never considered in the assessment of Alternatives A and B were the potentially positive results for residents of Queens, from fewer flights and smaller planes on the runways. A properly-prepared EA would have included and discussed the information and alternatives so casually and inappropriately dismissed by the Port Authority here. Instead of basing conclusions on detailed, impartial analysis, the Agency reached the conclusion it wished by reach by ignoring all the relevant information.

Alternative C is too narrowly designed. Runway 4/22 would be lengthened to the southwest. According to the Environmental Assessment, this would require a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast end, into the water, placing the runway safety area at the southwest end of Runway 4. This alternative would result in significantly less noise for residents around the airport because planes would arrive and depart 1000 feet farther from their homes.

The same is true for Runway 13/31. In alternative C, the Environmental Assessment did not address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. This would move departing aircraft 1000 feet farther away from homes, resulting in a benefit to residents of Queens and Nassau Counties.

We ask that the EA be expanded to include:

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights.
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes.

Aline and Henry Euler
204-05 43 Avenue
Bayside, NY 11361-2617
Sept. 23, 2013

Letter #:	**6, 7, 8 and 9**
From:	**Phil Konigsberg, Jimmy Chao, Kathy, Aline and Henry Euler**

#	Comment	Response
1	Alternative A would shorten the runway, and alternative B would move the landing threshold. To the layman, alternatives A and B are almost identical in their impacts on flights arriving and departing LGA - smaller planes and reduced airport capacity. The Port Authority dismissed the first two alternatives out of hand because the Port wants even more capacity! Never considered in the assessment of Alternatives A and B were the potentially positive results for residents of Queens, from fewer flights and smaller planes on the runways. A properly-prepared EA would have included and discussed the information and alternatives so casually and inappropriately dismissed by the Port Authority here. Instead of basing conclusions on detailed, impartial analysis, the Agency reached the conclusion it wished by reach by ignoring all the relevant information.	As stated in Section 3.2.1 of the Draft EA, *preserving operational efficiency and capacity* at the Airport through avoiding permanent, adverse impacts to aircraft operations, airport capacity, and changes to surrounding airspace was an important part of the alternatives screening process. This screening criterion was selected because LaGuardia Airport (LGA) is a critical component of the metropolitan New York-New Jersey region aviation system and also of the national aviation system. In 2012, LGA was the 17th busiest airport in the nation in terms of aircraft operations (arrivals and departures), and 20th most active in terms of total passengers. According to the Federal Aviation Administration (FAA) statistics, LGA is the third most delayed airport in the nation. Due to the nature of airline activity at LGA, delays tend to propagate throughout the entire National Airspace System (NAS). Any project undertaken at LGA that increases delay could adversely affect the entire NAS. The ability to meet the Purpose and Need and operational feasibility was considered in the alternatives screening process. Environmental factors (such as noise exposure) were not considered for alternatives that did not meet the Purpose and Need and were not operationally feasible.
2	Alternative C is too narrowly designed. Runway 4/22 would be lengthened to the southwest. According to the Environmental Assessment, this would require a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast end, into the water, placing the runway safety area at the southwest end of Runway 4. This alternative would result in significantly less noise for residents around the airport because planes would arrive and depart 1000 feet farther from their homes.	Runway Safety Areas need to be provided along the entire runway length and on <u>both</u> ends. The southwest end of Runway 4 currently has an acceptable RSA using Engineered Materials Arresting System (EMAS). The purpose of this project is to provide an equivalent level of safety at the departure end of Runway 4. The alternative described by the reviewer considers shifting the runway thresholds permanently, and would adversely affect the capacity of the LGA. As stated in Section 3.2.1 of the Draft EA, *preserving operational efficiency and capacity* at the Airport through avoiding permanent, adverse impacts to aircraft operations, airport capacity, and changes to surrounding airspace was an important part of the alternatives screening process.
3	The same is true for Runway 13/31. In alternative C, the Environmental Assessment did not address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. This would move departing aircraft 1000 feet farther away from homes, resulting in a benefit to residents of Queens and Nassau Counties.	See previous response

Letter #:	**6, 7, 8 and 9**
From:	**Phil Konigsberg, Jimmy Chao, Kathy, Aline and Henry Euler**

#	Comment	Response
4	We ask that the EA be expanded to include: 1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights.	The purpose of the proposed project, as defined in Section 2.1, is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 per Congressional mandate, and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LGA. Reducing the number of flights would not meet the project purpose and would not enhance safety at LGA.
5	2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes.	Shifting runway threshold ends permanently would result in airspace changes that would reduce the capacity of the airfield and would not meet the project purpose of enhancing safety at LGA (see response above).

Letter 10

From: Susan C. <susanc718@yahoo.com>
Sent: Saturday, September 21, 2013 1:16 PM
To: LGA RSAE EA
Subject: LGA RSAE EA COMMENT

Dear Mr. Knoesel,
I stand by Queens Quiet Skies' position re: the Port Authority's LGA runway configuration proposals. You should be working with area residents to try to alleviate the unbearable LGA plane noise, and not dismiss mitigation efforts (e.g. extending the runways into the water, shortening the runways, smaller planes) out of hand.
Sincerely,
Susan Carroll
Flushing, NY

Letter #:	**10**
From:	**Susan Carroll**

	Comment	Response
1	I stand by Queens Quiet Skies' position re: the Port Authority's LGA runway configuration proposals. You should be working with area residents to try to alleviate the unbearable LGA plane noise, and not dismiss mitigation efforts (e.g. extending the runways into the water, shortening the runways, smaller planes) out of hand.	The purpose of the proposed project is to enhance the Runway Safety Areas at LaGuardia Airport (LGA), and not to mitigate existing noise exposure. The Proposed Action (described in Section 3.4 of the Draft EA) would result in no changes to the aircraft noise exposure surrounding the Airport. Existing noise abatement procedures would remain in effect at LGA.

Letter 11

September 17, 2013

Port Authority of NY & NJ
233 Park Ave South, 9th Floor
New York, New York 10003

Attn. Edward Knoesel

RE: LGA RSAE EA COMMENT

Dear Sir,

In regards to the proposal to add runway safety areas at each end of the existing runways at LaGuardia Airport I find that it is inadequate for several reasons.

As a resident of Bayside for over 35 years I am familiar with the patterns of Jet traffic over the years. However, for the past year there has been a very significant increase in the overhead pattern which is too low, too loud and too frequent to the point of noise torture. With that said,

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights. Instead of basing conclusions on detailed, impartial analysis the Agency has reached the conclusion it wished by once again ignoring all the relevant information. The Port Authority has dismissed the first two alternatives out of hand because it wants more capacity!
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes. This Alternative fails to address the possible extension of Runway 4/22 at the other end, the NorthEast end, into the water. The same is true for Runway 13/31.

Please give serious thought to the Alternatives issued and keep in mind what is fair for the residents of Queens who have earned the right to live in peace not pieces!

Remember that our quality of life has already been severely diminished and our sanity challenged not to mention lack of sleep, use of our own backyards and environmental pollution by the FAA Next Gen Flights.

Sincerely,

CECILIA C CODY

36-08 211 Street, Bayside, NY 11361

cc: Queens Quiet Skies, PO Box 604888, Bayside, N.Y. 11360

Letter 12

September 17, 2013

Port Authority of NY & NJ
233 Park Ave South, 9th Floor
New York, New York 10003

Attn. Edward Knoesel

RE: LGA RSAE EA COMMENT

Dear Sir,

In regards to the proposal to add runway safety areas at each end of the existing runways at LaGuardia Airport I find that it is inadequate for several reasons.

As a resident of Bayside for over 35 years I am familiar with the patterns of Jet traffic over the years. However, for the past year there has been a very significant increase in the overhead pattern which is too low, too loud and too frequent to the point of noise torture. With that said,

1. In Alternatives A and B, provide discussion of the positive results of reducing the number of flights. Instead of basing conclusions on detailed, impartial analysis the Agency has reached the conclusion it wished by once again ignoring all the relevant information. The Port Authority has dismissed the first two alternatives out of hand because it wants more capacity!
2. In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes. This Alternative fails to address the possible extension of Runway 4/22 at the other end, the NorthEast end, into the water. The same is true for Runway 13/31.

Please give serious thought to the Alternatives issued and keep in mind what is fair for the residents of Queens who have earned the right to live in peace not pieces!

Remember that our quality of life has already been severely diminished and our sanity challenged not to mention lack of sleep, use of our own backyards and environmental pollution by the FAA Next Gen Flights.

Sincerely,

James J Cody

36-08 211 Street, Bayside, NY 11361

cc: Queens Quiet Skies, PO Box 604888, Bayside, N.Y. 11360

Letter #:	**11 and 12**
From:	**Cecilia Cody, James Cody**

	Comment	Response
1	In Alternatives A and B, provide discussion of the positive results of reducing the number of flights. Instead of basing conclusions on detailed, impartial analysis the Agency has reached the conclusion it wished by once again ignoring all the relevant information. The Port Authority has dismissed the first two alternatives out of hand because it wants more capacity!	The purpose of the proposed project, as defined in Section 2.1, is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 per Congressional mandate, and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LaGuardia Airport (LGA). Reducing the number of flights was not considered as an alternative because it would not meet the project purpose of enhancing runway safety areas at LGA. As stated in Section 3.2.1 of the Draft EA, *preserving operational efficiency and capacity* at the Airport through avoiding permanent, adverse impacts to aircraft operations, airport capacity, and changes to surrounding airspace was an important part of the alternatives screening process. This screening criterion was selected because LGA is a critical component of the metropolitan New York-New Jersey region aviation system and also of the national aviation system. In 2012, LGA was the 17th busiest airport in the nation in terms of aircraft operations (arrivals and departures), and 20th most active in terms of total passengers. According to FAA statistics, LGA is the third most delayed airport in the nation. Due to the nature of airline activity at LGA, delays tend to propagate throughout the entire National Airspace System (NAS). As a result, any project undertaken at LGA that increases delay could adversely affect the entire NAS. The ability to meet the Purpose and Need and operational feasibility was considered in the alternatives screening process. Environmental factors (such as noise exposure) were not considered for alternatives that did not meet the Purpose and Need, and were not operationally feasible.
2	In Alternative C, provide discussion of the positive results for residents of Queens of moving takeoffs 1000 feet farther away from homes. This Alternatives fails to address the possible extension of Runway 4/22 at the other end, the NorthEast end, into the water. The same is true for Runway 13/31.	See Responses 4 and 5 to Letters 5, 6, 7, and 8

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Letter 13

From: maryanncornell@aol.com
Sent: Sunday, September 22, 2013 3:47 PM
To: LGA RSAE EA
Subject: Environmental assessment

Please expand the EA to include more discussion @ alternatives A, B, and C.

Mary Ann Cornell, resident of Eastern Queens strongly impacted by the noise from new flight patterns from LaGuardia.

Letter #:	**13**
From:	**Mary Ann Cornell, Resident of Eastern Queens**

	Comment	Response
1	Please expand the EA to include more discussion @ alternatives A, B, and C.	See Responses 4 and 5 to Letters 5, 6, 7, and 8

Letter 14

September 23, 2013

Mr. Edward Knoesel
The Port Authority of New York and New Jersey
233 Park Avenue South , 9th Floor
New York, New York 10003

Dear Mr. Knoesel;

In response for the public to submit comments on the proposed LaGuardia Airport safety area enhancements at LaGuardia Airport by The Port Authority of New York and New Jersey and mandated by Congress, my comments are as follows:

The construction of the proposed East Garage to accommodate the traveling public and airport visitors are necessary and envioronmentally sound. The trenching along Grand Central parkway to upgrade the ageing electrical system for LaGuardia Airport is essential and I have no issues with these proposed projects.

I do offer objections to the proposed installation of the arrestor systems and the extension of the runways at the end of runways 4 and 31.

In the seventy years of operations at LaGuardia Airport I can recall only one incident of which an airplane did over-run the existing runway and spill into Flushing Bay. Had LaGuardia Airport been closed that day due to heavy snow and ice conditions, that accident could have prevented. The accident occurred at the end of runway 13 and it is ironic an arrestor system is not proposed for runway 13. One runway incident in seven decades, although serious, does not constitute a serious safety problem for airplanes landing at LaGuardia Airport. I live approximately nine miles northwest of LaGuardia Airport. I am directly under the arbitrary flight paths of low flying jet airplanes arriving and departing from LaGuardia Airport. The airplane noise begins at 6:00 am in the morning and continues until 11:00 pm at night. My concern is that the proposed extention of the runways 4 and 31 at LaGuardia Airport will have the potential to accommodate larger aircraft that will create more noise pollution in and around LaGuardia Airport.

President Obama delivered a speech on the deficit and budget on September 16, 2013. He stated and I quote " We should cut out programs that we don't need ." The proposed extention of runways 4 and 31 will clearly amount to government boondoggle.

Respectfully yours;

Edward J. Faraday

Edward J.Faraday
2466 Second Street
Fort Lee, New Jersey 07024 Phone 551-265-3855

Letter #:	**14**
From:	**Edward Faraday**

	Comment	Response
1	I do offer objections to the proposed installation of the arrestor systems and the extension of the runways at the end of runways 4 and 31. In the seventy years of operations at LaGuardia Airport I can recall only one incident of which an airplane did over-run the existing runway and spill into Flushing Bay. Had LaGuardia Airport been closed that day due to heavy snow and ice conditions, that accident could have prevented [sic]. The accident occurred at the end of runway 13 and it is ironic an arrestor system is not proposed for runway 13. One runway incident in seven decades, although serious, does not constitute a serious safety problem for airplanes landing at LaGuardia Airport.	In November 2005, Congress mandated that all commercial airports provide RSAs that comply with Federal Aviation Administration (FAA) standards by the end of 2015. The need for Runway Safety Areas (RSAs) to protect aircraft and passengers is not reactive or determined based on the history of prior accidents at a specific airport, but is proactive and determined by national standards. As described in Chapter 2, *Purpose and Need,* the runways at LGA do not constitute a serious safety problem - however, the existing safety areas do not meet current FAA standards (which are based on national studies of accident types, severity and frequency) and are required to be updated to enhance safety at LGA.
2	I live approximately nine miles northwest of LaGuardia Airport. I am directly under the arbitrary flight paths of low flying jet airplanes arriving and departing from LaGuardia Airport. The airplane noise begins at 6:00 am in the morning and continues until 11:00 pm at night. My concern is that the proposed extension of the runways 4 and 31 at LaGuardia Airport will have the potential to accommodate larger aircraft that will create more noise pollution in and around LaGuardia Airport.	The proposed RSAs are safety improvements and do not extend the length of runways or have any effect on normal runway operations, runway capacity, or the types of aircraft that can use the runways. The proposed deck extensions will support extended Runway Safety Areas using Engineered Materials Arresting Systems (EMAS). These EMAS beds are composed of collapsible concrete and cannot be used by aircraft.

Bob Whitehair
241-20 Northern Blvd., Apt. 4F
Douglaston, NY 11362
bobwhitehair@gmail.com

September 23, 2013

The Port Authority of NY & NJ
233 Park Avenue South, 9th Floor
New York, NY 10003
Attn: Edward Knoesel
Emailed to: LGARSAEEA@panynj.gov

SUBJECT: LGA RSAE EA COMMENT

Dear Mr. Knoesel:

I am writing this letter as my own personal comment on the LGA RSAE Environmental Assessment, in addition to the comments from Queens Quiet Skies, an organization of which I am a member and Vice President. I write as a licensed private pilot, a former airport manager, and former member of the SFO Aviation Roundtable. The EA as presented in draft form is inadequate, as shown in detail in this letter.

Through an announcement in the *Queens Courier*, a local newspaper, I was made aware of a comment period for the Draft Environmental Assessment for the LaGuardia Airport Runway Safety Area Enhancements (RSAE). Because the comment period closes today, I offer the following timely comments:

Although I applaud the Port of New York and New Jersey for placing notices to the public in many local newspapers, I find the public notification methodology very lacking, and not consistent with more robust communications practices at other United States Airports. For example, Airports in Chicago, Louisville, San Francisco, Los Angeles, Portland (Oregon), Louisville, and many others, communicate about potential airport projects and changes, through an extensive list of citizens, public organizations, community groups, and governmental agencies. These airports typically have a staff dedicated to searching out community "stakeholders" with the intention of constant contact, feedback, and information-sharing.

Unfortunately, most people in my apartment building, in this community, and in the organization Queens Quiet Skies had not heard of this issue until I brought it to their attention.

I find the Port's methodology lacking in comparison, and that is one of the reasons I have become so actively involved in the airport noise issue.

For all stages of this and other projects, we ask that the Port follow benchmark public communication practices of other airports around the country. One method that is popular and effective is to develop, through a fully functioning Aviation Roundtable, a full, ongoing campaign of public outreach.

Secondly, the Draft EA inappropriately and too quickly dismisses Alternatives A, B, and C. Alternative A would shorten runway 13/31, and Alternative B would move the landing threshold of Runway 13/31. To the layman, Alternative A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and less capacity.

While Alternatives A and B were dismissed from the perspective of airline capacity, they fail to even mention the positive impacts on the residents of Queens, as a result of fewer flights and smaller planes. A properly prepared EA would have included such information and consideration of Alternatives would have been based on detailed analysis, not casually dismissed.

Alternative C is too narrowly designed as well; under this alternative, runway 4/22 would be lengthened to the southwest, requiring, according to the EA, a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the other end, the northeast into the water, thereby placing the runway safety area at the southwest end of Runway 4, adjacent to the freeway. This alternative would have significant positive impacts on the residents of Queens, from planes arriving and departing 1000 feet farther from homes.

And similarly for Runway 13/31 in Alternative C, the EA could have, but did not, address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. For runway 13 takeoffs, planes would be 1000 feet farther away from residents. This would be that would be extremely beneficial to the residents of Queens and Nassau County that suffer through noisy airplane flights.

I ask that the EA be expanded to include:

1. A fuller outreach to the community.
2. In Alternatives A and B, provide discussion of the positive impacts for the residents of Queens, from reducing the number of flights.
3. In Alternatives C, provide discussion of the positive impacts for the residents of Queens, from moving takeoffs 1000 feet farther away from residents.

I thank you for your careful consideration.

Respectfully,

Bob Whitehair
bobwhitehair@gmail.com
650-444-6878

Letter #:	**15**
From:	**Bob Whitehair**

	Comment	Response
1	I find the public notification methodology very lacking, and not consistent with more robust communications practices at other United States Airports. For all stages of this and other projects, we ask that the Port follow benchmark public communication practices of other airports around the country. One method that is popular and effective is to develop, through a fully functioning Aviation Roundtable, a full, ongoing campaign of public outreach.	As described in the transmittal letter, Executive Summary (page ES-9) and Chapter 1 (page 1-9) of the Draft EA, an announcement was printed in 12 newspapers *(Newark Star Ledger, Bergen Record, Daily News (Queens edition), Queens Courier, Queens Chronicle, Queens Gazette, Queens Tribune, Queens Times Ledger, Queens Ledger, El Especialito, Greek News, and the Sing Tao Daily).* In addition, Port Authority met with a number of community officials, as listed in Appendix F, *Public Coordination.* The Final EA includes the clippings from the newspaper announcements, as an addition to Appendix F, *Public Coordination.*
2	Secondly, the Draft EA inappropriately and too quickly dismisses Alternatives A, B, and C. Alternative A would shorten runway 13/31, and Alternative B would move the landing threshold of Runway 13/31. To the layman, Alternative A and B are almost identical in their impacts on flights arriving and departing LGA – smaller planes and less capacity. While Alternatives A and B were dismissed from the perspective of airline capacity, they fail to even mention the positive impacts on the residents of Queens, as a result of fewer flights and smaller planes. A properly prepared EA would have included such information and consideration of Alternatives would have been based on detailed analysis, not casually dismissed.	As stated in Section 3.2.1 of the Draft EA, *preserving operational efficiency and capacity* at the Airport through avoiding permanent, adverse impacts to aircraft operations, airport capacity, and changes to surrounding airspace was an important part of the alternatives screening process. This screening criterion was selected because LaGuardia Airport (LGA) is a critical component of the metropolitan New York-New Jersey region aviation system and also of the national aviation system. In 2012, LGA was the 17th busiest airport in the nation in terms of aircraft operations (arrivals and departures), and 20th most active in terms of total passengers. According to Federal Aviation Administration (FAA) statistics, LGA is the third most delayed airport in the nation. Due to the nature of airline activity at LGA, delays tend to propagate throughout the entire National Airspace System (NAS). As a result, any project undertaken at LGA that increases delay could adversely affect the entire NAS. Alternatives A and B were dismissed because they would not meet the purpose and need of the project. The ability to meet the Purpose and Need and operational feasibility was considered in the alternatives screening process. Environmental factors (such as noise exposure) were not considered for alternatives that did not meet the Purpose and Need, and were not operationally feasible.
3	Alternative C is too narrowly designed as well; under this alternative, runway 4/22 would be lengthened to the southwest, requiring, according to the EA, a realignment of the Grand Central Parkway, either by tunneling or roadway realignment. But Alternative C fails to address the possible extension of Runway 4/22 at the <u>other end</u>, the northeast into the water, thereby placing the runway safety area at the southwest end of Runway 4, adjacent to the freeway. This alternative would have significant positive impacts on the residents of Queens, from planes	See Responses 4 and 5 to Letters 5, 6, 7 and 8

Letter #:	**15**
From:	**Bob Whitehair**

	Comment	Response
	arriving and departing 1000 feet farther from homes.	
4	And similarly for Runway 13/31 in Alternative C, the EA could have, but did not, address the possibility of lengthening the runway into the water, moving the threshold to the end of the new section. For runway 13 takeoffs, planes would be 1000 feet farther away from residents. This would be that would be extremely beneficial to the residents of Queens and Nassau County that suffer through noisy airplane flights.	See Responses 4 and 5 to Letters 5, 6, 7 and 8
5	I ask that the EA be expanded to include: 1. A fuller outreach to the community.	As described in the Draft EA in the transmittal letter, Executive Summary (page ES-9) and Chapter 1 (page 1-9), an announcement was printed in 12 newspapers *(Newark Star Ledger, Bergen Record, Daily News (Queens edition), Queens Courier, Queens Chronicle, Queens Gazette, Queens Tribune, Queens Times Ledger, Queens Ledger, El Especialito, Greek News, and the Sing Tao Daily).* In addition, Port Authority met with a number of community officials, as listed in Appendix F, *Public Coordination.* The Final EA includes the clippings from the newspaper announcements, as an addition to Appendix F, *Public Coordination.*
6	2. In Alternatives A and B, provide discussion of the positive impacts for the residents of Queens, from reducing the number of flights.	The purpose of the proposed project, as defined in Section 2.1, is to increase safety for aircraft and their passengers by enhancing the Runway Safety Areas (RSAs) at the Runway 4 and 31 Ends by the end of 2015 per Congressional mandate, and by creating a new section of the Restricted Vehicle Service Road (RVSR) south of the Runway 22 End to reduce the potential for dangerous runway incursions and to provide a safe on-Airport route for fuel trucks and other service vehicles at LaGuardia Airport (LGA). Reducing the number of flights was not considered as an alternative because it would not meet the project purpose of enhancing runway safety areas at LGA.
7	3. In Alternatives C, provide discussion of the positive impacts for the residents of Queens, from moving takeoffs 1000 feet farther away from residents.	Sifting runway threshold ends permanently would result in airspace changes that would reduce the capacity of the airfield and would not meet the project purpose of enhancing safety at LGA (see response above).

Letter 16

From: lascg111@aol.com
Sent: Friday, September 20, 2013 3:43 PM
To: LGA RSAE EA
Subject: Runway extensions

Please consider the residents of North East Queens when configuring the runway extensions. Add moor runway into the waters off Laguardia would lessen the noise over our homes.

Letter #:	**16**
From:	**Unknown commenter (email address only given)**

	Comment	Response
1	Please consider the residents of North East Queens when configuring the runway extensions. Add moor [sic] runway into the waters off Laguardia would lessen the noise over our homes.	The proposed project will not lengthen either runway. The project is necessary to meet Federal Aviation Administration (FAA safety requirements, and will extend the two existing decks. As described in Response 2 of Letter 13, the Runway Safety Areas (RSAs) cannot be used by aircraft.

The City of New York

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Edward Knoesel
The Port Authority of NY&NJ
233 Park Ave. South, 9th floor
New York, NY1003

September 23, 2013

Re: **Environmental Assessment for the LaGuardia Airport Runway Safety Area Enhancement Project**

Dear Mr. Knoesel,

Although the Port Authority has indicated that a public hearing - meeting is not warranted; as the "proposed action is not expected to be controversial on environmental grounds," Community Board 3 ,Queens, concurs with Council Member Ferreras' assessment of the impacts that the project will have on the communities that directly surround the airport, Community Board 1, 3, and 7.

In addition to the Willets Point and USTA expansions the potential of increased traffic, noise and air pollution have not been considered in the Environmental Assessment. Nor has the Port Authority's projects at LaGuardia Airport slated for the same period of time been factored in, i.e. the construction of the East End electrical substation that will be built in parking lot #4 east of 102 Street Bridge, construction of the new concrete encased underground ductbanks under and across the properties in the vicinity of the GCP and 23rd Avenue (LaGuardia Airport Entrance.) Further there has been no mention of the construction of a five story parking garage that will be built next to the substation. It is not clear as to how all of these projects that will occur at the very same time won't have a negative affect our community.

Further note, with the exception of Community Board 3 the community boards that surround the airport are not aware of this project.

We therefore respectfully request that you look into all the aforementioned concerns before moving ahead with the project.

Thank you in advance for your cooperation.

Sincerely,

Giovanna A. Reid
District Manager
Community Board3

Letter #:	**17**
From:	**Giovanna Reid, District Manager, Community Board 3, Queens**

	Comment	Response
1	In addition to the Willets Point and USTA expansions the potential of increased traffic, noise and air pollution have not been considered in the Environmental Assessment.	The surface transportation, noise, and air quality analyses for the LaGuardia Airport Runway Safety Area Enhancements Draft EA considered the United States Tennis Association (USTA) expansion and Willets Point construction projects, but no construction traffic from those projects are anticipated to overlap at our study intersections during our peak construction period of the third quarter of 2014. Furthermore, very modest peak hour traffic volumes are expected to be generated by the LaGuardia Airport Runway Safety Area Enhancements project. Based on the Draft EA traffic projections, in the early AM construction peak hour of 6-7 AM, a maximum of 5 vehicles would travel along 23rd Avenue and 9 vehicles would cross south of Astoria Boulevard or travel along it; most of these vehicles would be construction worker autos. In the early PM construction peak hour of 3-4 PM, these volumes would be 2 vehicles and 4 vehicles, respectively
2	Nor has the Port Authority's projects at LaGuardia Airport slated for the same period of time been factored in, i.e. the construction of the East End electrical substation that will be built in parking lot #4 east of 102 Street Bridge, construction of the new concrete encased underground ductbanks under and across the properties in the vicinity of the GCP and 23rd Avenue (LaGuardia Airport Entrance.)	Cumulative impacts associated with all other past, on-going, and reasonably foreseeable projects in the vicinity of the Proposed Project (e.g. the East End Substation and East Garage project and the Central Terminal Building (CTB) Redevelopment Program) are discussed in Section 5.15, *Cumulative Impacts,* of the Draft EA. As documented in the Draft EA, there will be some construction overlap between the East End Substation and East Garage project, the CTB Redevelopment Program, and the Proposed Action. Regarding traffic impacts, the cumulative impacts of these projects occurring simultaneously could have the potential for adverse traffic impacts, but traffic improvements to increase traffic capacity and operations are currently being planned by the proposed CTB Redevelopment Program, which would mitigate impacts for that construction project. No cumulative noise effects are expected because pile driving for the Proposed Action would not overlap with pile driving associated with the East Garage. The construction emissions associated with the Proposed Action are less than the *de minimis* thresholds. The East End Substation/East Garage and the proposed CTB Redevelopment Program construction emissions are also each expected to be below *de minimis* thresholds. Taken together, the RSA Enhancements, East End Substation/East Garage project, and proposed CTB Redevelopment Program construction emissions are below *de minimis* thresholds.

Letter #:	**17**
From:	**Giovanna Reid, District Manager, Community Board 3, Queens**

3	Further there has been no mention of the construction of a five story parking garage that will be built next to the substation. It is not clear as to how all of these projects that will occur at the very same time won't have a negative affect our community.	The five story parking garage that will be built next to the substation is part of the East End Substation and East Garage project. Please refer to the previous response indicating how this project was addressed in the LaGuardia Airport Runway Safety Area Enhancements Draft EA.