Final Environmental Assessment for the South Cargo Facility at Rhode Island T. F. Green International Airport

Prepared for the
Rhode Island Airport Corporation

Prepared by
AECOM

June 7, 2023

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

Cheryl Quaine Digitally signed by Cheryl Quaine
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Responsible FAA Official:______________________________ Date: __________

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NEW ENGLAND REGION

FINDING OF NO SIGNIFICANT IMPACT

Development of a South Cargo Facility at Rhode Island T. F. Green International Airport

T. F. Green International Airport (PVD)
Warwick, Rhode Island

For further information

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June 12, 2023

GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT IS IN THIS DOCUMENT?

This document is the Federal Aviation Administration's (FAA) Finding of No Significant Impact (FONSI) for a project develop an air cargo facility on the south side of Rhode Island T. F. Green International Airport (PVD or "the Airport") in the City of Warwick, in Kent County. This document includes the agency determinations and approvals for those proposed Federal actions described in the Final Environmental Assessment dated June 12, 2023. This document discusses all alternatives considered by FAA in reaching its decision, summarizes the analysis used to evaluate the alternatives, and briefly summarizes the potential environmental consequences of the Proposed Action (Preferred Alternative) and the No Action Alternative, which are evaluated in this FONSI.

BACKGROUND.

In March 2023, the Rhode Island Airport Corporation (RIAC) prepared a Draft Environmental Assessment (Draft EA). The Draft EA addressed the potential environmental effects of the proposed project including alternatives to that proposal. The Draft EA was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) [Public Law 91-190, 42 USC 4321-4347], the implementing regulations of the Council on Environmental Quality (CEQ) [Title 40, Code of Federal Regulations (C.F.R.) Parts 1500-1508], and FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA), Implementing Instructions for Airport Actions*.

FAA approved the Final EA on June 12, 2023.

WHAT SHOULD YOU DO?

Read the FONSI to understand the actions that FAA intends to take relative to the proposed airfield pavement and facilities improvements at T.F. Green International Airport.

WHAT HAPPENS AFTER THIS?

RIAC may begin to implement the Proposed Action (Preferred Alternative).

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FINDING OF NO SIGNIFICANT IMPACT

DEVELOPMENT OF A SOUTH CARGO FACILITY AT T. F. GREEN INTERNATIONAL AIRPORT (PVD) WARWICK, RHODE ISLAND

1. Introduction.

This document is the Federal Aviation Administration's (FAA) Finding of No Significant Impact (FONSI) for a project develop an air cargo facility on the south side of Rhode Island T. F. Green International Airport (PVD or "the Airport") in the City of Warwick, in Kent County. Rhode Island Airport Corporation (RIAC) is the airport sponsor. The Federal Aviation Administration (FAA) must comply with NEPA and other applicable statutes before taking any federal actions that are necessary prior to implementation of the project. NEPA requires that after preparing an Environmental Assessment, federal agencies must decide whether to issue a Finding of No Significant Impact and approve the proposed project, or prepare an environmental impact statement prior to rendering a final decision on approval of a proposed project. The FAA has completed the environmental assessment, considered its analysis, and determined that no further environmental review is required. Therefore, the FAA is issuing this FONSI, accompanied and supported by the FAA's Final Environmental Assessment (Final EA) completing environmental review requirements for the project.

2. Purpose and Need.

Chapter 2 of the Final EA describes the purpose and need for the proposed project.

The project's needs are based on the existing cargo area's functional deficiencies and obsolete characteristics in addition to the difficult geometrics of the airside connecting taxilane and landside connecting roadways. The project purpose is to replace the deficient and obsolete facilities with modern cargo buildings and ancillary facilities that meet current design standards for safe and efficient cargo operations and to provide additional capacity to accommodate projected near-term growth in express cargo activity at PVD.

3. Proposed Project and Federal Actions.

The Proposed Action evaluated in this FONSI includes the following project components:

Under the Preferred Alternative, RIAC would relocate FedEx and UPS cargo operations from the Northeast Apron to the south side of the Airport. The project site consists mostly of a former parking lot (Lot E) that was used for long-term auto parking for the passenger terminal building. The project site also includes vacant land to the southeast across Strawberry Field Road. Major elements of the project include:

- Cargo Building. Construct two single-story warehouse buildings providing up to 140,000-sf of multi-use space for processing cargo.
- Aircraft Parking Apron. On the airside of the cargo building, provide airfield pavement for parking six wide-body cargo freighters and three smaller turboprop/commuter type aircraft. Additional apron space is required for ground handling operations.
- Truck Loading Docks. On the landside of the cargo building, provide for the truck-to-building interface with berths for trucks to back-up to the overhead doors of the cargo staging areas inside the building.
- Access Road and Circulation. Vehicle access/egress would use existing roads and a

portion of parking Lot E. The access road would connect to the truck docks, truck staging area, and employee parking.

- Employee Parking. Repurpose a portion of the existing surface parking lot for airline employees and visitors.
- Truck Parking/Staging Area. Repurpose a portion of the existing surface parking lot for trucks to park and wait for loading dock assignment at the cargo building.
- Noise Barrier Wall. The project also includes construction of a new noise barrier to replace the existing barrier wall that would be removed. The new barrier system consists of a landscaped earthen berm supporting a pre-cast concrete wall, with trees planted to provide for visual screening and noise reduction for residences along Palace Avenue and Strawberry Field Road.

4. FAA Actions

FAA will take the following actions to authorize implementation of the proposed projects:

Unconditional approval of the Airport Layout Plan (ALP) depicting the proposed improvements pursuant to Title 49 U.S.C. 40103(b), *Sovereignty and Use of Airspace,* 44718, *Structures Interfering with Air Commerce or National Security,* and 47107(a)(16), *Project Grant Application Approval Conditioned on Assurances about Airport Operations*; Title 14, C.F.R. Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*; and 14 C.F.R. Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*;

Determinations under Title 49 U.S.C. § 47106, *Project Grant Application Approval Conditioned on Satisfaction of Project Requirements,* and § 47107, *Project Grant Application Approval Conditioned on Assurances about Airport Operations,* relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) and/or under Title 49 U.S.C. § 40117, *Passenger Facility Charges,* as implemented by 14 C.F.R. § 158.25, *Applications*, to impose and use passenger facility charges (PFCs) collected at the Airport for the Proposed Action to assist with construction of potentially eligible development items shown on the ALP; and

If necessary, approval of a construction safety and phasing plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150-5370-2F, *Operational Safety on Airports During Construction*, under 14 C.F.R. Part 139, *Airport Certification* (49 U.S.C. § 44706, *Airport Operating Certificates*).

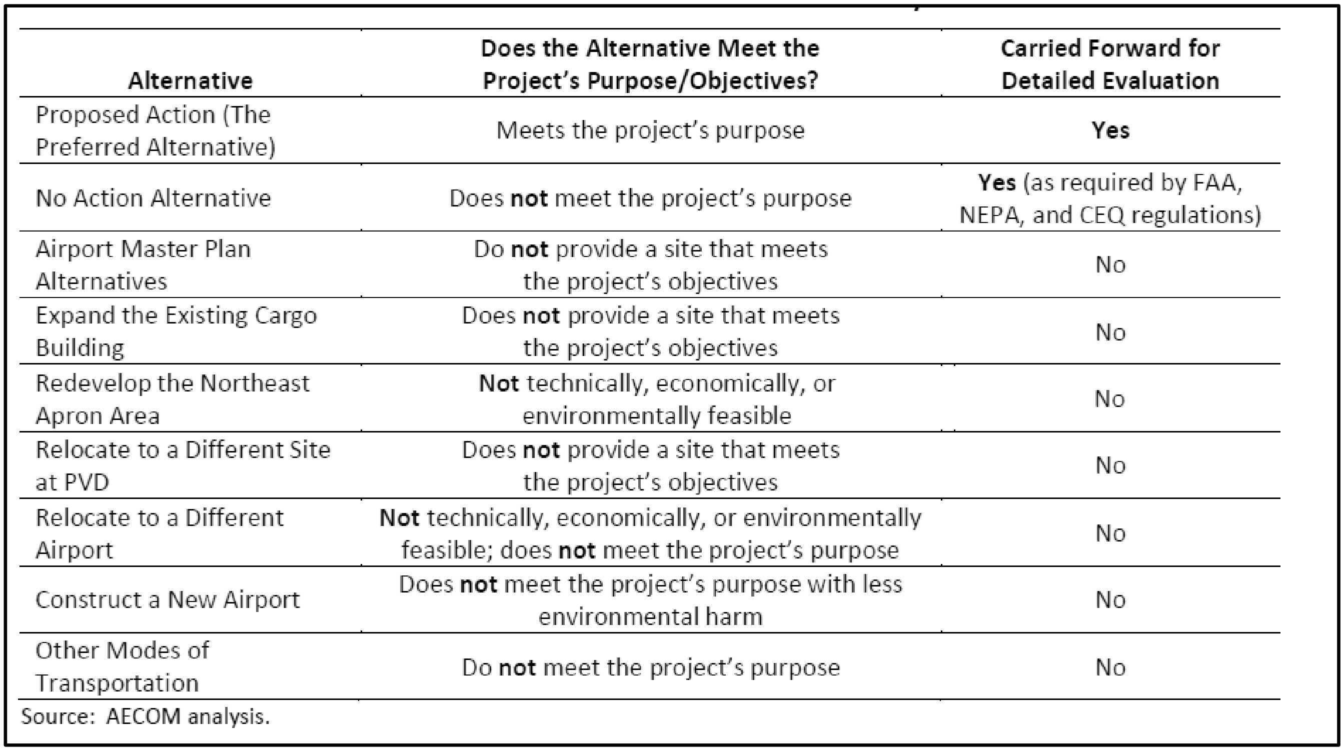
5. Reasonable Alternatives Considered

The following alternatives were considered as part of the evaluation process:

- Proposed Action to develop a south cargo facility
- No Action Alternative: Continue the use of the north cargo area off of Airport Rd.
- Airport Master Plan Alternatives
- Expand the Existing Cargo Building
- Redevelop the North Cargo Area
- Relocate to a Different Site at PVD
- Relocate to a Different Airport
- Build a New Airport
- Other Modes of Transportation

6. Results of Alternatives Analysis

As discussed in Section 3.4 of the Draft EA and shown in the table below, only the south cargo area development met the Airport's purpose and need.



Alternative	Does the Alternative Meet the Project's Purpose/Objectives?	Carried Forward for Detailed Evaluation
Proposed Action (The Preferred Alternative)	Meets the project's purpose	**Yes**
No Action Alternative	Does **not** meet the project's purpose	**Yes** (as required by FAA, NEPA, and CEQ regulations)
Airport Master Plan Alternatives	Do **not** provide a site that meets the project's objectives	No
Expand the Existing Cargo Building	Does **not** provide a site that meets the project's objectives	No
Redevelop the Northeast Apron Area	**Not** technically, economically, or environmentally feasible	No
Relocate to a Different Site at PVD	Does **not** provide a site that meets the project's objectives	No
Relocate to a Different Airport	**Not** technically, economically, or environmentally feasible; does **not** meet the project's purpose	No
Construct a New Airport	Does **not** meet the project's purpose with less environmental harm	No
Other Modes of Transportation	Do **not** meet the project's purpose	No

Source: AECOM analysis.

The Preferred Alternative met the purpose and need for the project. Additionally, to meet the demand for FedEx and UPS cargo operations, the project has primary objectives to:

- Provide a site exclusively for air cargo airline operations that can accommodate one or two cargo buildings with up to 140,000-sf of multi-use space, and apron space for six widebody freighter aircraft and sufficient truck and employee parking for both carriers
- Provide airfield access for cargo aircraft to taxi between cargo facilities and runways that avoid general aviation areas
- Provide a site with roadway access to enable transfer of cargo via truck with a convenient route to and from off-airport cargo handling facilities and other major surface transportation corridors
- Provide a site (layout) that complies with applicable FAA standards for airport design

Secondary objectives of the project are that the preferred site should be consistent with the Airport Master Plan recommendations, economical to develop, and timely implementation.

As required by NEPA and in accordance with FAA implementation NEPA guidance, this Draft EA also evaluated a No Build, "No-Action Alternative".

7. Assessment.

The potential environmental impacts and possible adverse effects were identified and evaluated in the EA. The Final EA has been reviewed by the FAA and found to be adequate for the purpose of the proposed Federal actions. The FAA determined that the Final EA for the proposed project adequately describes the potential impacts of the Proposed Action Alternative. No new issues surfaced as a result of the public review. As outlined FAA Order 5050.4B, in paragraph 706.f concise analysis is undertaken only for the no action, proposed action, and each reasonable alternative. The table below summarizes the conclusions found in the Draft EA.

ENVIRONMENTAL CONSEQUENCES BY RESOURCES CATEGORY		**Level of Foreseeable Consequences Among Alternatives**	
		Alternative 1 No Build / No Action	**Alternative 2 (Proposed Action) – Preferred South Cargo**
CULTURAL RESOURCES	Historic and Cultural Resources, 4(f) (See Section 5.8)	No Change No effect on the Historic District	Does Not Exceed Significance Thresholds No Adverse Effect on Historic Properties, per SHPO on 2/20/2023.
	Department of Transportation, Section 4(f) (See Section 5.5)	No Change	Less than significant "use" of Hillgrove State Airport Historic District for drainage pipe installation.
NATURAL ENVIRONMENT	Biological Resources and Protected Species. (See Section 5.2)	No Change	Does Not Exceed Significance Thresholds. Impacts on non-listed species would be short term and temporary, diminishing with project completion and restoration of the site. No long-term adverse impacts to urban wildlife species are anticipated.
	Coastal Resources (See Section 5.4)	No Change	The Proposed Action is within the Coastal Zone but would not directly impact coastal resources.
	Climate (See Section 5.3)	No Change	GHG construction emissions would be short term and temporary. An incremental increase in emissions commensurate with the project size would be minimal compared to the Airport's overall emissions–and even more so compared to the statewide GHG emissions inventory.
	Water Resources (See Section 5.15)	No Change	No direct or indirect impacts to wetlands, floodplains, wild/scenic rivers, coastal resources, or aquatic ecosystems. Compliance with RIPDES permit requirements, including an approved Erosion and Sedimentation Control Plan, Long-Term Stormwater Operation and Maintenance Plan, and water quality BMPs ensure any residual effects on surface water and groundwater would be less than significant.

HUMAN ENVIRONMENT	Air Quality (See Section 5.1)	No change	Emissions from aircraft operations, ground-based aviation-related activities, and roadway emissions do not exceed significance thresholds or National Ambient Air Quality Standards as promulgated by the United States Environmental Protection Agency under the Federal Clean Air Act
	Hazardous Materials, Solid Waste and Pollution Prevention (See Section 5.7)	No Change	Compliance with applicable laws and regulations related to hazardous materials and waste amendment, and adherence to best practices during construction and operation of the project, provide adequate assurance of no significant impacts. Does Not Exceed Significance Thresholds
	Land use (See Section 5.9)	No Change	The Proposed Action would not cause or contribute to potentially significant land use impacts identified in other sections of this EA; would not create a wildlife hazard; would not conflict with local laws, ordinances, comprehensive plans, or goals of the city master plan. No significant impacts on land use.
	Natural Resources and Energy Supply (See Section 5.10)	No change	The Proposed Action would not have the potential to cause or contribute to changes in fuel consumption, energy demand, or other natural resource consumption that would result in significant impacts. Does Not Exceed Significance Thresholds
	Noise and Compatible Land Use (See Section 5.11)	2026 Aircraft Noise - All homes in 65+ dB contour have been mitigated Ground Noise – No Change	2026 Aircraft Noise - All homes in 65+ dB contour have been already been mitigated and no areas off-airport have a 1.5+dB increase, therefore no significant impact. Ground Noise – Homes to experience increased ground noise already mitigated and noise would not exceed threshold.
	Socioeconomic, Environmental Justice, and Children's Health and Safety (See Section 5.12)	No Change	The Proposed Action would not have the potential to induce substantial socioeconomic growth in the community. No EJ communities are located within the area of project impacts. Because no significant impacts have been identified on other resources, children would not receive disproportionate risks.
	Traffic (See Section 5.13)	No Change	Traffic analysis approved by RIDOT. Minor delays is a few seconds and a negligible impact. Existing roadways sufficient to accommodate the projected traffic demands, no major improvements necessary and intersections would continue to operate at acceptable levels of service. No significant traffic.
	Visual Effects (See Section 5.14)	No Change	Viewshed consistent with existing airport uses. Does Not Exceed Significance Thresholds.

8. Public Participation

Since the completion of the Master Plan, RIAC has maintained open and transparent public communications to share airport development projects at monthly open public meetings and monthly meetings with Warwick officials. RIAC conducted a Public Information Open House on January 10, 2023, at the Warwick Municipal Annex to introduce the South Cargo Facility project and to explain the NEPA process. The event was promoted on RIAC's website and notices were placed in Warwick Post, the Warwick Beacon, and on the Rhode Island T. F. Green International Airport Facebook page. The public was encouraged to review and comment on the Draft EA released for public review on March 30, 2023. RIAC held a Public Meeting on April 20, 2023 at the Warwick Municipal Annex to present the findings of the Draft EA. Email and/or hard copies of the meeting notification were sent to 93 individuals and organizations. RIAC published a notice of availability of the Draft EA in the media previously mentioned. RIAC made the Draft EA available on their web site, at the airport, and a local library. The public comment period ended on May 1, 2021.

9. Inter-Agency Coordination

The FAA coordinated with the State Historic Preservation Officer (SHPO) and local tribes. In a letter to the FAA dated February 20, 2023, the SHPO concluded that the Proposed Action would have no adverse effect on historic properties (no reply was received from the tribes). RIAC also coordinated with the Rhode Island Department of Transportation (Steven Pristawa, State Traffic Safety Engineer).

10. Reasons for the Determination that the Preferred Alternative will have No Significant Impacts.

The attached Final EA examines each of the various environmental resources that were deemed present at the project location, or had the potential to be impacted by the Proposed Action Alternative. The development of a south cargo facility would not involve any environmental impacts that would exceed a threshold of significance as defined by FAA Orders 1050.1F and 5050.4B. Based on the information contained in the Final EA, the FAA has determined the Proposed Action (preferred alternative), is most feasible and prudent alternative. FAA has decided to implement the proposed project as described in the Final EA.

11. Finding off No Significant Impact

I have carefully and thoroughly considered the facts contained in the attached EA (*Development of a South Cargo Facility at Rhode Island T. F. Green International Airport*). Based on that information, I find that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101(a) of NEPA of 1969 and other applicable requirements. I also find the proposed Federal Action 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. As a result, the FAA will not prepare an EIS for this action.

APPROVED:

Cheryl Quaine

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Cheryl Quaine
Environmental Program Manager
FAA New England Region
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Date

DISAPPROVED:

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Date

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ACCRONYMS AND ABBREVIATIONS

ADA	Average Daily Aircraft
AC	Advisory Circular
ACRP	Airport Cooperative Research Program
AEDT	Aviation Environmental Design Tool
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AOA	Airport Operations Area
APE	Area of Potential Effect
APU	Auxiliary Power Unit
ARFF	Aircraft Rescue and Firefighting
ATCT	Airport Traffic Control Tower
BID	Block Island State Airport
BMP	Best Management Practices
CAA	Clean Air Act (as amended 1990)
CATEX	Categorical Exclusion Evaluation
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CMP	Coastal Management Program
CO	Carbon Monoxide
CY	Calendar Year
CZMA	Coastal Zone Management Act
dB	Decibel
dBA	A-weighted scale decibel
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EJ	Environmental Justice
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FedEx	Federal Express
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Federal Insurance Rate Map
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GSE	Ground Support Equipment
INM	Integrated Noise Model
IPaC	Information for Planning and Consultation
LOS	Level of Service
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
nmi	Nautical Miles
NO_2	Nitrogen Dioxides
NPDES	National Pollution Discharge Elimination System
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NSA	Noise Study Area
NWI	National Wetlands Inventory
OPSNET	FAA's Operational Network
O_3	Ozone
OQU	Quonset State Airport
Pb	Lead
PCSM	Post Construction Stormwater Management
PFC	Passenger Facility Charges
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
PM_{10}	Particulate Matter less than 10 microns in diameter
ppm	Parts per million
PVD	Rhode Island T. F. Green International Airport
RI	Rhode Island
RIAC	Rhode Island Airport Corporation
RIDEM	Rhode Island Department of Environmental Management
RIDOT	Rhode Island Department of Transportation
RIHPHC	Rhode Island Historical Preservation and Heritage Commission
RIPDES	Rhode Island Pollutant Discharge Elimination System
RISHPO	Rhode Island State Historic Preservation Officer
ROD	Record of Decision
SFZ	North Central State Airport
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Loads
ULD	Unit Load Devices
UPS	United Parcel Service
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USDOT	United States Department of Transportation
UUU	Newport State Airport
VOCs	Volatile Organic Compounds
VSR	Vehicle Service Road
WSS	Web Soil Survey
WST	Westerly State Airport

1. INTRODUCTION AND BACKGROUND

The Rhode Island Airport Corporation (RIAC) is proposing to develop an air cargo facility on the south side of Rhode Island T. F. Green International Airport (PVD or "the Airport") in the City of Warwick, in Kent County. The Airport land is owned by the State of Rhode Island and operated and maintained by RIAC. As the Airport sponsor[1], RIAC has prepared this Environmental Assessment (EA) pursuant to the National Environmental Policy Act of 1969 (NEPA) to support the relocation and expansion of air cargo facilities at the airport (the "Proposed Action"). The purpose of this EA is to consider the potential environmental impacts associated with the Proposed Action and any reasonable alternatives.

This EA has been prepared in compliance with NEPA's regulations, as amended (40 CFR 1500-1508)[2] and in accordance with Federal Aviation Administration (FAA) Orders 1050.1F, Environmental Impacts: Policies and Procedures, and 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, to analyze and disclose the potential environmental effects of the Proposed Action. This EA is required under NEPA because RIAC is seeking the FAA's unconditional approval of that portion of the Airport Layout Plan (ALP) which depicts the proposed South Cargo Facility and because Federal funding will be sought for eligible portions of the project, both of which are Federal actions.

1.1. Airport Description

PVD is located six miles south of the state capital of Providence and is approximately 75 miles south of Boston (see Figure 1-1). Opened in 1931, the Airport was named for former Rhode Island governor and longtime senator Theodore Francis Green. PVD is a certificated airport[3] serving 10 passenger airlines, two cargo airlines, and general aviation.[4] RIAC operates and maintains five smaller airports, but those airports do not have the aviation facilities necessary for commercial passenger or cargo airline operations. PVD has two air carrier runways equipped with airfield lighting and navigational aids for aircraft operations in all-weather conditions. It also has an airport traffic control tower (ATCT) and an aircraft rescue and firefighting (ARFF) facility, both of which are staffed seven days a week.

The 1,100-acre airport property is bordered by Post Road (Route 1) to the west, Main Avenue (Route 113) to the south, Airport Road to the north, and Industrial Drive to the southeast. The Airport is surrounded to the north and south by residential areas consisting of single-family and multi-family residences. The area to the west is primarily industrial and commercial facilities with areas of residential land use to the east of the airport.

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[1] Airport sponsor means an entity that is legally, financially, and otherwise able to assume and carry out the certifications, representations, warranties, assurances, covenants, and other obligations required for an airport.

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

[3] 14 CFR Part 139 requires the FAA to issue airport operating certificates to airports that serve scheduled airline operations. Airport Operating Certificates serve to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment.

[4] PVD is classified as a primary, small hub, commercial service airport in the FAA's National Plan of Integrated Airport Systems (NPIAS, 2023-2027).

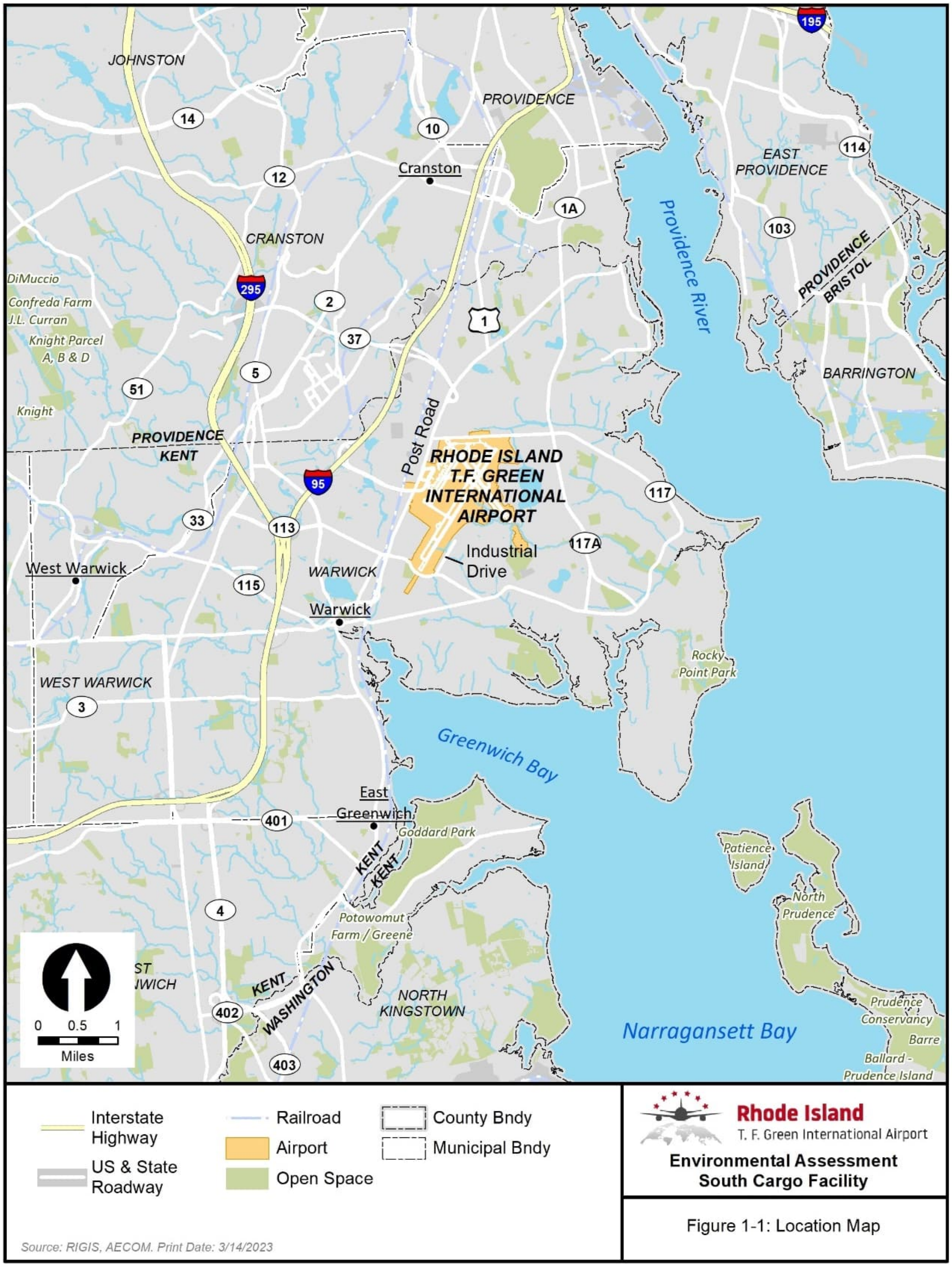

Figure 1-1: Location Map

1.2. Cargo Airline Operations

Airports play an important role in the multi-modal shipping process because cargo airlines rely on aircraft to move packages and shipments over longer distances, and they require a very smooth and efficient process. A key node in the process is the airport cargo facility. The necessity to handle quickly and efficiently ever-increasing volumes of cargo between the airside and the landside requires optimum space and planning to achieve the most efficient facilities. The “express” or “overnight” carriers, to an even greater extent, require more specialized airport facilities and infrastructure support to match the highly time-dependent package processing capability of their operations. In terms of air cargo operations, PVD is a “local market station” used to transfer express packages and freight between cargo aircraft and trucks on the ground.[5] Generally, inbound cargo is offloaded from the aircraft, transferred to a cargo building, broken down and separated, then built-up and consolidated near the assigned truck loading bay for over-the-road transport to local distribution centers. The process is reversed for outbound cargo.

PVD is currently served by two integrated[6] cargo carriers—FedEx and UPS. FedEx is a major cargo airline, one of the world’s largest airlines in terms of fleet size and freight tons flown, and the world’s largest express transportation company. UPS Airlines is also a major cargo airline, and the second largest cargo airline worldwide in terms of freight volume flown. Both carriers use PVD as a regional location to connect and transfer packages and freight between their respective aircraft and trucks on the ground. Combined, they typically operate five flights per day on average and transfer nearly 40 million pounds of cargo through the Airport annually.

Currently, FedEx operates one all-cargo flight per day using a B757 freighter, and “feeder” flights using smaller, turboprop airplanes. UPS operates two to three all-cargo flights per day also using a B757 freighter but has no connecting/feeder flights. As shown in Table 1-1 below, PVD handled more than 1,800 cargo flights annually in 2020 and 2021.

Table 1- 1: Cargo Aircraft Operations

			Scheduled Arrivals		
Cargo Airline	Aircraft Type		CY2019	CY2020	CY2021
FedEx	Jet	B757F	255	272	262
	Turboprop	C208, C99	936	981	1025
UPS	Jet	B757F	270	578	582
Total	Jet	-	525	850	844
	Turboprop	-	936	981	1,025
	All	-	1,461	1,831	1,869

Notes: B757F (Boeing 757-200 Freighter); C208 (Cessna Caravan); C99 (Beechcraft King Air)
Source: RIAC, AECOM

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[5] Often referred to as a “node” within a cargo carrier’s network, the local market station is the simplest and most common type of air cargo facility. These airports represent the spoke in a hub-and-spoke air carrier network. For airport-to-airport service providers, the local market station represents the origin or destination point for the cargo they are transporting. See ACRP’s Guidebook for Air Cargo Facility Planning.

[6] Traditional airlines offer cargo handling between airports and shippers and directly take their shipment to/collect it from airlines or use an assigned cargo handler. Whereas integrated carriers such as FedEx and UPS commonly provide a “door to door service” with the support of their intermodal transportation network via air, land and sea.

1.3. Existing Cargo Facilities

FedEx and UPS cargo airline operations occur on the north side of PVD along Airport Road (see Figure 1-2). The existing facilities consist of a cargo building, aircraft parking apron, truck staging area, and employee parking. The cargo building is a 50,000-sf aircraft maintenance hangar erected in 1942, a portion of which has been repurposed for cargo airline operations and is occupied by both carriers. To gain additional workspace, FedEx has an estimated 18,000 square feet of tractor trailer trucks that it uses for storage as well as for the sorting of goods that are then loaded on to the aircraft. Due to a lack of cargo warehouse space, UPS is limited to transferring pre-packed containers to and from its Jefferson Boulevard sorting/distribution center.[7] The containers are on/off loaded on the aircraft apron, bypassing the cargo building.

All cargo aircraft are parked on the Northeast Apron across an active taxilane from the cargo building. There is dedicated space for one FedEx freighter and three turboprop feeder aircraft, and for two UPS freighters. FedEx cargo tractor trailers park adjacent to the aircraft, or at the loading docks along the east side the cargo building. UPS cargo tractor trailers park adjacent to company aircraft on the apron. Cargo airline employees park their vehicles outside the airport security fence along the north side of the cargo building.

1.4. Cargo Facility Deficiencies

The existing cargo function can be characterized as an inadequate, makeshift cargo operation that uses an antiquated aircraft hangar for a cargo building and a remote apron for aircraft parking. Consequently, there are numerous deficiencies associated with the existing operation when compared to current standards for modern day air cargo facilities. For example:

- The cargo building space is not sufficient to handle current or projected cargo shipments. This is evidenced by the fact that FedEx uses parked trailers for package sorting and storage, and UPS bypasses the cargo building altogether. Modern and efficient cargo buildings should be designed in a linear (modular) layout with the flexibility to allocate parts of the building (modules) to as many airlines as necessary, and with potential for expansion preferably at one or both ends.

- The aircraft parking apron is not located adjacent to the cargo building. To ensure efficient cargo handling, the apron should be considered as a continuation of the cargo terminal building. An apron immediately adjacent to the cargo building meets this requirement, thus providing for short transportation distance between aircraft and the facility. At PVD, the cargo aircraft parking apron is located 200 to 300 feet south of the cargo building and across the apron taxilane, which requires commercial cargo trucks and ground service vehicles to circulate among other aircraft taxiing to and from the active runways.[8]

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[7] The UPS facility is located one-half mile northwest of the Airport at 150 Plan Way, in Warwick, RI.

[8] Some airports including PVD permit trucks transporting cargo to pass through security gates to deliver or pickup air cargo directly on the aircraft apron. This practice allows for expedited cargo handling, cargo contained in ULDs, and bulk loaded or loose cargo. Although it may enhance efficiency in terms of cargo processing and handling times, and reduce cargo building space requirements, as a rule the cargo site layout should avoid commercial trucks maneuvering within designated aircraft movement areas.

Source: RIGIS, AECOM. Print Date: 2/16/2023

Figure 1-2: Existing Northeast Apron Area

- The truck loading docks are not located on the landside of the building. For safety, security, and efficiency, the truck docks should be located on the landside of the building to avoid commercial vehicles driving inside the aircraft movement area. At PVD, the loading docks are located on the east side of the cargo building, inside the airport security fence, which requires trucks to pass through a controlled-access security gate and to drive one-quarter mile along the vehicle service road through the Northeast Apron area.

In addition, the existing cargo facilities at PVD are co-located with the general aviation facilities, and the Northeast Apron is designated for both transient general aviation and cargo aircraft parking.[9] This causes cargo aircraft to interact with private jets, helicopters, small airplanes, and other types of general aviation aircraft, which increases risks to safety and potential hazards associated with apron congestion, jet blast, collision, etc. Recently, general aviation parking demand has increased to the point where those aircraft are parked up to the FedEx and UPS aircraft safety perimeters, which must be maintained clear for cargo aircraft loading and unloading and for equipment and vehicles to maneuver safely. If possible, the general aviation and cargo aircraft aprons should be separated. Moreover, with both functions sharing the Northeast Apron, there is no space available to expand either operation, which restricts airport businesses and growth.

1.5. Airport Master Plan

RIAC updated the Airport Master Plan and the corresponding Airport Layout Plan for PVD in 2021.[10] An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand. One of the key products of the master plan is a set of drawings that provides a graphic representation of the long-term development plan for the airport. The primary drawing in this set is the Airport Layout Plan (ALP), and it serves as the FAA's official record drawing of the airport.

According to the Airport Master Plan for PVD, there is a lack of adequate air cargo facilities to accommodate the current and forecast demand. Air cargo tonnage is projected to more than double over the long-term planning horizon, from 40.3 million tons in 2017 to a future high of 99.3 million tons. The forecast is based on established growth rates for the U.S. air cargo industry, and it was approved by the FAA for airport master planning purposes. However, the master plan forecast does not consider or allow for a sudden increase in cargo volume that could be induced by a project specific proposal for a larger cargo operation (often referred to as "an improved service scenario").

The Airport Master Plan evaluated alternatives to accommodate the projected cargo volumes, and the preferred alternative is depicted on the corresponding ALP. Generally, there is limited space available in the Northeast Apron area to accommodate the near-term demand, but not enough space to accommodate long-term demand or an improved service scenario. Therefore, the Master Plan, and the Airport Layout Plan, identify using some portion of existing parking Lot E to accommodate the potential for a larger cargo operation that would not fit in, or is not suitable for, the north side of the airport (see Figure 1-3).

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[9] General aviation is defined as all civil aviation other than scheduled on non-schedule airlines. In other words, it's everything aviation that isn't military or commercial airlines. Examples include corporate flying, charter and air taxi operations, private flying, flight training, medical flights, aerial tours, sight-seeing, etc.

[10] Rhode Island T. F. Green International Airport Master Plan and Airport Layout Plan Update, Rhode Island Airport Corporation (2021).

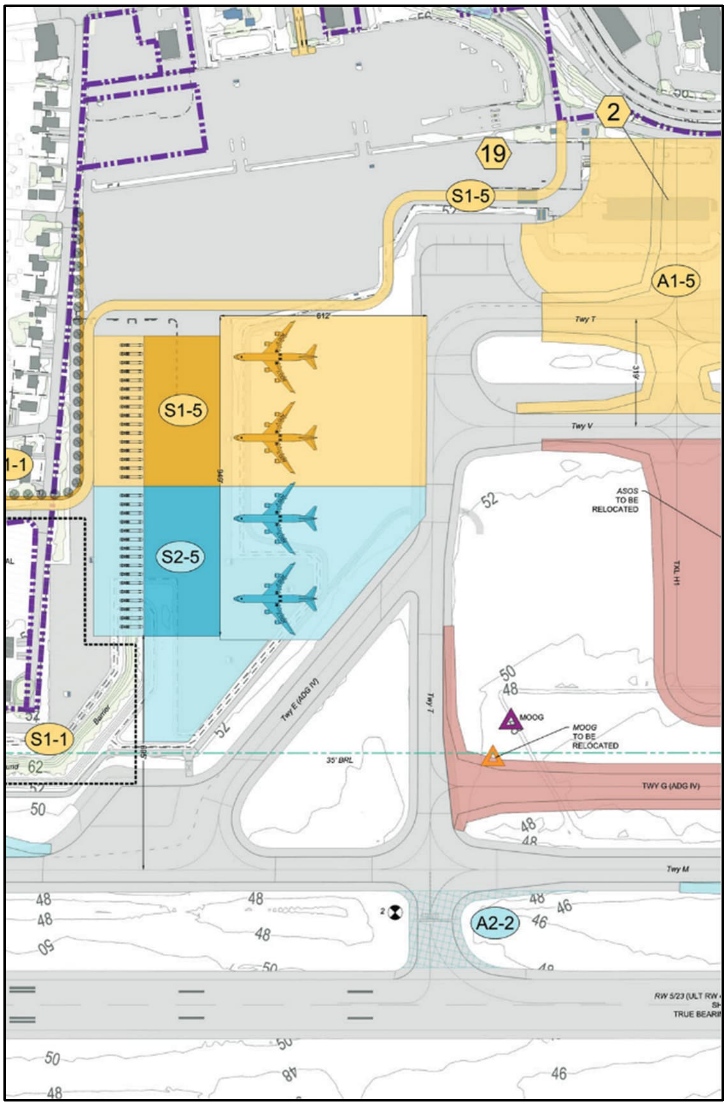

Figure 1-3: Airport Master Plan Concept (RIAC 2021)

1.6. Commercial Proposal (Improved Service Scenario)

After the Airport Master Plan was completed, air cargo volumes continued to increase, and planning commenced to develop a new modern cargo facility to accommodate the future needs of both carriers. During the planning process, FedEx indicated that the airline expects to be moving more cargo volume to the Boston area than they do now, but there are no more aircraft parking positions available to expand their operation at Boston Logan International Airport (BOS). As a result, FedEx plans to fly more cargo volume to PVD and to truck the additional volume north on I-95 to the Boston area. To accommodate the increased cargo volume at PVD, FedEx's functional requirements include up to 100,000-sf of cargo building space, three aircraft parking positions adjacent to the building, a truck parking/staging area, employee parking, airside access to the runways, and landside access to the local roadway network.

2. PURPOSE AND NEED

This chapter identifies the operational challenges facing PVD and discusses what RIAC hopes to accomplish with the Proposed Action.

The project needs are based on the existing cargo area's functional deficiencies and obsolete characteristics in addition to the difficult geometrics of the airside connecting taxilane and landside connecting roadways. The project purpose is to replace the deficient and obsolete facilities with modern cargo buildings and ancillary facilities that meet current design standards for safe and efficient cargo operations and to provide additional capacity to accommodate projected near-term growth in express cargo activity at PVD.

PVD has two cargo airlines that collectively process nearly 40 million pounds of air cargo through the airport annually. However, the airport's existing cargo operation is hampered by an inadequate cargo facility that does not meet today's industry standards. Due to the lack of proper cargo facilities, PVD relies on a make-shift cargo operation using a historic aircraft hangar for a cargo building. Chapter 1 discussed the numerous deficiencies associated with these facilities, such as insufficient building space for package handling and storage, a remote aircraft parking apron located across an active taxilane, the need for cargo trucks to operate on the airside apron, and the risks associated with comingling general aviation and cargo aircraft parking. The existing cargo operation was originally established c. 1980 to accommodate the newly formed FedEx and UPS airlines. This resulted in express (overnight) package services for the community and increased revenues for RIAC, at a time when there was no plan for air cargo facilities at the Airport. Although standard operating procedures are in place to maintain airfield security and operational safety, continuing to permit this activity when better options are available is not good aviation policy. One of the most significant responsibilities of RIAC is to ensure the safe, efficient, effective, and productive use of all airport property. The highest and best use of airport property is achieved through proper placement of facilities and by ensuring that facilities are developed and operated as efficiently and as safely as possible.

The Proposed Action would meet the need for modern cargo facilities that satisfy current design standards for safe and efficient cargo operations at PVD. To meet the demand for FedEx and UPS cargo operations, the primary objectives are:

- Provide a site exclusively for air cargo airline operations that can accommodate one or two cargo buildings with up to 140,000-sf of multi-use space, and apron space for six widebody freighter aircraft and sufficient truck and employee parking for both carriers
- Provide airfield access for cargo aircraft to taxi between cargo facilities and runways that avoid general aviation areas
- Provide a site with roadway access to enable transfer of cargo via truck with a convenient route to and from off-airport cargo handling facilities and other major surface transportation corridors
- Provide a site (layout) that complies with applicable FAA standards for airport design

In addition, RIAC has identified the following secondary objectives:

- The preferred site should be consistent with the Airport Master Plan recommendations, economical to develop, and able to be implemented in a timely manner.

These objectives provide the basis for comparatively evaluating a range of potentially feasible alternatives, identifying reasonable and prudent alternatives, and selecting the preferred alternative.

3. ALTERNATIVES

This chapter discusses the Proposed Action, the consequences of taking no action, and the range of potentially feasible alternatives that were eliminated and why.

3.1. The Proposed Action (Preferred Alternative)

This section describes the solution RIAC is proposing to implement to solve the cargo problems facing PVD. Under the Proposed Action, RIAC would relocate FedEx and UPS cargo operations from the Northeast Apron to a new, larger, more efficient, and safer facility that would be constructed on the south side of the Airport.

3.1.1. Major Elements of the Project

The project site consists mostly of a former parking lot (Lot E) that was used for long-term auto parking for the passenger terminal building. The project site also includes vacant land to the southeast across Strawberry Field Road.[11] Figure 3-1 provides a project sketch of the proposed facilities in relation to the project site. Major elements of the project include:

- Cargo Building. Construct two single-story warehouse type buildings providing up to 140,000-sf of multi-use space for processing cargo between the airside to the landside quickly and efficiently. Other functional areas inside the building include offices, employee support facilities (e.g., restrooms, locker rooms, breakrooms, etc.), storage areas, and workspace to maintain ground service equipment (GSE).
- Aircraft Parking Apron. On the airside of the cargo building, provide airfield pavement for parking six widebody cargo freighters and three smaller turboprop/commuter type aircraft. Additional apron space is required for ground handling operations associated with aircraft loading and unloading, circulation and storage areas for ground support equipment (GSE) as well as unit load devices (ULDs) and pallet storage, and an airport vehicle service road (VSR). Approximately 77,000-sy of new airfield pavement would be required for the cargo apron. This area includes approximately 6,400-sy of existing pavement that would be removed and replaced with full-strength concrete pavement suitable for heavy aircraft operations.
- Truck Loading Docks. On the landside of the cargo building, provide for the truck-to-building interface with berths for trucks to back-up to the overhead doors that lead directly to the cargo staging areas inside the building. Sufficient paved area is also required for the trucks to circulate and maneuver in and out of the loading docks. Approximately 20,100-sy of pavement would be required to support approximately 31 loading docks and the truck maneuvering area. Approximately 13,300 sy of vehicular pavement already exists within this area and would need to be either demolished or repurposed.
- Access Road and Circulation. Vehicle access/egress would use existing roads and a portion of parking Lot E. The access road would connect to the truck docks, truck staging area, and employee parking. Assuming two standard 12-ft traffic lanes, approximately 4,700-sy of roadway improvements may be required for the access roadway and circulation. No traffic access/egress is planned for Strawberry

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[11] RIAC is in the process of vacating the City streets within this area (namely, Field View Drive, Murray Street, Bunker Street, and a portion of Strawberry Field Road) and any legal easements and/or right-of-way(s) that remain.

Field Road along the east side of the project site. No new roads or other off-airport roadway improvements are proposed.
- Employee Parking. Repurpose a portion of the existing surface parking lot for airline employees and visitors. The paved area would be close-in to the cargo building but physically separated from the truck loading docks. Approximately 281 parking spaces are included.
- Truck Parking/Staging Area. Repurpose a portion of the existing surface parking lot for trucks to safely park and wait their turn for loading dock assignment at the cargo building. Two parking areas are planned with allowance to accommodate approximately seven semi-tractor trailers.
- Noise Barrier Wall. The project also includes construction of a new noise barrier to replace the existing barrier wall that would be removed. The new barrier system consists of a landscaped earthen berm supporting a pre-cast concrete wall, with trees planted to provide for visual screening and noise reduction for residences along Palace Avenue and Strawberry Field Road. The proposed barrier system would be lengthened and moved closer to the residential area, but the structure would remain on airport property. As the existing barrier wall is removed, material excavated from the existing earthen berm would be reused to construct the new earthen berm.

3.1.2. Other Connected Actions

Numerous other improvements and changes would be needed to develop and support cargo airline operations on the south side of PVD. These elements of the project are not necessary if the Proposed Action is not implemented, and they are referred to as “connected actions.”

- Close Taxiway E. Close existing Taxiway E between Taxiway T and Taxiway M. This area would become part of the aircraft parking apron.
- Site Preparation. Site development activities include ground clearing, grading, drainage, and stormwater management; installation of an underground pipe to convey spent deicing fluids to the existing glycol collection and treatment system; security lighting and airfield pavement lighting; and relocating vehicle service roads, as needed to accommodate the project. Specific locations for the ancillary items will be determined during design. No off-site utility improvements are needed to accommodate the demands of the project. The project’s limit of work/disturbance is approximately 43 acres and includes allowance for temporary haul routes, staging areas, material stockpiles, etc., for construction purposes.
- Building Demolition. Two small structures near the intersection of Evans Avenue and Aviation Avenue, formerly used by the U.S. Postal Service, would be removed for the project. They are a single-stall garage, and a salt storage shed.
- Utilities. Utilities for the project include connections to electricity, potable water, natural gas, sanitary sewer, and communications lines. All utilities required to implement the project are located on site or nearby. No upstream infrastructure improvements are necessary to provide capacity to accommodate the project.
- Security Lighting, Fencing, and Gates. Airport operations area (AOA) perimeter security fencing and gates would be required to control unauthorized access to areas designated and used for landing, taking off, or surface maneuvering of aircraft, including ramps, aprons, runways and taxiways, which would include the cargo aircraft parking apron area. Approximately 650-lf of fence would be required to secure the project site.
- Roadway Intersection Geometry. Intersection modifications along Aviation Avenue and/or Evans Avenue may be needed to accommodate truck turning movements, e.g., a larger turn radii for semi tractor-trailers.

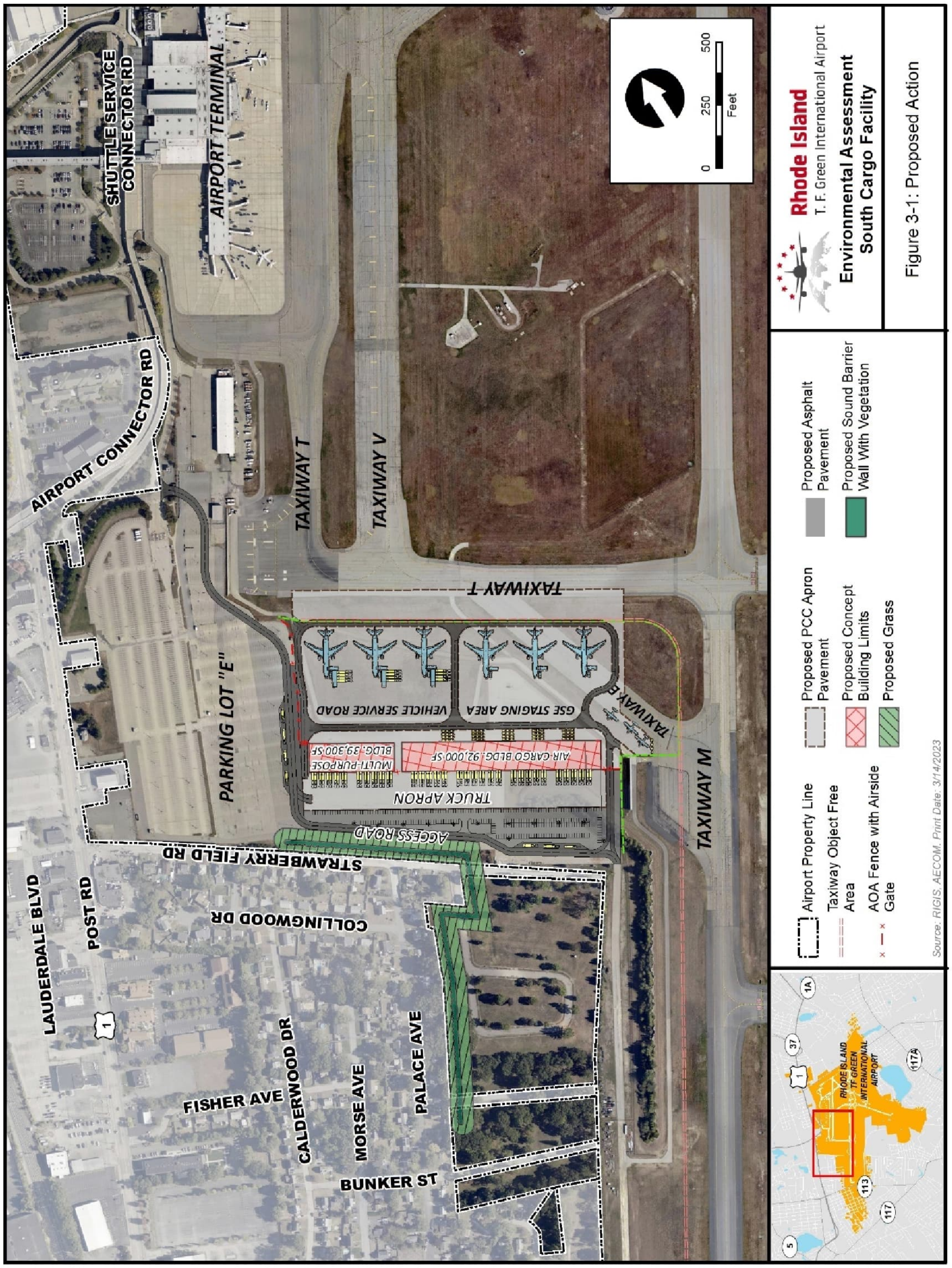

Figure 3-1: Proposed Action

3.1.3. Project Operations

Under the Proposed Action, FedEx flight operations would increase, and the fleet mix would change. Based on the improved service scenario, the existing B757-200 freighters would be replaced by B767-300 freighters. Both are twin-engine jets. The main difference is the former is a large narrowbody and the latter is a medium widebody. Compared to the B757-200F, the B767-300F fuselage is longer, the wingspan is wider, and the engines can produce more thrust, which allows the B767-300F to carry 60 percent more cargo payload. In addition, scheduled cargo aircraft operations would increase by two arrivals and two departures per day on average, beginning approximately one hour earlier than the current schedule to allow additional time to transfer cargo from the aircraft to the trucks for the trip north to Boston. FedEx truck traffic operations would increase from 36 to 69 trucks per day, with an estimated 70 to 80 percent of the trucks destined for Boston markets.

UPS flight operations are not expected to change immediately or dramatically at the new location. If the Proposed Action is implemented, there is allowance for UPS to increase cargo volume by also changing aircraft from the 757-200F to the larger B767-300F, and to increase from two to three arrivals per day, on average. As a result of the added air cargo volume, UPS truck operations would increase from four to eight trucks per day. For planning and evaluation purposes, it is anticipated that UPS would continue to transfer pre-packed containers to and from its Jefferson Boulevard center for the foreseeable future.

3.1.4. Project Timeframe

If the Proposed Action is approved in early 2023, ground-breaking and site preparation would begin soon thereafter, including installation of the noise barrier wall. Construction activities would continue through 2024 on the cargo building and the aircraft apron, with all project elements scheduled to be completed in 2025, thereby making 2026 the first full year of project operations.

3.1.5. Project Cost and Funding Sources

The South Cargo Facility is a $100 million program that would be developed by RIAC using a combination of Airport Improvement Program (AIP) grants[12], Passenger Facility Charges (PFC)[13], and an airport revenue bond.[14]

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[12] The FAA's AIP airport grant program funds airport infrastructure projects such as runways, taxiways, airport signage, airport lighting, and airport markings. Airports are entitled to a certain amount of AIP funding each year, based on passenger volume. If their capital project needs exceed their available entitlement funds, then the FAA can supplement their entitlements with discretionary funding, if available.

[13] The PFC Program allows the collection of PFC fees up to $4.50 for every eligible passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition.

[14] An airport revenue bond is a type of municipal bond in which the operating revenue of an airport is used to secure the bond. A municipality or airport authority will issue an airport revenue bond, with the funds going toward improving, expanding, or building a new airport.

3.1.6. Other Considerations

Under the Proposed Action, the existing cargo building on Airport Road (Hangar No. 2) would be vacated and maintained until it can be utilized for some other purpose, which has not been determined.

3.1.7. Requested FAA Actions

The Proposed Action is depicted generally on the FAA-approved Airport Layout Plan (ALP, June 2021). The same project was identified and evaluated in the 2011 Final Environmental Impact Statement (FEIS)[15], but the FAA's Record of Decision (ROD)[16] that included this project has since expired. Based on new information, RIAC will be submitting a change to the ALP to incorporate a more specific proposal described herein.

The project elements and connected actions also represent Federal Airports Program actions including:

- Unconditional approval of those portions of the PVD Airport Layout Plan to depict the Proposed Action pursuant to 49 U.S.C. §§ 40103(b) and 47107(a) (16), and determination and approval of the effects of this project upon the safe and efficient utilization of navigable airspace pursuant to 14 C.F.R. Parts 77 and 157 and 49 U.S.C. § 44718.
- Determination under 49 U.S.C. §§40101(d)(1) and 47105(b)(3) as to whether the Proposed Action maintains and enhances safety and security and meets applicable design and engineering standards set forth in FAA Advisory Circulars.
- 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).

3.2. No Action Alternative

RIAC has the option of taking no action related to cargo facility development at PVD. Under the No Action Alternative, the Proposed Action would not be implemented, the project-induced effects on the environment would not occur, and the ongoing cargo activities on the north side of the airport would continue unchanged for the foreseeable future. However, if no action is taken, the need to replace the deficient and obsolete cargo facilities would not be met, cargo handling capacity would not be increased, efficiency and safety would not be improved, and the potential operational benefits of the Proposed Action would not be realized.

The No Action Alternative does not meet the Purpose and Need for the project as described in Chapter 2; however, it is analyzed in this EA pursuant to the requirements of FAA Orders 1050.1F and 5050.4B, and NEPA and CEQ regulations.

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[15] T.F Green Airport Improvement Program, Final Environmental Impact Statement/Final Section 4(f) Evaluation (July 2011).

[16] Federal Aviation Administration, Record of Decision, Airport Improvement Program, Theodore Francis Green Airport, Warwick, Rhode Island (September 23, 2011).

3.3. Alternatives Considered and Dismissed

RIAC considered a range of potential alternatives. No reasonable alternative to the Proposed Action has been identified that would achieve the purpose of the project with less environmental harm.[17] The following alternatives were considered and dismissed from further evaluation in this EA document.

- Airport Master Plan Alternatives
- Expand the Existing Cargo Building
- Redevelop the North Cargo Area
- Relocate to a Different Site at PVD
- Relocate to a Different Airport
- Build a New Airport
- Other Modes of Transportation

3.3.1. Airport Master Plan Alternatives

RIAC updated the Airport Master Plan in 2021. The plan took a hard look at the need for additional air cargo handling facilities and alternatives available to accommodate projected cargo volumes. At that time, the facility requirements identified the need for 50,000 to 55,000 square feet of cargo building space and three widebody freighters (plus three feeder aircraft) to accommodate both carriers. Since then, the demand scenario has changed to include a larger (FedEx) cargo operation, and the overall facility requirements have increased to 140,000 square feet of cargo building space with aircraft parking for six widebody freighters and the same three turboprop aircraft. The alternatives developed and evaluated in the Airport Master Plan were dismissed from this EA because they do not meet the functional requirements of the proposal and, therefore, the project's purpose would not be achieved.

3.3.2. Expand the Existing Cargo Building

The existing cargo building is an 80-year-old aircraft maintenance and storage hangar. It is functionally deficient, obsolete, and not suitable for continued use as a cargo processing facility. The location, size, dimensions, layout, and deteriorating condition of the building do not support efficient cargo operations, and it would not be practicable to attempt to modernize the building or infrastructure to do so. Expanding the existing cargo building is not a feasible option because the improvements and changes necessary to provide air cargo facilities that are appropriately sized and configured to accommodate the functional requirements of the Proposed Action would amount to redeveloping the entire Northeast Apron area, which is not a reasonable alternative as discussed below.

3.3.3. Redevelop the Northeast Apron Area

Under this alternative, the Northeast Apron would be redeveloped as needed to accommodate the functional requirements of the Proposed Action. As shown in Figure 3-2, this concept includes two cargo

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[17] Reasonable alternatives mean a reasonable range of alternatives that are technically and economically feasible and would satisfy the primary objective(s) of the project as defined in the statement of Purpose and Need for the proposed action. If an alternative is inconsistent with this definition, no further evaluation is necessary. Similarly, a reasonable alternative avoids or substantially lessens any of the potentially significant effects of the proposed project. If an alternative would result in greater environmental harm than the proposed action (or the preferred alternative), no further evaluation is necessary.

buildings, six aircraft parking positions adjacent to the building, a truck parking/staging area, employee parking, airside access to the runways, and landside access to the local roadway network.

RIAC has determined this is not a reasonable or prudent alternative for the following reasons. First, there is insufficient space available in the Northeast Apron area to accommodate the Proposed Action and the general aviation facilities. Consequently, all the general aviation facilities in this area would have to be demolished and removed, and the displaced operations relocated to another area of the Airport. This would have the effect of placing an undue burden on the general aviation businesses, and on the aircraft owners and operators. Having to relocate the general aviation facilities, and develop a new cargo facility, would require additional planning, design, permitting, construction, and coordination, resulting in cost, schedule, and environmental impacts that are far greater than the Proposed Action.

Second, assuming it were feasible to relocate the general aviation facilities, there is insufficient cargo apron space to safely park six cargo airliners between the two runways. Designated airspace around all runways must remain clear of any obstacles that could potentially cause a hazard to air navigation.[18] As shown in Figure 3-2, given the setback from each runway to accommodate a 59-ft high tail height, there is only enough space to safely park four widebody aircraft without penetrating the airspace around one or both runways.

Third, the Northeast Apron is associated with the Hillsgrove State Airport Historic District, which includes two historic buildings—the airport's original terminal building and Hangar No. 2 (now the existing cargo building)—as well as several taxiway segments. Given that these two buildings and associated pavements contribute to the significance of the Historic District, it is reasonable to conclude that redeveloping the Northeast Apron for air cargo purposes would have an adverse effect on historic resources protected under Section 106 of the National Historic Preservation Act of 1966, and the U.S. Department of Transportation Act of 1966, Section 4(f). An adverse effect on a historic resource defined under Section 106 would constitute a "use" of a Section 4(f) property, and the regulations state that Section 4(f) resources must be completely avoided unless it is determined that no feasible or prudent alternative exists.[19] The Preferred Alternative offers a reasonable and prudent solution that avoids or minimizes the use of the Section 4(f) property. Therefore, redeveloping the Northeast Apron for air cargo operations would not be permitted under Section 4(f). Consequently, this alternative was eliminated.

3.3.4. Relocate to a Different Site at PVD

There are no other vacant areas on the airport with sufficient space available to meet the development size requirements, or surplus facilities that could be converted for cargo operations, or other buildings or infrastructure that could be reasonably removed to accommodate the Proposed Action. This alternative was eliminated because there is no other feasible location that would accommodate the project at PVD.

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[18] FAR Part 77 allows the FAA to identify potential aeronautical hazards in advance thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace.

[19] Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by the Federal Highway Administration (FHWA) through the regulation 23 CFR 774.

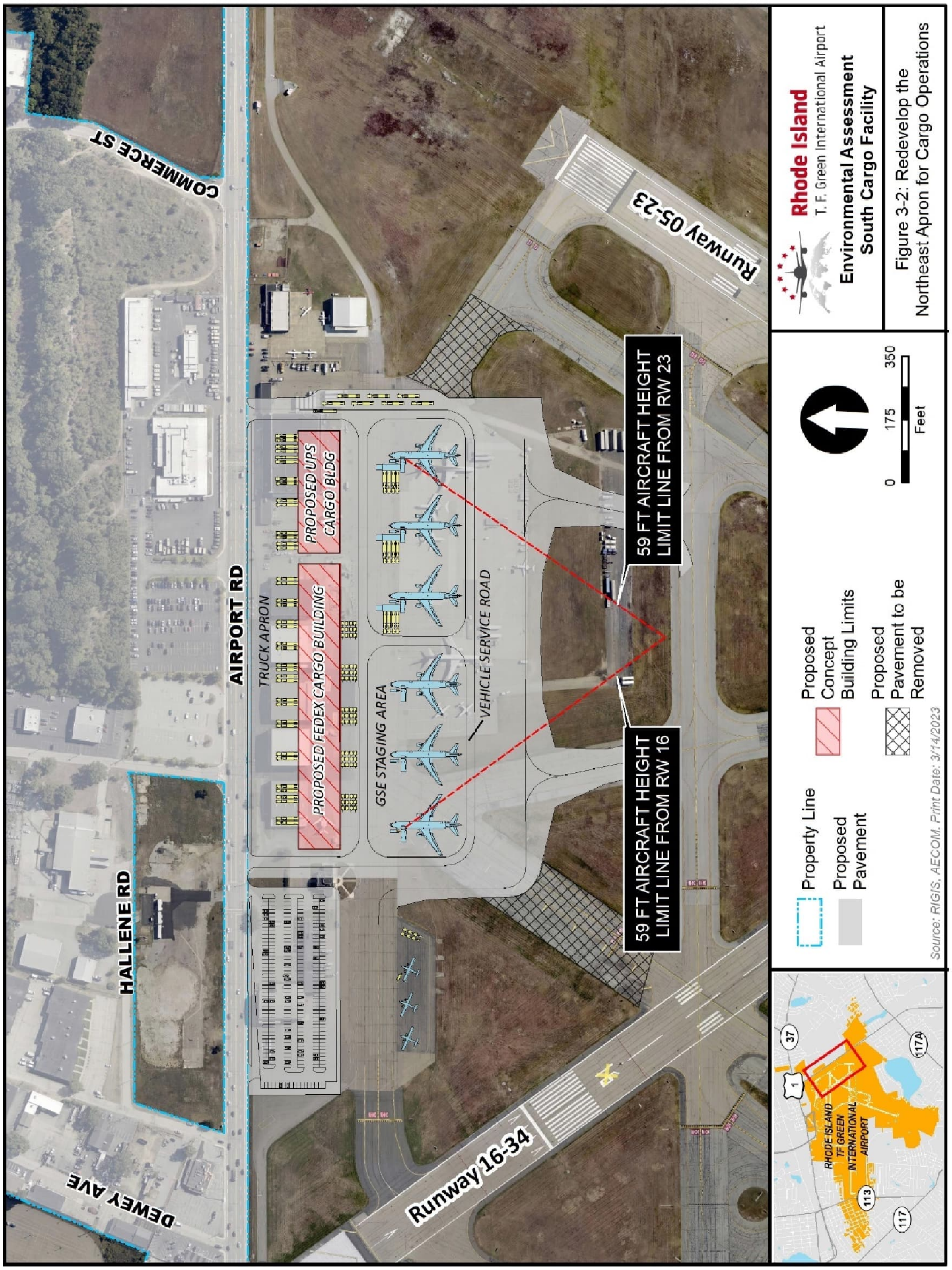

Figure 3-2: Redevelop the Northeast Apron

3.3.5. Relocate to a Different Airport

RIAC owns and operates five other airports. They are: Block Island State Airport (BID), Newport State Airport (UUU), North Central State Airport (SFZ); Quonset State Airport (OQU), and Westerly State Airport (WST). Except for OQU, these are small general aviation airports nestled inside of neighborhoods. They are not designed or intended to accommodate commercial airlines or cargo aircraft such as those associated with the Proposed Action, and it would not be reasonable to undertake the improvements needed to do so.

OQU is joint civil-military airport located in North Kingstown, approximately ten miles south of PVD. It combines port, rail, road and air transportation facilities, and an extensive industrial park. OQU is home to both the Air and Army National Guard, and they use the facility for training and aviation operations. There are two runways—the longest is 7,500 feet and the second is 4,000 feet. Moving air cargo operations to OQU may appear to be sensible in terms of intermodal connectivity, and land use compatibility, but this is not viable option for several reasons. First, OQU is a general aviation airport and is not certificated for scheduled airline operations.[20] Even if the improvements could be made to bring the airport up to commercial service standards, the cost, schedule, and environmental impacts to do so would be far greater than the Proposed Action. Second, OCU's connections to port and rail facilities are of no commercial value to the project[21] and the added drive time required to transport shipments between North Kingstown and Providence, and the Boston markets, would reduce the cargo airlines' efficiency and effectiveness. Finally, the purpose of the project is to provide a suitable site for the expansion of air cargo facilities "at PVD." For these reasons, relocating cargo operations to OQU, or to any other airport, is not a reasonable alternative. No further evaluation is recommended.

3.3.6. Construct a New Airport

Developing a new commercial airport to supplement or replace PVD would have cost, schedule, and environmental impacts of the highest order. No significant environmental impacts have been identified with the Proposed Action. Therefore, building a new airport to accommodate the proposed cargo facilities is not a reasonable alternative. No further evaluation is recommended.

3.3.7. Other Modes of Transportation

Trucking and rail options are complimentary methods of moving cargo, not a replacement one. Air transportation is only the viable alternative for express delivery of packages over long distances. This is not a reasonable alternative. No further evaluation is recommended.

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[20] Federal Express (FedEx) and United Parcel Service (UPS) are U.S. Certificated Air Carriers under 14 CFR Part 121, and they operate large aircraft under the same rules as scheduled passenger airlines, which require using a Part 139 certificated airport. Under 14 CFR Part 121, no scheduled air carrier operations using B767 aircraft would be permitted to occur at Quonset State Airport (OQU) without the appropriate airport certification under 14 CFR Part 139.

[21] FedEx and UPS may utilize rail transportation and/or ocean freight shipping in their supply chain for unique routing and transit requirements, but not for its express package delivery services.

3.4. Alternatives Evaluation Summary

Table 3-1 lists the alternatives considered and summarizes the reasons why each alternative was either carried forward or eliminated.

Table 3- 1: Alternatives Evaluation Summary

Alternative	Does the Alternative Meet the Project's Purpose/Objectives?	Carried Forward for Detailed Evaluation
Proposed Action (The Preferred Alternative)	Meets the project's purpose	Yes
No Action Alternative	Does not meet the project's purpose	Yes (as required by FAA, NEPA, and CEQ regulations)
Airport Master Plan Alternatives	Do not provide a site that meets the project's objectives	No
Expand the Existing Cargo Building	Does not provide a site that meets the project's objectives	No
Redevelop the Northeast Apron Area	Not technically, economically, or environmentally feasible	No
Relocate to a Different Site at PVD	Does not provide a site that meets the project's objectives	No
Relocate to a Different Airport	Not technically, economically, or environmentally feasible; does not meet the project's purpose	No
Construct a New Airport	Does not meet the project's purpose with less environmental harm	No
Other Modes of Transportation	Do not meet the project's purpose	No

Source: AECOM analysis.

4. AFFECTED ENVIRONMENT

This chapter briefly describes the presence (or absence) of environmental resources potentially affected by the Proposed Action and its reasonable alternatives. To assist with identifying the area of potential effects, a direct impact study area was established and includes the project's limit disturbance during the construction phase, as shown in Figure 4-1. The study areas for project induced indirect and/or cumulative effects are less precise and will vary by impact category discussed in Chapter 5.[22]

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[22] "Direct effects" are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. "Indirect effects" may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. "Cumulative impact" is the total impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

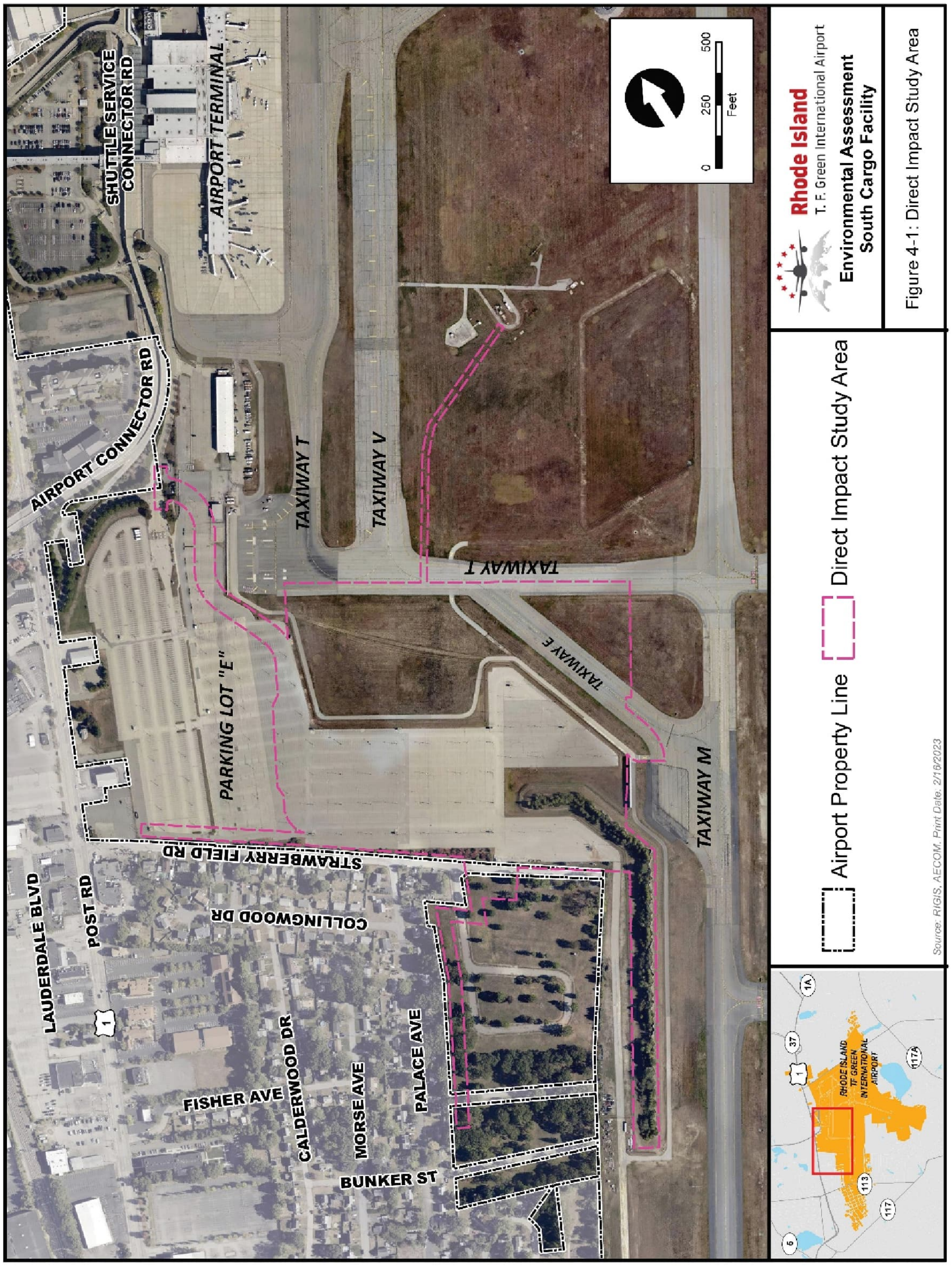

Figure 4-1: Direct Impact Study Area

4.1. Air Quality

This section presents a summary of the regulatory setting and existing conditions of air quality at the Airport. The existing conditions include an analysis of the baseline emissions, which has been estimated using FAA guidance on estimating emissions from aviation sources, aircraft operational data from the noise monitoring system, publicly available data from FAA sources, and information developed specifically for the Draft EA. Appendix A provides detailed information that is summarized below.

4.1.1. Regulatory Setting

NEPA requires disclosure of impacts to air quality due to federal actions. For compliance with NEPA, the primary guidance documents by which an air quality assessment is performed are FAA Order 1050.1F[23] and its accompanying 1050.1F Desk Reference[24] and the Aviation Emissions and Air Quality Handbook.[25] Under NEPA, potential effects of the Proposed Action are evaluated against the National Ambient Air Quality Standards (NAAQS), as promulgated by the United States Environmental Protection Agency (USEPA) under the Federal Clean Air Act (CAA).

The USEPA currently regulates six criteria pollutants, including ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM), and lead (Pb). Particulate matter is divided into two particle size categories: coarse particles with an aerodynamic diameter less than 10 micrometers (PM10) and fine particles with an aerodynamic diameter of less than 2.5 micrometers (PM2.5). The NAAQS for all criteria pollutants are shown in Appendix A.

The NAAQS apply to the concentration of a pollutant in outdoor ambient air. If the air quality in a geographic area is equal to or better than the national standard, the USEPA will typically designate the region as an “attainment area.” An area where air quality does not meet the national standard is typically designated by the USEPA as a “nonattainment area.” Once the air quality in a nonattainment area improves to the point where it meets the standards and the additional requirements outlined in the CAA, the USEPA can re-designate the area to attainment upon approval of a Maintenance Plan, and these areas are then referred to as “maintenance areas.” Each state is required to prepare a State Implementation Plan (SIP) that outlines measures that regions within the state will implement to attain the applicable air quality standard in nonattainment areas for applicable criteria air pollutant, and to maintain compliance with the applicable air quality standard in maintenance areas. The Airport is located in Kent County, Rhode Island, which is currently designated by the USEPA as in attainment with the NAAQS for all criteria pollutants.

The CAA requires that federal agencies ensure that non-highway and transit-related actions proposed in a maintenance or nonattainment area conform to a SIP. This process is referred to as General Conformity. Part 93 of Title 40 of the Code of Federal Regulations (40 CFR Part 93) outlines the requirements for determining whether a proposed federal action conforms to a state’s SIP. A General Conformity Determination is required if an action’s emissions exceed de minimis levels. Comparing project-related emissions to the de minimis levels is referred to as an Applicability Test, which is only conducted for the air pollutants for which an area is classified as maintenance or nonattainment. Because the Airport is in

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[23] 1050.1F - Environmental Impacts: Policies and Procedures – Document Information (faa.gov)

[24] 1050.1F Desk Reference | Federal Aviation Administration (faa.gov)

[25] Federal Aviation Administration, Aviation Emissions and Air Quality Handbook, Version 3, Update 1. January 2015, Aviation Emissions and Air Quality Handbook, Version 3, Update 1 (faa.gov)

an area designated by the USEPA as in attainment for all criteria pollutants, General Conformity does not apply in this case.

4.1.2. Existing Conditions

Emissions of the following criteria pollutants—CO, NOX, VOCs, SO2, PM10, and PM2.5—are primarily emitted through the combustion of fuel by mobile sources and from industrial facilities. The air quality analysis evaluated herein estimates emissions from the following sources expected to be affected by the Proposed Action: aircraft engines, auxiliary power units (APUs), and ground support equipment (GSE). This air quality assessment was conducted in accordance with Federal Aviation Administrative (FAA) guidelines for assessing environmental impacts. This section summarizes the emissions of criteria air pollutants that have been estimated to exist in the baseline year (2021), before commencement of the Proposed Action.

In analyzing the current status of operational emissions at the Airport, a baseline year of 2021 was selected as an indication of existing conditions. The baseline emissions inventory was estimated in accordance with FAA guidelines, and a detailed protocol is provided in Appendix A. The results are shown in Table 4-1.

Table 4- 1: Operational Emissions Inventory of the Baseline Year

Source	CO	VOCs[(a)]	NO_x[(a)]	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	424.98	41.41	207.50	20.96	2.25	2.25
APU	14.30	0.94	8.90	1.36	1.24	1.24
GSE	52.88	1.91	5.23	0.03	0.30	0.28
Total[(b)] (tons/year)	492.16	44.27	221.63	22.35	3.78	3.76

Notes:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NO_x, and VOCs.

(b) Totals may not add due to rounding.

Source: HMMH, December 2022

4.2. Biological Resources

The Direct Impact Study Area includes a 45-ac project site that consists mostly of long-term parking Lot E, vacant land west of Field View Drive, a 1,700-ft earthen berm/noise wall surrounded in trees and shrubs, and a detention basin (east of parking Lot E). Land use/cover types include pavement, grassland, woodlands, and the noise barrier wall thicket. The paved portions of the project site are non-habitat and do not support plant or animal biodiversity. Grasslands adjacent to the airfield pavements area, and within the detention basin, are actively managed and mowed on a regular basis to minimize wildlife attractants.

A 16-ac (est.) open park-like woodland setting has evolved around Field View Drive, where houses were removed (c. 2005 to 2010) after acquisition by RIAC as part of the noise management program. The vegetation in this area is characterized by cool season turf grasses associated with residential lawns and scattered landscape trees. The cover types provide foraging habitats for common species of songbirds and small mammals, (e.g., mockingbird, song and chipping sparrow, American robin, eastern gray squirrel, eastern chipmunk, etc.). The grasses are mowed on a regular basis and the area is accessible to neighbors and their pets who utilize this woodland like a park. The high level of human activity limits wildlife usage to those species which can habituate to these levels of disturbance.

The existing noise barrier wall east of the woodlands described above is densely planted with low growing trees and shrubs that provide some habitat value for certain songbirds for cover from predators or even nesting. The setting of the thicket next to an active runway and taxiways limits the diversity of avian species utilizing this habitat to those that can habituate to high levels of sound and human disturbance. The project site and adjacent areas consist entirely of uplands. No lowland floodplain or wetland areas are present or would be affected by the Proposed Action.

Consultation with the U.S. Fish and Wildlife Service (USFWS) identified two listed species potentially affected by the Proposed Action—the northern long-eared bat (NLEB), and monarch butterfly. There is no critical habitat identified for either species.[26] NLEB is unlikely to roost in the noise barrier thicket or the park woodland, however, certain protocols must be followed to avoid or minimize potential impacts to individual NLEB. At this time the monarch butterfly is a candidate species for listing and no action is required to protect it. More specific information and supporting documentation is provided in Section 5.2 and Appendix B.

4.3. Climate

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs).[27] According to the USEPA, the primary source of GHG emissions in the U.S. is the burning of fossil fuels for transportation. Over 90% of the fuel used for transportation is petroleum based, which includes primarily gasoline and diesel. GHG emissions from transportation primarily come from cars, trucks, ships, trains, and planes.

On January 9, 2023, the Council on Environmental Quality (CEQ) issued interim guidance regarding the preparation of greenhouse gas inventories for NEPA documents (referred to as the CEQ GHG Guidance")[28]. The CEQ GHG Guidance went into effect immediately, and has been accounted for in all GHG analyses in this draft EA.

In 2020, the EPA finalized GHG emission standards for airplanes used in commercial aviation and for large business jets. This action aligns U.S. standards with the international carbon dioxide (CO2) emissions standards set by the International Civil Aviation Organization (ICAO), keeping domestically manufactured aircraft competitive in the global marketplace. Aircraft covered by the rule account for ten percent of all U.S. transportation greenhouse gas emissions and three percent of total U.S. GHG emissions. In addition, ground-based airport GHG emissions are caused by gasoline and diesel fuel for airport vehicles and ground support equipment (GSE), fossil fuel for electricity and heating, jet fuel for auxiliary power units (APUs) that power aircraft at airport gates, and other sources.

RIAC conducts an annual air emissions inventory that reports on GHG emissions associated with Airport-related activities. Appendix C provides GHG emissions estimates at the Airport from 2017 to 2021.[29] In 2019, total gross GHG emissions at the Airport—expressed in CO2-equivalents (CO2e)—were 331,665

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[26] When a species is proposed for listing as endangered or threatened under the Endangered Species Act (ESA), the USFWS identifies specific areas that are essential to its conservation. These are the species' critical habitat.

[27] The main greenhouse gases are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated gases (e.g., hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride). Carbon dioxide (CO2) is the primary greenhouse gas emitted through human activities.

[28] https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate

[29] Demonstrated reductions in GHG emissions after 2019 are largely due to reduced operations due to the COVID-19 pandemic.

metric tons (or MTCO2e). To place the Airport's GHG emissions in context, based on the latest reporting year for statewide GHG emissions, total gross GHG emissions in Rhode Island were about 10.8 million MTCO2e in 2019.[30] Thus, the Airport's GHG emissions comprised nearly 3 percent of the statewide emissions inventory for that year.

4.4. Coastal Resources

Rhode Island is a coastal state with a federally approved Coastal Zone Management Plan. Under the Coastal Zone Management Act of 1972, all federal actions within the coastal zone must comply with the "enforceable policies" of the state's coastal program, or the Rhode Island Coastal Resources Management Plan (RICRMP). The Rhode Island Coastal Resource Management Council (CRMC) administers the program and the process by which the State decides whether a project or action meets its enforceable policies is called a consistency review. The Proposed Action involves redeveloping existing built land within the boundary of the coastal zone. As such, the FAA must ensure that all development activities meet the consistency requirements of the CRMP to the extent practicable.

Additionally, CRMC coastal zone management policies are extended to include those areas within the watershed boundaries of certain coastal estuaries, along beach fronts, specific urban areas and into federal waters. These areas have special regulations and policies under Special Area Management Plans (SAMPs) including Greenwich Bay. A southernmost portion of the Direct Impact Study Area is within the watershed of Greenwich Bay. However, based on the network of closed drainage systems on the Airport, only a small portion of the stormwater generated and treated in the Direct Impact Study Area reaches Greenwich Bay in surface waters via Tuscatucket Brook.

The nearest coastal barrier resource is a lowland area associated with Greenwich Bay and is approximately 1.5 miles south of the development activities associated with the Proposed Action.

The assessment of potential impacts on coastal resources is discussed Section 5.4. More detailed information and Appendix D.

4.5. Department of Transportation, Section 4(f)

Section 4(f) requirements stipulate that DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply: there is no feasible and prudent avoidance alternative to the use of land; and, the action includes all possible planning to minimize harm to the property resulting from such use; or, the Administration determines that the use of the property will have a de minimis impact.[31]

There are no publicly owned parks, recreation areas, or wildlife or waterfowl refuges of national, state, or local significance, within the Direct Impact Study Area. The Hillsgrove State Airport Historic District is adjacent to the Direct Impact Study Area and would be directly and indirectly affected by the Proposed Action (see Figure 5-2). Historic resources affected by the Proposed Action are identified in Section 4.7, and the effects are discussed in Section 5.8.

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[30] Rhode Island Department of Environmental Protection. (2022). 2019 Rhode Island - Greenhouse Gas Emissions Inventory. https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-12/ridem-ghg-inventory-2019.pdf.

[31] Section 4(f) was enacted in 1966 as part of the U.S. Department of Transportation (U.S. DOT) Act, which established the U.S. DOT. It is now codified in 49 U.S.C. § 303(c); essentially identical language also appears in 23 C.F.R. § 138.

The former Winslow Park was located south of Main Avenue and was relocated as part of the Runway 5-23 extension project. The new Winslow Park opened in 2015 at the eastern edge of PVD, west of Warwick Pond at Cedar Swamp Road/Roe Avenue (see Figure 5-2). The park is separated from the Direct Impact Study Area by the east-west extent of the airfield. The new Winslow Park includes baseball/softball fields, soccer fields, a children's playground, and a walking trail.

4.6. Farmland

The Farmland Protection Policy Act[32] (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state and local units of government, and private programs and policies to protect farmland. For the purposes of complying with the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.[33] Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Soil data and related information were obtained using the U.S. Department of Agriculture (USDA) Web Soil Survey (WSS) online mapping tool.[34] According to the WSS, the entire project limits and surrounding area consists of various classifications of Urban land. No FPPA-designated farmland soils are present within or adjacent to the project's limit of disturbance.

4.7. Hazardous Materials, Solid Waste, and Pollution Prevention

The Proposed Action includes redevelopment of approximately 45 acres of previously disturbed land including demolition of exiting of pavements and excavation of soils on airport property. An environmental records search and review of existing published information was performed to determine the presence/absence of listed hazardous waste sites in the vicinity of the Direct Impact Study Area (limit of disturbance). Generally, a total of 30 state and/or federally listed sites are associated with the Airport (2000 Post Road), most of which are not near the Direct Impact Study Area and would have no effect on the Proposed Action. Four sites appear to be located in close proximity to, but not within, the Direct Impact Study Area. One site is listed as active, two sites are listed as inactive, and one site is listed as permanently closed. No environmental land use restrictions (ELURs) are associated with any of the sites. A geotechnical investigation was performed the results are appended. Subsurface soils are consistent with Urban built land (fill material over deposits of silt and sand). Depth to groundwater ranged between 9.2-ft and 11.7-ft below the ground surface. Although the borings were not specifically tested for contamination, no evidence of contamination was indicated or reported. More detailed information and supporting documentation is provided in Section 5.7 and Appendix E.

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[32] Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA) subtitle I of Title XV, Section 1539-1549. On June 17, 1994, the final rules and regulations were published in the Federal Register.

[33] Prime and unique farmlands are designations assigned by the USDA. For more information, see 7 CFR 657.5 Identification of Important Farmlands.

[34] USDA Web Soil Survey.

4.8. Historic and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires federal agencies to consider the effects of their undertakings on historic properties identified within the area of potential effect (APE). A historical property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior."

Areas potentially affected by the Proposed Action were evaluated for the presence/absence of historic properties. The APE for aboveground historic resources consists of the Direct Impact Study Area and the immediately surrounding area. The APE encroaches on the Hillsgrove State Airport Historic District boundary as shown in Figure 5-2. The historic District includes the Rhode Island State Airport Terminal, which is listed on the National Register of Historic Places, as well as Hangar No. 2, which us currently used as the air cargo building. Both structures are located on the north side of the Airport, between the Northeast Apron and Airport Road. The boundary of the historic District extends south across the infield and is adjacent to the Direct Impact Study Area. The Proposed Action generally avoids the historic District except where a buried stormwater drainage pipe needs to be installed between the aircraft parking apron and the glycol collection and treatment facility. No other historic properties were identified in the APE.

The APE for archeological resources includes the project's limit of disturbance only. Due to the nature and extent of prior earthwork and development within this APE, there is very low potential for intact archeological remains. Additional information and supporting documentation are provided in Section 5.8 and Appendix F.

4.9. Land Use

The Proposed Action is located entirely on existing Airport property, facing the airfield to the north and to the east. Off-airport land uses adjacent to the Proposed Action include a medium density residential neighborhood to the south across Strawberry Field Road and the Post Road commercial transportation corridor to the west. Post Road is characterized primarily by Airport-generated commercial uses, such as parking, car rental agencies, courier services, ground transportation services, fast food and sit-down restaurants, and hotels, and is the western boundary of the residential neighborhood. Based on the City of Warwick Comprehensive Plan 2033, the residential neighborhood is zoned Residence A-7 (high intensity). Besides the residential neighborhood, the remaining areas along Post Road are zoned Office District and General Business District. The Airport's growing popularity continues to influence development in surroundings areas, especially along Post Road near the passenger terminal complex.

The Airport affects, and is affected by, land uses adjacent to the Airport. These effects are generally addressed in the City of Warwick's Zoning Ordinances, as well as two municipal planning documents—City of Warwick Comprehensive Plan 2033, and Warwick Station Development District Master Plan, A Transit-Oriented Development. Additional relevant land use information is provided in Section 5.9 and Appendix G.

4.10. Natural Resources and Energy Supply

RIAC actively manages energy use, energy efficiency, and natural resource consumption at PVD. Electricity and natural gas are obtained from the Narragansett Electric Company. PVD consumes approximately 8,000 megawatt hours (MWh) of electricity and 200,000 hundred cubic feet (CCF) of natural gas annually. Various suppliers provide fuel for the Airport's fleet of motor vehicle and equipment, and for aircraft that operate at the Airport. Collectively, these fuels include gasoline, diesel, Jet A, Avgas, and compressed natural gas (CNG). No known energy supply constraints are known among the Airport's energy suppliers. The City of Warwick's Department of Public Works, Water Division supplies potable water to the Airport. The Airport is within the Warwick Water Service Area, which gets its water from the Providence Water Supply Board. No known water supply constraints are known to exist within the Warwick Water Service Area. However, the Airport is within an area of medium-to high water stress (i.e., the ratio of total water withdrawals to available renewable surface and groundwater supplies). To limit potable water consumption, RIAC evaluates its Airport development projects for potential water conservation measures, and implements those measures as feasible. Generally, PVD is located in an urbanized area with adequate access to natural resources and energy supply for airport operations, aircraft operations, and construction projects, and these energy sources are not in short supply in the New England region.

4.11. Noise and Compatible Land Use

This section and Appendix H present the aircraft noise and noise-compatible land use analysis conducted as part of this Draft EA. The analysis includes summaries of the operational data used in calculating noise exposure levels, how noise is characterized and described, how people respond to it, and FAA guidance on land-use compatibility with various levels of noise exposure.

4.11.1. Regulatory Setting

It is the FAA's responsibility to analyze aviation noise impacts from federal actions. This Draft EA follows guidance and regulations provided in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, the 1050.1F 2020 Desk Reference, and Order 5050.4B, NEPA Implementing Instructions for Airport Actions, and the 1050.1F Desk Reference on how the impact assessment should occur, as well as other federal statutes, regulations, and specific agency orders. Appendix H lists the regulations associated with noise.

These laws and guidance documents specify the use of the Day-Night Average Sound Level (DNL), which is the noise metric used in most environmental impact analyses. A cumulative sound level, DNL provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at a location over a 24-hour period, with a 10-decibel (dB) weighting added to all sounds occurring during nighttime hours (between 10:00:00 p.m. and 6:59:59 a.m.). Expressing a DNL implies decibels; thus, the "dB" nomenclature is omitted herein (e.g., "65 DNL" expresses a DNL of 65 dB). For a NEPA noise analysis, the FAA requires that the 24-hour analysis period represent the "average annual day" (AAD), meaning average daily aircraft operations over a 365-day period. The aircraft noise analysis for this Draft EA uses Aviation Environmental Design Tool (AEDT) Version 3e (released May 9, 2022). AEDT is a combined noise and emission model that uses a database of aircraft noise and performance characteristics.

The City of Warwick has a Noise Ordinance[35] designed to limit loud single events or excessive noise above ambient noise. FAA regulations on noise apply to aircraft operations therefore they are exempt, however other activities at the proposed facility may need to comply with the Ordinance.

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[35] Section 40-13, https://library.municode.com/ri/warwick/codes/code_of_ordinances?nodeId=PTIICOOR_CH40MIPROF_ARTIINGE_S40-13NO

4.11.2. Noise-Compatible Land Use

Existing land use in the study area consists of the PVD property, residential uses, commercial, and industrial land uses (see Figure 1 in Appendix H). PVD is surrounded to the north and south by residential areas consisting of single-family and multi-family residences. The area to the west is primarily industrial and commercial facilities with areas of residential land use to the east of the Airport.

The FAA has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1[36], and the FAA generally considers all land uses to be compatible with aircraft-related noise below 65 DNL, including residences, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. All noise-sensitive sites such as schools, nursing homes, hospitals, and places of worship have been identified and were evaluated in this Draft EA.

4.11.3. Operations

The existing aircraft noise environment around PVD was evaluated based upon the existing condition aircraft operations for calendar year 2021. Calendar year 2021 operations at PVD are below historical averages (approximately 20 percent) due to the pandemic but reflect a return to flight operations at the airport from 2020. Radar data from PVD Casper Flight Tracking System and the FAA's Operational Network (OPSNET) operational data for CY2021 were used to determine the existing noise conditions. The radar data provided the aircraft fleet mix and runway use. The fleet mix developed from the Casper data was grouped into FAA operational categories (air carrier, air taxi, and general aviation). Table 4-2 presents the annual operations modeled for the Existing Condition along with the AAD counts.

Table 4- 2: Existing Condition Operations

Modeling Scenario	Air Carrier	Air Taxi	General Aviation		Military		Total
			Itinerant	Local	Itinerant	Local	
Total CY2021	24,341	8,866	14,410	9,165	477	132	57,391
Average Annual Day (AAD)	66.7	24.3	39.5	25.1	1.3	0.4	157.2

Note: Totals may not match exactly due to rounding

Source: Casper, FAA OPSNET, 12/16/2022

Based on the radar data analysis, the Airport operates in one of two main operating configurations—south flow (approximately 59 percent of the time) or north flow (approximately 41 percent of the time). Details on the noise modeling inputs, including the modeled aircraft fleet mix, runway layout, runway use and model flights tracks are provided in Appendix H.

4.11.4. Existing Noise Contours

Figure 4-2 displays the 65 – 75 dB DNL noise contours for the 2021 Existing Condition over a map of the existing land use in the study area. The map also shows individual noise-sensitive locations such as schools and places of worship. The FAA's guidelines for land use compatibility state that all land uses are generally compatible with aircraft noise below DNL 65 dB. The DNL 65 dB noise contour extends off airport property in a small area to the east of Runway 5-23 on the corner of Warwick Industrial Drive and Strawberry Field Road. The land is a combination of industrial and open space. The DNL 65+ dB noise contour—which covers approximately 398 acres—contains no residents and no housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship, are within the 2021 DNL 65+ dB noise contour.

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[36] https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150/appendix-Appendix A

Figure 4 - 2: 2021 DNL Noise Contours (Existing Conditions)

4.12. Socioeconomics, Environmental Justice, and Children's Health and Safety

This section covers socioeconomics, environmental justice, and children's environmental health and safety, and summarizes relevant information for each. Additional information is provided in Section 5.12 and Appendix I.

4.12.1. Socioeconomics

Generally, PVD is situated in a metropolitan area and is surrounded by urban development including human structures such as houses, commercial buildings, roads, bridges, and railways, as well as infrastructure for education, health, justice, solid waste, markets, street pavements, and so on. More specifically, Table 2 in Appendix I provides a demographic profile of the five census tracts that comprise the Project Study Area in relation to the City of Warwick, Kent County, Providence County, and Rhode Island. Factors include population, income, employment, age, race, ethnicity, as well as data on poverty, unemployment, and the percentage of limited English-speaking population.

4.12.2. Environmental Justice

An environmental justice (EJ) population means a neighborhood whose annual median household income is equal to or less than an established threshold, or whose minority population exceeds an established threshold. Two different approaches were used to identify EJ populations in the vicinity of PVD. Using the federal Environmental Justice Interagency Working Group on (EJ IWG)[37] method, only Block Group 1, Census Tract 221, meets the established screening criteria for an EJ population; this area is approximately one-quarter mile west of the Proposed Action and is west of Post Road. Using RIDEM's definition[38], there are no state-identified EJ block groups within one mile of the project site; the closest of such block groups (Block Group 2, Census Tract 142) is approximately 1.1 miles to the northwest of the Proposed Action.

4.12.3. Children's Environmental Health and Safety

The Proposed Action is in U.S. Census Block Group 1 of Census Tract 9800, which also includes the full Airport boundary. No population resides in this block group. Children under age 5 make up 3 percent of the population in the Census block group closest to the Proposed Action (Block Group 1, Census Tract 221). The public school nearest the proposed project is Greenwood Elementary School, which is more than one mile southwest of the Proposed Action.

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[37] The Interagency Working Group on Environmental Justice (EJ IWG) facilitates the active involvement of all Federal agencies to implement Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

[38] According to RIDEM, an "environmental justice focus area" means a census tract that meets one or more of the following criteria: (i) Annual median household income is not more than sixty-five percent (65%) of the statewide annual median household income; (ii) Minority population is equal to or greater than forty percent (40%) of the population; (iii) Twenty-five percent (25%) or more of the households lack English language proficiency; or (iv) Minorities comprise twenty-five percent (25%) or more of the population and the annual median household income of the municipality in the proposed area does not exceed one hundred fifty percent (150%) of the statewide annual median household income.

4.13. Traffic

The Proposed Action requires a site with roadway access to enable the transfer of cargo via truck with a convenient route to and from the off-airport cargo handling facilities and other major surface transportation corridors. Several major intersections were identified for evaluation (see Appendix J, Figure 1). They are:

- Post Road (Route 1) and Airport Road
- Post Road (Route 1) at Coronado Road
- Post Road (Route 1) and Airport Connector Entrance Ramp
- Post Road (Route 1) and Airport Connector Exit Ramp
- Post Road (Route 1) and Aviation Avenue
- Post Road (Route 1) and Baywood Street
- Airport Connector Road and Evans Avenue

In addition to the major intersections, the following roadways would potentially be affected by the Proposed Action:

- Post Road (Route 1). Post Road is classified as a principal arterial owned and maintained by the Rhode Island Department of Transportation (RIDOT). The arterial runs through the study area in a north/south direction and consists of four 12-foot travel lanes with a 2-foot shoulder on the east side of the road and 3-foot shoulder on the west side of the road. Several two-way-left-turn lanes are in the median to assist drivers trying to turn left into many businesses along the roadway, typically 10 feet wide. The posted speed limit is 35 miles per hour. Vehicle parking on both sides of Post Road is prohibited with "NO PARKING ANY TIME" signage.
- Airport Road. Airport Road is classified as a minor arterial and runs in the general east/west direction and is owned and maintained by RIDOT. The minor arterial has two 12-foot travel lanes in each direction, with 4-foot shoulders and 5-foot-wide sidewalks on both sides of the road. The posted speed limit is 35 miles per hour. The roadway is surrounded mainly by commercial and industrial properties.
- Coronado Road. – Coronado Road is classified as an urban collector owned and maintained by RIDOT. The road spans over the Northeast Corridor AMTRAK railroad tracks and connects Post Road and Jefferson Boulevard. The road consists of one 12-foot travel lane with 1-foot shoulders and 5-foot-wide sidewalks in both directions.
- Airport Connector Ramps. The Airport Connector Ramps are owned and maintained by RIDOT. These ramps provide access to the Airport Connector Road westbound and eastbound. There is access to the ramps from both Post Road northbound and southbound. These ramps are limited access roadway with no bicycle or pedestrian access.
- Donald Avenue. Donald Avenue is classified as local roadway under the City of Warwick jurisdiction. This roadway provides access to multiple businesses and their parking lots.
- Aviation Avenue. Aviation Avenue is classified as a local roadway and is maintained by RIAC. This roadway provides ingress access only to Airport departures, arrivals, parking areas, and cargo areas.
- Evans Avenue. Evans Avenue is classified as a local roadway and is maintained by RIAC. This roadway provides access to long term airport parking.
- Baywood Street. Baywood Street is classified as local roadway under the City of Warwick jurisdiction and provides access to residential land uses. Baywood Street is a two-way, two-lane roadway with a 4-foot-wide sidewalk on the northern side of the roadway for approximately 150 feet.

The assessment of potential impacts on roadways and traffic is discussed in Section 5.13. More detailed traffic analysis information is provided in a Traffic Impact Analysis report in Appendix J.

4.14. Visual Effects

As shown in Figure 4-3, the Proposed Action faces parking Lot E to the northwest, Taxiway T and the airfield to the northeast, Taxiway M and the airfield to the southwest, and a residential neighborhood to the southwest across Strawberry Field Road.

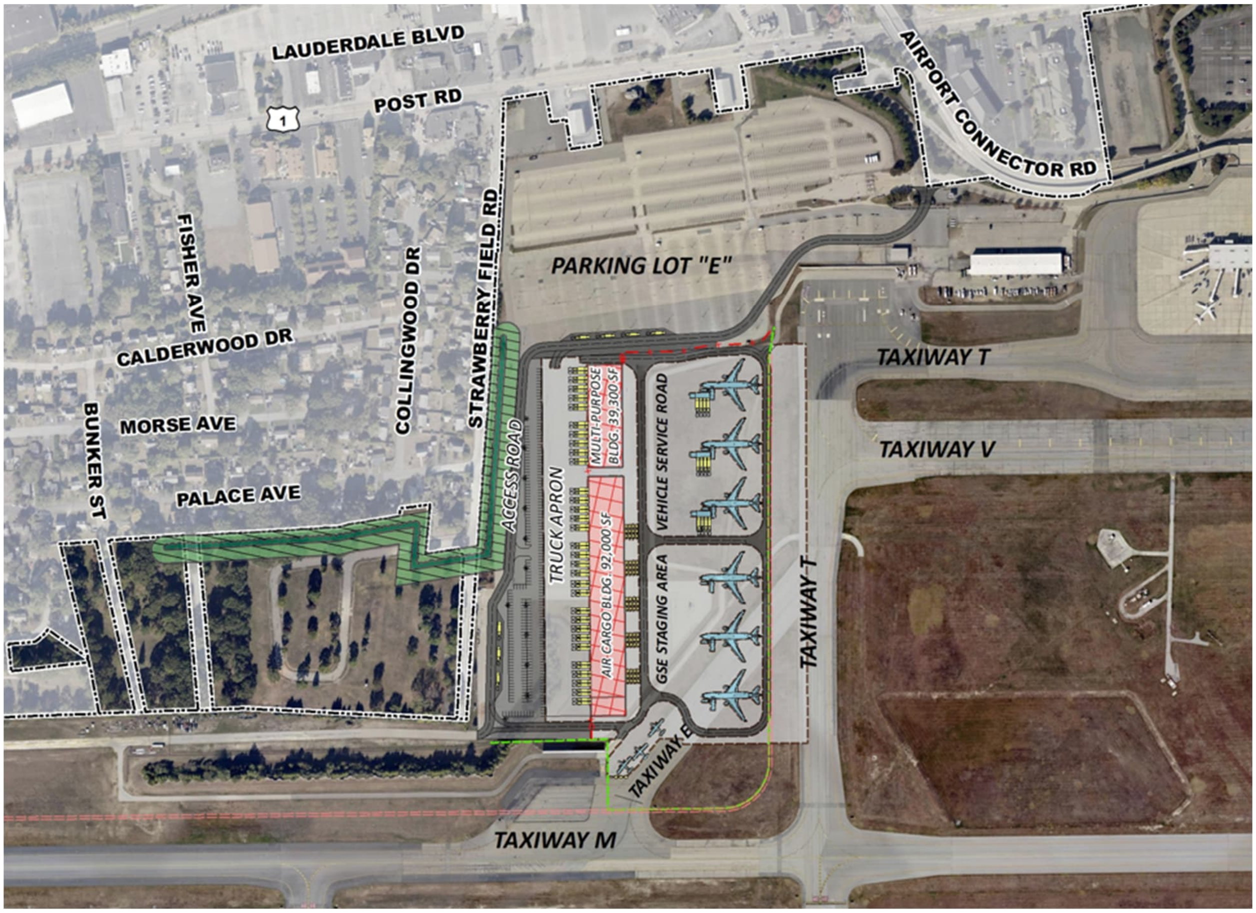

Figure 4 - 3: Visual Effects Area Map

From Strawberry Field Road, viewers currently see a vacant surface parking lot through a chain link fence with a row of evergreen trees planted on the airport-side of the property line, as shown in Figure 4-4. The parking lot is vacant because this section of parking Lot E has been closed since 2020. The parking lot includes high-mast overhead lighting visible from properties along Strawberry Field Road. Viewers can see the airport in the distance beyond the chain link fence and evergreen plantings. In addition, residences facing Palace Avenue between Murray Street and Strawberry Field Road abut the airport property line and they have backyards facing southeast towards Field View Drive (on airport property). The airfield is not visible due to a wooden fence line along the backside the properties, mature trees in the back yards and on airport property around Field View Drive, and the existing noise barrier wall.

The residents and passing vehicles along Strawberry Field Road are the only viewers that would be affected by the proposed cargo facility and noise barrier wall. Viewers along Palace Avenue would only be affected by the proposed noise barrier wall.

Figure 4-4: Existing (Typical) View from Strawberry Field Road (Google Earth Street View 2023).

4.15. Water Resources

This section discusses the presence/absence of water resources in the vicinity of the Proposed Action, such as wetlands, floodplains, surface waters, groundwater, and wild/scenic rivers. The assessment of potential impacts on water resources is discussed Section 5.15. More detailed information is provided in Appendix K.

4.15.1. Wetlands

According to the U.S. Fish and Wildlife Service (USFWS), wetlands are defined as “lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.” USFWS National Wetlands Inventory (NWI) mapping indicates there are no wetlands or other surface water bodies within the Direct Impact Study Area. The nearest mapped wetlands are approximately 0.4 mile east of the project site, and approximately 0.6 mile west of the project site. Therefore, no wetlands would be affected by the Proposed Action.

4.15.2. Floodplains

The Federal Emergency Management Agency (FEMA) defines a floodplain as “any land area susceptible to being inundated by floodwaters from any source.” FEMA mapping indicates there are no floodplains within the Direct Impact Study Area. The nearest mapped floodplains are approximately 0.5 mile east of the project site, and approximately 0.6 mile west of the project site. Therefore, no floodplains would be affected by the Proposed Action.

4.15.3. Surface Water

There are no surface waters within the Direct Impact Study Area. The nearest surface water features are:

- The headwaters of Three Ponds Brook, approximately 1,500 feet to the west outside of the airport property
- An unnamed tributary to Buckeye Brook approximately 2,300 feet to the east of the project boundary and within the airport property
- Tuscatucket Brook approximately 1,800 feet to the southeast of the Direct Impact Study Area and within the airport property
- Warwick Pond, an approximately 80-acre natural pond, approximately 5,500 feet east of the Direct Impact Study Area and off Airport Property

There are eight sub-watersheds on the airport property. Runoff from these watersheds is collected in existing closed drainage systems that outlet to one of three outfalls. The receiving waterbody for the outfall located to the northeast of the project site discharges into an unnamed tributary which flows into Buckeye Brook downstream from Warwick Pond. The remaining two outfalls are in the southeast and discharge into Tuscatucket Brook, which leads to Greenwich Bay. Buckeye Brook and its tributaries are impaired and have Total Maximum Daily Loads (TMDLs) for Enterococcus and Fecal Coliform (developed in 2008), and for Benthic-macroinvertebrate diversity, cadmium, copper, iron, and low dissolved oxygen concentrations (developed in 2021). Tuscatucket Brook is impaired and has a TMDL for Fecal Coliform (developed in 2006).

The Direct Impact Study Area is mostly impervious consisting of the parking lot, taxiways, and access roads. Storm runoff is treated through modular stormwater treatment systems, and an existing detention/infiltration basin, before entering the receiving waters. PVD also has a glycol collection and treatment system to minimize the amount of deicing fluid that enters local waterways. The remaining project area across Strawberry Field Drive contains catch basins which discharge untreated stormwater runoff to Tuscatucket Brook. No runoff from the Direct Impact Study Area reaches Warwick Pond.

4.15.4. Groundwater

The USEPA defines a sole source aquifer (SSA) as one where: the aquifer supplies at least 50 percent of the drinking water for its service area; there are no reasonably available alternative drinking water sources should the aquifer become contaminated. The USEPA has designated four sole source aquifers in Rhode Island: Block Island, Pawcatuck, Hunt-Annaquatucket-Pettaquamscutt, and Jamestown. PVD is not located near any of those resources. The project site is within the Providence/Warwick Groundwater Aquifer; however, this aquifer is not used for local public drinking water.

4.15.5. Wild and Scenic Rivers

Rhode Island has 110 miles of federally designated wild and scenic rivers, but there are no such rivers in the Direct Impact Study Area. According to the National Park Service (NPS), the nearest designated river segment is the Queen River from its headwaters in Exeter and West Greenwich, to the Kingstown Road Bridge in South Kingstown. Therefore, no wild and scenic rivers are present or would be affected by the Proposed Action.

5. ENVIRONMENTAL CONSEQUENCES

This chapter provides a concise analysis for the potential environmental impacts that the Proposed Action and No Action Alternative may cause. To facilitate review, supplemental information, supporting documentation, and proof of agency consultation are appended where referenced in the sections below.

5.1. Air Quality

This section presents the results of an analysis performed to evaluate the potential air quality impacts of the Proposed Action. Construction and operational emissions impacts were estimated by developing forecasted emissions inventories for the Proposed Action and the No Action Alternative, and then determining the net difference between the two scenarios. This net difference is defined as the Project Emissions, which are compared to appropriate thresholds to draw conclusions as to the Proposed Action's potential to significantly impact air quality.

5.1.1. No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed or operated in the future. Therefore, no project emissions would occur due to the construction of the South Cargo Facility. However, the Airport would continue to be operated, with passenger and cargo operations continuing to grow at their natural demand rate from the baseline emissions inventory presented in Section 4.2. Therefore, the emissions inventory for the operational emissions under the No Action Alternative were estimated for 2026 (the first year that the South Cargo Facility would otherwise be operational).

The future (2026) No Action Alternative emissions were estimated using the fleet mix, flight tracks, runway usage patterns, and modeling protocol used in the baseline emissions inventory. The results of that inventory analysis are presented in Table 5-1, with more details on the methodologies and activity levels used to develop these emissions inventories included in Appendix A.

Table 5- 1: 2026 Operational Emissions Inventory for the Forecast No Action Alternative

Source	CO	VOCs[(a)]	NO_x[(a)]	SO_x	PM_{10}	$PM_{2.5}$
Aircraft	287.43	29.75	187.27	18.51	1.84	1.84
APU	12.09	0.90	8.03	1.22	1.14	1.14
GSE	38.77	1.45	3.46	0.03	0.23	0.21
Total[(b)] (tons/year)	338.29	32.1	198.76	19.76	3.21	3.19

Notes:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NO_x, and VOCs.

(b) Totals may not add due to rounding.

Source: HMMH, December 2022

The No Action Alternative assumes that the Proposed Action would not be implemented, and the project induced air emission would not occur. No significant air quality impacts would occur under the No Action Alternative.

5.1.2. Proposed Action

Under the Proposed Action, the South Cargo Facility would be constructed and operated as described in the Project Description, with construction assumed to take place in one calendar year (2024), as a conservative estimate for comparison to annual thresholds. The first fully operational year for the South Cargo Facility is assumed to be 2026.

5.1.2.1. Construction Emissions (2024)

Demolition and construction associated with the Proposed Action would result in short-term changes in emissions due to exhaust from offroad construction equipment, onroad vehicles, and fugitive dust sources (e.g., site preparation, land clearing, and material handling).

Off-road emissions were estimated using emission factors representative of equipment in Kent County for 2024, from USEPA's MOtor Vehicle Emissions Simulator (MOVES3.0)[39], and equipment and activity information from the Airport Cooperative Research Board's (ACRP) Airport Construction Emissions Inventory Tool (ACEIT).[40]

On-road emissions were also estimated using emission factors from MOVES3.0, and with vehicle miles traveled (VMT) for employee trips and delivery vehicles derived from round trip distances and the number of employee hours estimated from the construction schedule. It was assumed that all on-road equipment will use gasoline-fueled vehicles, and diesel-powered trucks for deliveries. Fugitive dust emissions were calculated using USEPA emission factors and were included in the total construction emissions.

The construction emissions estimates are presented in Table 5-2, with a detailed description of demolition and construction components, along with size, cost estimates, timelines, and emissions inventory protocols, provided in Appendix A.

5.1.2.2. Operational Emissions (2026)

Operational emissions include aircraft operations, in addition to other activities that produce emissions including additional ground-based aviation-related emissions and roadway emissions. Ground-based aviation-related emissions include aircraft that are taxiing or idling with main engines running, the use of onboard auxiliary power units (APUs) burning jet fuel to provide power to the aircraft while it is being loaded and unloaded, and ground support equipment (GSE) such as cargo lifts and baggage tractors. Roadway emissions include both large diesel trucks that will transport cargo to/from the South Cargo Facility, and passenger vehicles used by employees for additional commuting trips.

Aviation-related emissions were estimated using the FAA's AEDT, and roadway emissions were estimated using emission factors from the USEPA's MOVES3.0, and conservative activity assumptions described Appendix J.

A conservative assumption was made that operation of the South Cargo Facility is assumed to increase cargo aircraft operations in the first full year of operation (2026), with no room for additional operational increases beyond that year. Therefore, emissions were estimated for 2026, with and without the Project, to establish if the Project Emissions would have the potential to significantly impact air quality.

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[39] USEPA, Motor Vehicle Emissions Simulator (MOVES) User Guide for MOVES3, November 2020, https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves

[40] ACRP, 2014 https://crp.trb.org/acrp0267/acrp-report-102-guidance-for-estimating-airport-construction-emissions/

The future proposed action emissions inventory results are shown in Table 5-2, with additional details about the emissions modeling protocols and forecast activity assumptions provided in Appendix A.

5.1.2.3. Impact Analysis

Section 176(c)(4) of the CAA establishes the General Conformity rule, which ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plan to attain and maintain the NAAQS. Additionally, the CAA establishes de minimis levels, under which, project emissions are assumed to conform to the state's plan. Since the Airport is located in an area designated by the USEPA as in attainment of the NAAQS, the General Conformity Rule does not apply in this case. However, de minimis levels for attainment/maintenance areas were used as a suitable proxy to establish a threshold to determine if there are significant air quality impacts from the Proposed Action.

Table 5-2 presents the total emissions associated with Proposed Action, including construction in 2024 and the net change in operational emissions that are associated with the Proposed Action for the first year of operation (2026). The emissions associated with Proposed Action were then compared to the de minimis levels for an attainment/maintenance area, which shows the emissions are below those thresholds for all pollutants in 2024 and 2026. Therefore, it can be concluded that the Proposed Action would not result in a significant air quality impact. No mitigation measures are required.

Table 5- 2: Future Proposed Action Emissions Inventory compared to De Minimis Thresholds

Source	CO (tons)	VOCs[(a)] (tons)	NO_2[(a)] (tons)	SO_2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)
2024 Construction Emissions						
Construction (2024)	29.4	2.08	7.71	0.074	3.04	0.36
2026 Proposed Action Operational Emissions						
Aircraft	326.70	43.38	211.42	20.27	2.02	2.02
APUs	12.48	0.94	8.97	1.31	1.23	1.23
GSE	42.05	1.59	3.80	0.03	0.25	0.23
Roadways	1.53	0.09	2.77	0.00	0.04	0.04
Subtotal 2026 Proposed Action	382.76	46	226.96	21.61	3.54	3.52
Proposed Action Emissions Impact Compared to Maintenance Area De Minimis Thresholds						
2024 Construction Emissions [(b)]	29.4	2.08	7.71	0.074	3.04	0.36
2026 Proposed Action	382.76	46	226.96	21.61	3.54	3.52
2026 No Action	338.29	32.1	198.76	19.76	3.21	3.19
2026 Operational Net Difference [(c)]	44.47	13.9	28.2	1.85	0.33	0.33
Maintenance area de minimis threshold	100	100	100	100	100	100
Emissions below de minimis threshold?	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NO_x and VOCs.

(b) Total emissions inventory for demolition and construction activities

(c) 2026 Net operational emissions (i.e. Proposed Action minus No Action)

Sources: HMMH, based on ACEIT and MOVES3 results using information provided by AECOM, December 2022; HMMH, December

5.2. Biological Resources

5.2.1. Proposed Action

Under the Proposed Action, approximately 45 acres of urban land would be redeveloped, resulting in changes to land use, cover types, and associated habitat for terrestrial plant and animal species. Short-term impacts are generally associated with the construction period. Movement and noise of construction vehicles would disrupt wildlife in areas adjacent to the construction site. Long term impacts involve marginal loss of habitat for locally common species associated with urban parks. There are no known populations of federal or state listed species in the Direct Impact Study Area. The land use/cover types impacted by the Proposed Action are shown in Figure 5-1. More information is included Appendix B.

Construction impacts on biological resources would be limited to the relocation of the earthen berm/noise barrier wall system. During the construction period, the existing berm/barrier wall would be removed and replaced with a new barrier system of comparable design. The existing thicket would be cleared, the wall structure would be removed, the earthen berm would be excavated, and the soils would be relocated and used to support the new barrier system in the new location. Approximately three acres of existing woodlands (thicket) would be converted to grassland. Construction of the new barrier system requires tree clearing and removal, earthwork/fill for the raised berm, installation of the structural wall atop the berm, and landscaping along the community facing side of the barrier system. Landscaping includes a variety of evergreen trees intended to mature into an aesthetic visual barrier while providing replacement habitat value. Approximately three acres of scattered trees and grass would be converted and replaced with the new earthen berm, barrier wall, and newly planted trees and shrubs. Few if any impacts are associated with construction of the cargo building, apron, access road, or parking areas, because these infield areas are covered with either turf grass or pavement with very little or no habitat value. After construction, displaced wildlife would either return or reestablish nearby. Habitat value would increase as the site is restored and the landscaped trees and vegetation mature over time. Long term impacts would be limited to the permanent loss of grassland associated with the infield turf areas that have low or no habitat value.

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for biological resources (including fish, wildlife, and plants). A significant impact to biological resources would occur when: the U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat. The FAA has not established a significance threshold for non-listed species. No critical habitat is identified for the federally endangered northern long eared bat (NLEB) or the candidate species, monarch butterfly. The project would follow USFWS approved protocols to protect NLEB. Impacts on non-listed species would be short term and temporary, diminishing with project completion and restoration of the site. No long-term adverse impacts to urban wildlife species are anticipated. Therefore, the project related impacts on biological resources would be less than significant. More specific information and supporting documentation is provided in Appendix B of this EA.

5.2.2. No Action Alternative

If no action is taken, there would be no development impacts to biological resources, and the project area would remain essentially unchanged for the foreseeable future. No significant impact to biological resources would occur under the No Action Alternative.

5.2.3. Mitigation Measures

Two mitigation measures are proposed to reduce the potential for effects on animals and plants:

- Implement protocols to protect the NLEB. For example, tree and shrubs to be removed could provide roosting/nesting habitat. Cut any necessary trees, and the existing noise barrier thicket, outside of the pupping season for northern long-eared bat[41], and other bats, and the nesting season for migratory birds.

- The existing thicket along the noise barrier wall is infected with invasive species. If soil is to be reused from this area, a site-specific invasive species management plan should be developed to minimize the risk of further spread.

5.3. Climate

This section addresses the potential for GHG emissions to increase under the Proposed Action over the No Action Alternative and discusses means and measures that would be taken to reduce GHG emissions with, or without, the Proposed Action. The FAA has not established a significant threshold for climate. Further, the FAA has not provided specific factors to consider in making a significance determination. Supplemental information is provided in Appendix C.

5.3.1. Proposed Action

GHG emissions during the construction phase would be short term and temporary, diminishing with project completion and restoration of the site. After construction, there would be an incremental increase in GHG emissions commensurate with a larger cargo building, and additional cargo aircraft operations and ground-based activities. However, such increases would be minimal compared to the Airport's overall emissions–and even more so compared to the statewide GHG emissions inventory.

GHG emissions for demolition and construction activities are expected to take place in 2024 and are estimated to be 10.04 million metric tons of CO_2 equivalents (MMTCO_2e), while annual operational emissions of GHGs are expected to be 55.0 MMTCO_2e and 50.2 MMTCO_2e for the Proposed Action and the No Action Alternative, respectively. This indicates an expected impact of 4.8 MMTCO_2e of GHGs annually, estimated as the net increase from operational emissions of the Proposed Action. The operational emissions represent an average daily increase of 3.8 aircraft operations and a conservative estimate of 77 additional daily truck trips per day in 2026.[42]

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[41] Guidance for seasonal restrictions on tree removal may need to be revised depending on the new policies developed by the USFWS due to the reclassification of the northern long-eared bat Endangered.

[42] Seventy-seven (77) daily truck trips were estimated for the Proposed Action Scenario and was used to represent the impact of the Proposed Action, even though some number of the trips would take place in the No Action scenario as well.

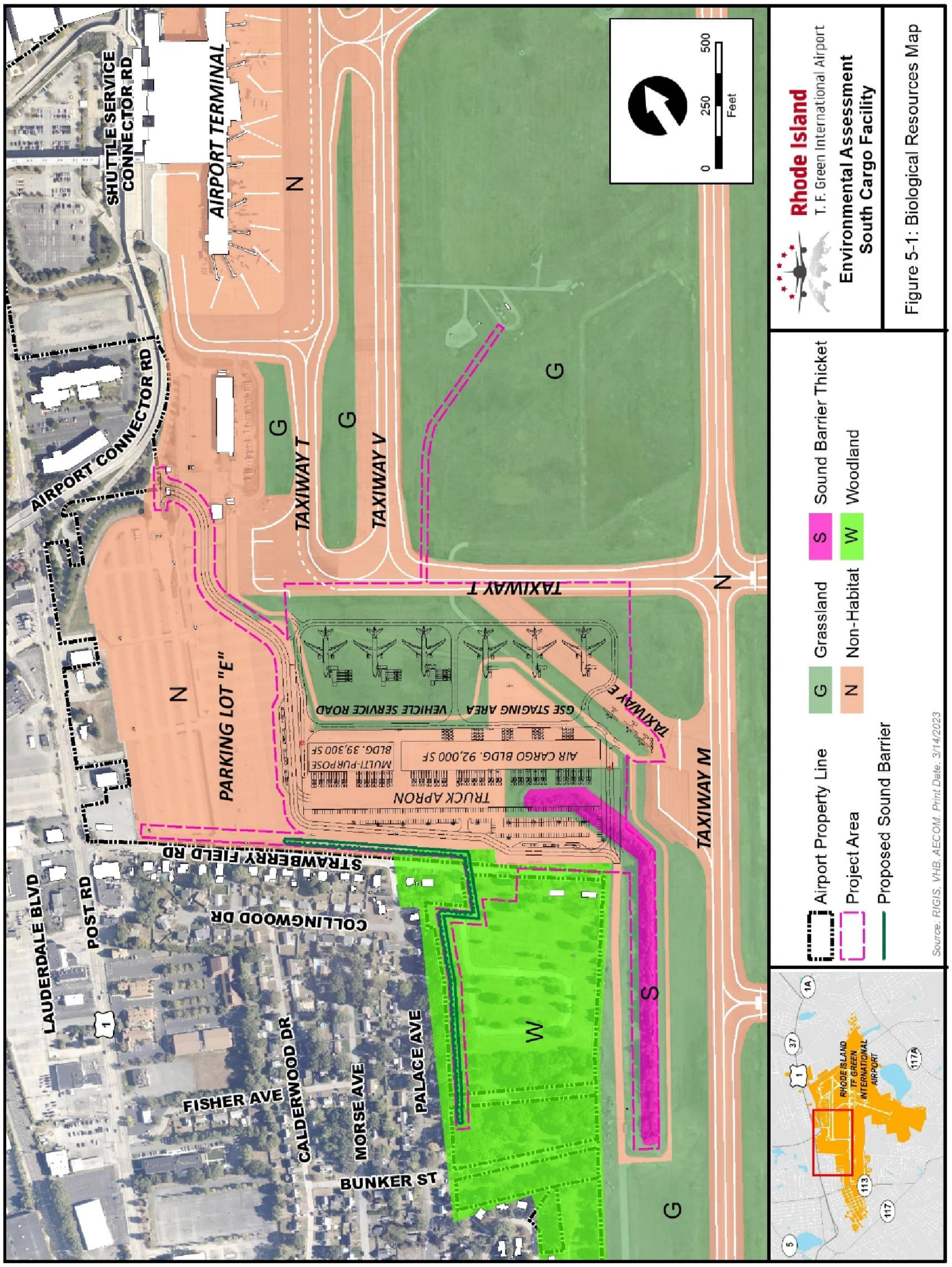

Figure 5- 1: Biological Resources Map

Since there are no significance thresholds established for climate impacts, GHGs associated with the Proposed Action have been estimated in accordance with the latest CEQ GHG Guidance for climate impacts in a NEPA document, and no significant impacts have been identified. In the absence of potentially significant impacts, no mitigation measures are required.

Although no mitigation measures are required, the State if Rhode Island's Air Pollution Control Regulation No. 45 (the Rhode Island Diesel Engine Anti-Idling Program[43]) minimizes GHG emissions from idling by enforcing rules and penalties for diesel engine idling over five minutes within the State of Rhode Island. Additionally, RIAC would reduce GHG emissions by encouraging the use of air quality best management practices and control measures during the construction period, incorporating energy efficient systems and solutions into the building design, and working with the cargo airline tenants to minimize their GHG emissions contribution at the local level.[44]

5.3.2. No Action Alternative

The No Action Alternative assumes the Proposed Action would not be implemented and, therefore, the project induced GHG emissions increase would not occur. No other GHG emissions or specific climatological changes are associated with the No Action Alternative. Consequently, the No Action Alternative would have no significant impact on future climate conditions.

5.4. Coastal Resources

5.4.1. Coastal Zone Management Act Consistency

5.4.1.1. Proposed Action

The Proposed Action involves redeveloping existing built land within the Rhode Island Coastal Zone Management Area (CZMA), and it encroaches on the Greenwich Bay watershed. However, the Direct Impact Study Area is outside of Rhode Island Coastal Resource Management Council (CRMC) direct jurisdiction, and the project would be designed to be consistent to the maximum extent practicable with the enforceable policies of the Greenwich Bay Special Area Management Plan (SAMP)[45] and the Coastal Zone Management Program (CZMP).

The Proposed Action is within the Coastal Zone but would not directly impact coastal resources. Compliance with SAMP rules provides adequate assurance that any secondary or indirect impacts to the Coastal Zone would be less than significant. Water quality best management practices and permit requirements notwithstanding, no mitigation measures are required.

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[43] Rhode Island Department of Environmental Management (RIDEM) Office of Air Resources, Air Pollution Control Regulation No. 45, Rhode Island Diesel Engine Anti-Idling Program. https://rules.sos.ri.gov/regulations/part/250-120-05-45

[44] FedEx and UPS both have roadmaps to achieve carbon neutrality by the 2040-2050 timeframe.

[45] Rule 6.4.1 regarding Coastal Buffer Zones, Rule 6.4.2 Shoreline Features, Rule 6.4.3 Areas of Historic and Archeological Significance, 6.4.4 In Tidal and Coastal Pond Waters, On Shoreline Features and Their Contiguous Areas, 6.4.5 Protection & Enhancement of Public Access to the Shore, and 6.4.6 Natural Hazard Mitigation, Rule 6.4.7 Pest Management and Fertilizer Uses on Golf Courses and Public Properties

5.4.1.2. No Action Alternative

The No Action Alternative avoids development activities in the CZMA and the Greenwich Bay Watershed. No significant impact would occur under the No Action Alternative.

5.4.2. Coastal Barriers

5.4.2.1. Proposed Action and No Action Alternative

Because no coastal barriers are present, no further evaluation is necessary. No significant impact would occur to coastal barrier resources under the Proposed Action and No Action Alternatives.

5.5. Department of Transportation, Section 4(f)

This section addresses whether the Proposed Action and the No Action Alternative would result in a "use" of properties to which Section 4(f) applies.

5.5.1. Proposed Action

The Proposed Action would affect the Hillsgrove State Airport Historic District, which is protected under Section 106 of the National Historic Preservation Act, and Section 4(f) of the U.S. Department of Transportation Act, as discussed in Section 4.7 and Section 4.5, respectively.

During the construction period, site preparation activities include the installation of a stormwater drainage pipe leading from the proposed cargo aircraft parking apron to the existing glycol collection and treatment system in the center of the airport.[46] The drainage pipe is needed to convey contaminated runoff from deicing operations. Construction activities would include trenching, installation of the drainage pipe, backfilling, and restoration of the site to existing conditions. Total earth disturbance would be less than one-half acre, and the construction occupancy time would be temporary, e.g., less than 30 days.

The Historic District is located on existing airport property and is under the jurisdiction of RIAC. No utility easement would be required. The construction limits of disturbance within the Historic District consist of open space (grassland); no historic buildings or other features would be affected. Construction and operation of the Proposed Action, including the buried drainage pipe, would not cause adverse physical impacts to occur or result in temporary or permanent interference with activities associated with the Historic District. As discussed in Section 5.8, the RI Historic Preservation and Heritage Commission has determined that the Proposed Action would have no adverse effect on historic properties.

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for Section 4(f) properties. A significant impact would occur when: the action involves more than a minimal "physical use" of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Under the Proposed Action, temporary occupancy of the Historic District as described above would be so minimal that is does not constitute a use within the meaning of Section 4(f). Therefore, the development impacts would be less than significant.

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[46] No avoidance alternative is available because the existing glycol collection and treatment system is centrally located within the Historic District, and it would not be reasonable or prudent to construct another facility to avoid the minor impacts due to a temporary occupancy of the Historic District.

The Proposed Action would not involve any use of Winslow Park. Existing and future aircraft overflights and noise affecting Winslow Park are addressed in Section 5.11. There would be a nominal increase in ambient sound levels that would not adversely affect the activities, features, or attributes of Winslow Park or substantially diminish enjoyment of the park. No other Section 4(f) impacts have been identified for consideration.

No mitigation measures are required to preserve the historic integrity of the Historic District or the recreational value of Winslow Park. However, the SHPO suggested that the proposed cargo building(s) be overall neutral in color (such as grey, beige, etc.) to be more compatible with the surrounding Historic District.

5.5.2. No Action Alternative

If no action is taken, the Proposed Action would not be implemented and the project induced effects on historic properties would be avoided. No significant impact to Section 4(f) properties would occur under the No Action Alternative.

5.6. Farmlands

Because no farmlands are present, no further evaluation is necessary. No significant impact to farmlands would occur under the Proposed Action and No Action Alternatives.

5.7. Hazardous Materials, Solid Waste, And Pollution Prevention

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention in FAA Order 1050.1F; however, the FAA has identified factors to consider in evaluating the context and intensity of potential impacts related to hazardous and nonhazardous substances and wastes, and actions that can be taken to reduce potential harm. This section addresses the potential impacts of the Proposed Action and No Alternative. Supplemental information is provided in Appendix E.

5.7.1. Proposed Action

5.7.1.1. Hazardous Materials and Pollution Prevention

No federal or state-listed cleanup actions are associated with the Proposed Action. One cleanup site in the vicinity is listed as active (SR-35-1533, T.F Green Airport (Post Road)), but the location does not appear to be close to the Direct Impact Study Area where construction activities would occur. The horizontal extent of this listing is unknown as it is only generally shown within the airfield. If construction activities result in the discovery of previously unknown hazardous substances, RIAC would be responsible for removing and disposing of contaminated media in accordance with state and local regulations for hazardous waste management.

During the construction phase, contractor staging areas would be located at various locations within the Direct Impact Study Area. The staging areas may include portable above ground storage tanks (ASTs) for fuel storage, as well as lubricants and solvents typically used for equipment maintenance. The general contractor would be required to develop a Spill Prevention, Control, and Countermeasures (SPCC) Plan to identify precautions, training requirements, and response measures that would be taken to prevent and contain accidental releases of hazardous materials. After construction, the proposed cargo operation would involve the use, storage, and disposal of regulated substances (such as batteries, petroleum, oils, lubricants, solvents, paint, and degreasers, etc.) that are typically associated with the routine operation of a cargo facility including building maintenance and equipment repairs. The Resource Conservation and Recovery Act (RCRA) hazardous waste permitting program ensures the safe management of hazardous wastes. Under this program, the EPA establishes requirements regarding the treatment, storage, and disposal of hazardous wastes. If a RCRA permit is required, the proposed cargo facility is likely to be classified as either a Small, or Very Small, Quantify Generator.[47] The building tenant(s) would be responsible for the proper management and disposal of all hazardous substances and wastes, and for compliance with applicable permit requirements. Hazardous waste BMPs generally involve procedures for good housekeeping, such as: (1) do not mix non-hazardous and hazardous wastes; (2) do not mix different hazardous wastes; and (3) safely storing hazardous substances and wastes in secure areas and inspecting storage areas and containers often for leaks or spills. No difficulties are expected to be encountered during the process to obtain the appropriate RCRA permit.

Fueling operations would be the same as those performed at the existing cargo facility and at the passenger terminal. Cargo aircraft would be refueled on the apron, and the fuel would be dispensed by on-airport aviation fuel trucks used specifically to refuel airline passenger and cargo jets. No underground fuel storage, transfer, distribution system, or hydrant fueling operations are proposed.

Compliance with applicable laws and regulations related to hazardous materials and waste amendment, and adherence to best practices during construction and operation of the project, provide adequate assurance that no significant impacts would occur.

5.7.1.2. Solid Waste and Pollution Prevention

Construction-generated debris and non-hazardous solid waste disposal requirements include minor tree clearing, demolition of two small buildings, and removing existing pavements for foundation work related to construction of the cargo building and the aircraft parking apron. Other common wastes generated from construction activities include cardboard, metal, and wood. Construction wastes not diverted, recycled, or re-used would be transported to and disposed of in local permitted construction/demolition waste facilities. Building design and construction planning can reduce waste that can lead to pollution. For example: “designing out" waste by selecting standard component sizes makes the construction stage more time efficient and cost effective; using dimensional planning and other material efficiency strategies to reduce the amount of building materials needed and cut construction costs; and, establishing recycling systems onsite and making sure that both contractors and subcontractors receive instructions on sorting their own waste. Source separated recyclable materials are not wastes. This includes cardboard, glass, metals, paper, and plastics. Airport construction projects do not normally generate significant amounts of perishable or non-perishable waste, other than wastes associated with large scale construction projects and/or substantial demolition work. After construction, there would be an incremental increase in municipal solid waste (MSW) commensurate with the larger cargo building and facility operations. The cargo airline tenants would be responsible for using a licensed contractor/hauler to provide regularly scheduled trash pick-ups and proper disposal. The contractor would analyze the anticipated waste stream and determine the appropriate mix of commercial recycling services vs. waste disposal. No significant solid waste impacts would occur under the Proposed Action.

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[47] EPA defines three categories of hazardous waste generators based upon the quantity of hazardous waste they generate per month: (1) Very small quantity generators (VSQGs), which generate less than 100 kilograms (kg) or 220 pounds (lbs) per month; (2) Small quantity generators (SQGs), which generate between 100 and 1,000 kg (220 and 2,200 lbs) per month; and (3) Large quantity generators (LQGs), which generate more than 1,000 kg (2,200 lbs) per month.

5.7.2. No Action Alternative

The No Action Alternative avoids the risks associated with the use, handling, storage, and disposal of hazardous materials and waste. Solid waste disposal requirements associated with the existing cargo facility would remain unchanged. No significant impacts would occur under the No Action Alternative.

5.8. Historic and Cultural Resources

The FAA has not established a significance threshold for this impact category; however, the FAA has identified a factor to consider when evaluating the context and intensity of potential environmental impacts for historical, architectural, archeological, and cultural resources (see Exhibit 4-1 of FAA Order 1050.1F). This factor includes, but is not limited to, situations in which the proposed action or alternative(s) would result in a finding of Adverse Effect through the Section 106 process.[48]

A project information package was developed, and copies were provided to the State Historic Preservation Officer (SHPO) and the Tribal Historic Preservation Officer (THPO) for review and comment. Additional information and supporting documentation are included in Appendix F.

5.8.1. Proposed Action

Under the Proposed Action, approximately 45 acres of urban land would be redeveloped for the air cargo facility. The area of potential effect (APE) for direct effects, and for visual effects, includes the Hillsgrove State Airport Historic District, which is protected under Section 106 of the National Historic Preservation Act, and Section 4(f) of the U.S. Department of Transportation Act, as discussed in Section 4.8 and Section 4.5, respectively. The only physical alterations to occur within the Historic District include a buried pipeline, as shown in Figure 5-2. Visual alterations would occur outside of the Historic District and include the proposed cargo building(s).

The Proposed Action has been reviewed pursuant to applicable Federal requirements for the identification of historic properties and assessment of potential effects.[49] In a letter to the FAA dated February 20, 2023, the SHPO concluded that the Proposed Action would have no adverse effect on historic properties (no reply was received from the THPO). Consequently, the Proposed Action has not resulted in a finding of Adverse Effect through the Section 106 process. Therefore, the Proposed Action would have no significant impact on historic or cultural resources. No mitigation measures are required. However, the SHPO suggested that the new building be overall neutral in color (such as grey, beige, etc.) to be more compatible with the surrounding Historic District.

If the Proposed Action is approved and implemented, the existing cargo building on Airport Road (historic Hangar No. 2) would be vacated and maintained until it can be utilized for some other purpose, which has not been determined.

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[48] The Section 106 consultation process typically consists of providing project information and responding to questions and requests for additional information with various consulting parties, including, but not limited to, the State (and/or Tribal) Historic Preservation Officer (SHPO/THPO).

[49] 36 CFR §800 Protection of Historic Properties

5.8.2. No Action Alternative

If no action is taken, air cargo operations at PVD would continue to occur on the Northeast Apron, and FedEx and UPS would continue to utilize Hangar No. 2 "as-is" for the foreseeable future. Because there would be no effect on the Historic District, the No Action Alternative would have no significant impact on historic or cultural resources.

5.9. Land Use

The FAA has not established a significance threshold for land use, and the FAA has not provided specific factors to consider in making a significance determination for land use in Exhibit 4-1 of FAA Order 1050.1F. The determination whether significant impacts exist in this category is normally dependent on the significance of the other impact categories. Land use compatibility with the Proposed Action is mostly associated with potential noise impacts, as discussed in Section 5.11. No significant land use impacts are identified in other sections of this EA. This section summarizes supporting documentation included in Appendix G to this EA.

5.9.1. Proposed Action

The Proposed Action is located on existing airport property, no land acquisition or zoning changes would occur.[50] A portion of existing parking Lot E would be converted to aeronautical use (cargo operations), which is a more intensive use of the site than it is today. This change in use may cause off-Airport visual effects to occur on residential land uses along Strawberry Field Road and Palace Avenue, as discussed in Section 5.14. In addition, the Proposed Action would affect a Historic District protected under Section 106 of the National Historic Preservation Act, and Section 4(f) of the U.S. Department of Transportation Act, as discussed in Section 5.8 and Section 5.5, respectively. These are minor impacts that would not cause or contribute to potentially significant adverse impacts to land uses adjacent to the Proposed Action.

The Proposed Action is not located near, nor would it create, a wildlife hazard as defined by the FAA.[51] Stormwater management facilities required for the Proposed Action would be designed to comply with FAA standards to avoid or minimize wildlife hazards. In addition, RIAC assures that it has taken and will continue to take appropriate action, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of PVD to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.[52] This assurance is specifically related to existing and planned land uses in the vicinity of PVD. Finally, there are no known inconsistencies between the Proposed Action and local laws, zoning ordinances, or comprehensive plans that cover PVD.

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[50] RIAC and the City of Warwick are currently working to vacate remnant City streets within the Airport's property boundary, near the Proposed Action. The affected roadways include the last 1,000-ft of Strawberry Field Road, all of Field View Drive, all of Murrey Street, and the last 1,000-ft of Bunker Street. This administrative action has its own purpose and need, and will be completed with, or without, the Proposed Action. Therefore, it is not included in the Proposed Action.

[51] FAA Advisory Circular 150/5200-33, "Wildlife Hazards On and Near Airports."

[52] 49 U.S.C. § 47107 - Project grant application approval conditioned on assurances about airport operations (paragraph (a)(10)).

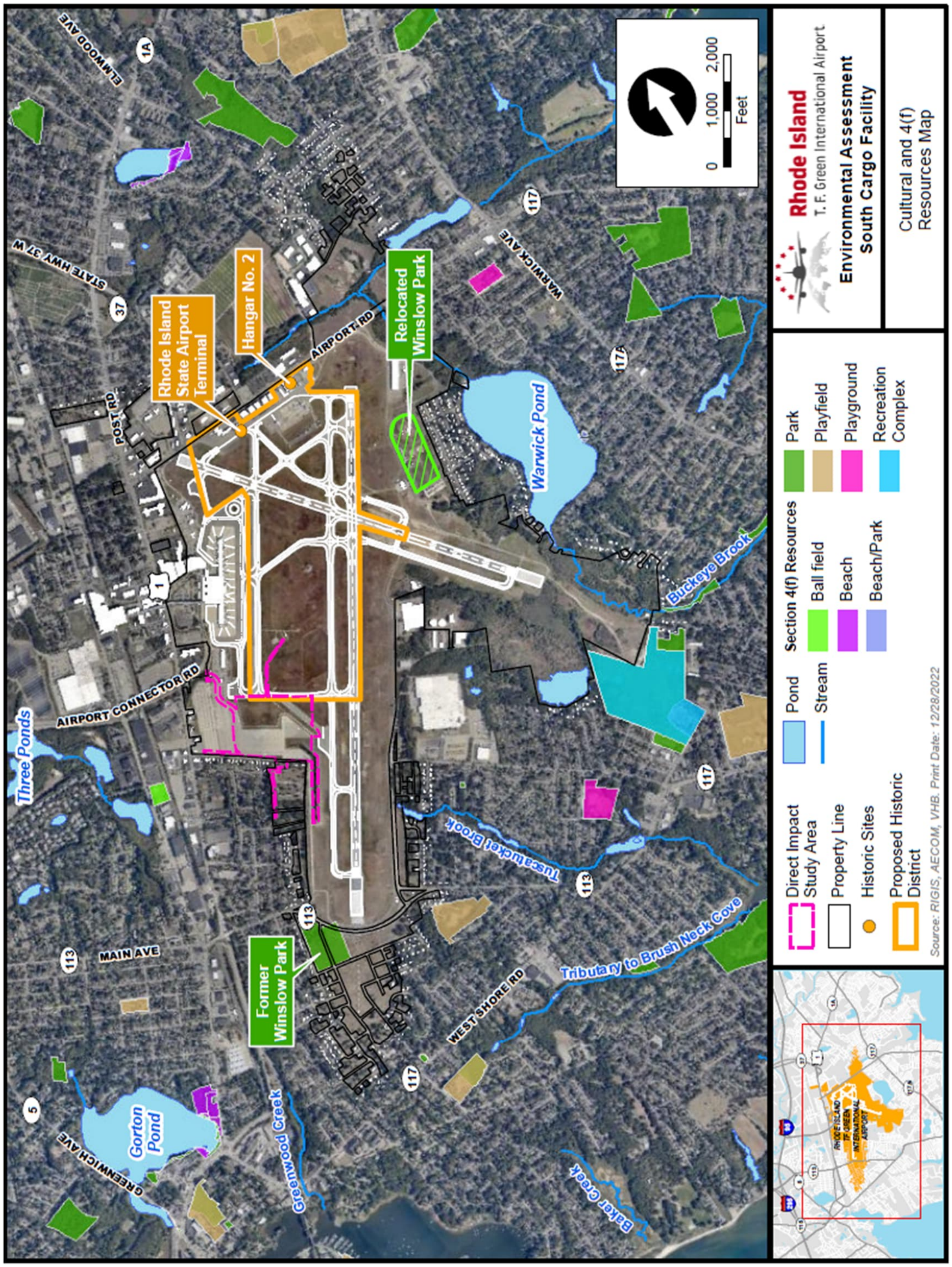

Figure 5- 2: Cultural Resources

The Proposed Action would not cause or contribute to potentially significant land use impacts identified in other sections of this EA. The Proposed Action would not create a wildlife hazard, and the Proposed Action would not conflict with local laws, ordinances, or comprehensive plans. Therefore, no significant land use impacts would occur.

5.9.2. No Action Alternative

If no action is taken, the Proposed Action would not be implemented, and the project induced changes would not occur. Consequently, the No Action Alternative would result in no significant impact.

5.9.3. Response to Comments on the Draft EA

Public comments on the Draft EA expressed local interest and concerns regarding the potential for impacts on land uses planned for areas around the airport. For example, the City of Warwick in their comment letter states that "The Environmental Assessment did not examine the impacts of the increase in tractor trailer freight traffic on City Centre Warwick."[53] The letter also states that "The City does not a support a scenario that puts freight traffic onto any roadways other than the Airport Connector/Interstate 95, regardless of the local destination. Such an action would be wholly inconsistent with the City of Warwick Comprehensive Plan and in violation of Rhode Island general Laws § 45-22.2-10(g)."[54] And the letter states again that "The City objects to use of local roadways to circulate freight cargo vehicles when a viable alternative exists, that being the Airport Connector which provides direct access to Interstate 95. Per RIGL§ 45-22.2-10(g), such an action does not conform to the City of Warwick's Comprehensive Plan."[55]

Similar comments from the City and a few local residents reflect the misperception that the Proposed Action would substantially increase heavy truck traffic on several local roads including Main Avenue, Post Road, and specifically Coronado Road, which passes through the City Centre District; this is not the case. As explained in this Final EA, no such traffic impacts would occur due to the Proposed Action. Section 5.13 (Traffic) has been revised to include more detailed information taken from the analysis and results of the Traffic Impact Assessment (TIA in Appendix J). This information clarifies that the <u>total</u> increase in vehicle traffic volume on local roadways due to the Proposed Action would be less than significant (i.e., not adversely affecting levels of service) and that there would be <u>no substantial increase in heavy truck traffic</u> through the City Centre District or on any other local roadways. This is because nearly all the heavy trucks associated with the Proposed Action are intended to use the Airport Connector Road to/from I-95, as proposed by the City of Warwick and in conformance with the City's land use plans. In addition, assuming all cargo truck traffic is relocated from the north side to the south side of the airport, the Proposed Action has the potential to reduce future heavy truck traffic operations on Airport Road and other local roads when compared to the No Action Alternative, which is also consistent with the City's land use plans for the area surrounding the airport.

The City's comment letter also asserts that "The draft Environmental Assessment did not include a consistency review of the Comprehensive Plan and the Federal Highway funded City Centre Warwick Master Plan (Transit Oriented Development) and related improvements, including the $3.7 million

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[53] Letter from Tom Kravitz, Planning Director, City of Warwick (April 28, 2023).

[54] Ibid

[55] Ibid

pedestrian enhancements to Coronado Road designed to support a pedestrian centric zone." Because no potentially significant land use issues were identified in the Draft EA (other than noise), no further detailed analysis was provided in this category. For completeness, Appendix G of the Draft EA did outline key objectives of the City of Warwick Comprehensive Plan 2033 and the Warwick Station Development District Master Plan, A Transit-Oriented Development. Relating to the Comprehensive Plan, it is stated that "the City recognizes the opportunities that T.F. Green Airport brings to Warwick, but also wishes to see the Airport contain its operations 'inside the fence' and confine non-noise related property acquisitions to properties adjacent to properties inside the fence and for uses that are related to Airport operations." The Proposed Action is consistent with the City's Comprehensive Plan in that the proposed air cargo facility is entirely within the Airport boundary and will continue to be used for Airport-supporting activities. Further, the Proposed Action does not include non-noise related real estate property acquisitions.

The Warwick Station Development District Master Plan – focused on the area between the Warwick Intermodal Station and T.F. Green Airport – has four main public goals: (1) Create a place of identity and pride for Warwick and Rhode Island, (2) Provide economic benefits for Warwick and the state, (3) Capitalize on intermodal transportation resources to foster high-value, high-quality, mixed-use growth, and (4) Create a sustainable, livable community by introducing a variety of housing choice connected to an economic growth center and established neighborhood and by improving access to transportation, housing, and new jobs.

Relating to these goals, the Proposed Action demonstrates consistency in that it:

- Would not displace uses that currently contribute to goals of the Master Plan.
- Would not acquire/remove properties with the potential for mixed-use redevelopment.
- Would generate economic benefits to both Warwick and the state through an expansion of cargo operations.
- Would generate local economic opportunity through an increase in temporary and construction jobs. The addition of jobs within close proximity to the District will enable persons living within the District to walk and/or bike to work, which would also avoid on-road vehicle emissions. The presence of these jobs could also attract persons to reside within the District.

On this basis, the Proposed Action would not deter the "sustainable, livable community" desired by the City for the District by way of the introduction of additional truck traffic on local roadways.

Finally, RIAC acknowledges that the residential area south of the project site (across Strawberry Field Road) is high density residential use (A-7).

Any other potential land use/zoning issues, such as requisite development setbacks from City streets, would be minor and left to be resolved between the City of Warwick and RIAC during the engineering and permitting processes. No further evaluation is required for FAA or NEPA purposes.

5.10. Natural Resources and Energy Supply

The FAA has not established a significance threshold for natural resources and energy supply in FAA Order 1050.1F; however, the FAA has identified a factor to consider when evaluating the context and intensity of potential environmental impacts for natural resources and energy supply (see Exhibit 4-1 of FAA Order 1050.1F). This factor includes, but is not limited to, situations in which the proposed action or alternative(s) would have the potential to cause demand to exceed available or future supplies of these resources.

5.10.1. Proposed Action

During the construction phase, the Proposed Action would consume natural resources used for building materials such as sand, gravel, steel, and wood, as well as energy (diesel and gasoline) for construction equipment and vehicles. After construction, the Proposed Action would require electricity for power, natural gas for heating and cooling, water for domestic use and fire protection, and fuel for aircraft and ground service equipment operations.

The Proposed Action would not require any scarce or unusual building materials, or other consumable resources known to be in short supply. The project site is in an urbanized area. All utilities are readily available on site or nearby. No upstream utility improvements or additional capacity would be needed to accommodate the Proposed Action. The incremental increase in demand for electricity, natural gas, and water would not exceed the supplies available from service providers.

Under the Proposed Action, there would be a temporary increase in fuel consumption during the construction period, the effects of which would diminish with completion of the project and restoration of the site. After construction, fuel consumption would increase due to the project-induced increase in air cargo activity including aircraft operations, ground service equipment operations, cargo truck operations, and employee vehicle trips. However, when compared to overall airport operations at the Airport and vehicular travel in the region, the incremental increase in fuel consumption due to the Proposed Action is minor and would not exceed fuel supplies available from local and regional distributors.

The Proposed Action would not have the potential to cause or contribute to changes in fuel consumption, energy demand, or other natural resource consumption that would result in significant impacts. No mitigation measures are required. If the Proposed Action is implemented, RIAC could reduce the effects of the project by incorporating energy efficient building systems and by encouraging the use of construction materials with recycled content to minimize raw material demand.[56]

5.10.2. No Action Alternative

If no action is taken, the project induced changes in fuel consumption, energy demand, and other natural resource consumption would not occur. The No Action Alternative would not result in significant impacts.

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[56] It is noted that FedEx and UPS have implemented corporate initiatives to reduce aircraft fuel consumption by investing in alternative fuels, and to reduce energy consumption by investing in efficient facilities, renewable energy, and other energy management programs.

5.11. Noise And Compatible Land Use

This section and Appendix H presents the aircraft noise and noise-compatible land use analysis conducted as part of this Draft EA for the future year alternatives. The noise analysis compares the No Action Alternative and the Proposed Action for the future year condition using the FAA's thresholds of significance. An increase of 1.5 dB within the Proposed Action DNL 65 dB contour is considered the significance threshold for changes in noise in accordance with FAA Order 1050.1F.

Aircraft noise levels were evaluated and compared between the future No Action and Proposed Action opening year (2026) to determine the effect of the proposed cargo facility. The noise analysis was prepared using existing and forecast operational data for PVD and AEDT Version 3e in compliance with FAA Order 1050.1F and FAA Order 5050.4B.

5.11.1. Forecast

The Rhode Island T. F. Green International Master Plan (MP) forecast was used to determine the number of operations for the 2026 No Action model operations[57]. For the 2026 Proposed Action operations, using the No Action operations as a base, additional cargo operations and aircraft fleet changes (i.e., "upsizing" of aircraft from Boeing 757 narrowbody to Boeing 767 widebody aircraft) from the proposed facility were added. The runway use, flight tracks, and track use are the same as the existing condition and are the same for both the No Action Alternative and the Proposed Action. Future alternative modeling input data is included in Appendix H.

5.11.2. No Action Alternative (2026)

The FAA's guidelines for land use compatibility state that all land uses are generally compatible with aircraft noise below DNL 65 dB. The DNL 65 dB noise contour for Runway 5-23 extends into mostly residential land use to the north and south of the Airport. The residential land use within the DNL 65 dB area has been mitigated previously for aircraft noise by RIAC. The DNL 65 dB contour extends away from the Airport in the following areas:

- The contour extends north of the Runway 23 end along the extended runway centerline into residential land use almost to 4th Avenue.
- The contour extends to the east of the Runway 23 end into residential land use near Wilbur Street. The contour also extends through most of Winslow Park.
- The contour extends south of the Runway 5 end along the extended runway centerline into residential land use almost to Route 117.
- The contour extends east of the Runway 5 end almost to Carolyn Street and west of the Runway 5 end to just past Earl Street.

No residential land use exists within the DNL 70 dB or higher contours.

As shown in Figure 5-3, the 2026 Future No Action DNL 65+ dB noise contour covers approximately 659 acres—contains 250 residents and 88 housing units. These homes have all been mitigated for noise as part of the prior RIAC Residential Sound Insulation Program (RSIP) and are considered compatible. In addition, no individual noise sensitive locations, such as schools or places of worship, are within the 2026 Future No Action 65+ DNL noise contour.

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[57] A discussion on why the MP forecast was used, effects of the pandemic and a comparison to the FAA Terminal Area Forecast are provided in Appendix H.

5.11.3. Proposed Action (2026)

The 65 DNL noise contour for Runway 5-23 extends into mostly residential land use to the north and south of the airport. Residential land use within the DNL 65 dB area has been mitigated for aircraft noise previously by RIAC. The DNL 65 dB contour extends away from the Airport in the following areas:

- The contour extends north of the Runway 23 end along the extended runway centerline into residential land use as far north as Pilgrim Parkway.
- The contour extends to the east of the Runway 23 end into residential land use near Wilbur Street. The contour also extends through most of Winslow Park.
- The contour extends south of the Runway 5 end along the extended runway centerline into residential land use as far south as Long Street.
- The contour extends east of the Runway 5 end almost to Carolyn Street and west of the Runway 5 end to just past Earl Street.

No residential land use exists within the 70 DNL or higher contours.

As shown in Figure 5-3, the 2026 Future Proposed Action DNL 65+ dB noise contours cover approximately 735 acres—contains 679 residents and 292 housing units. These homes have all been mitigated for noise as part of the prior RIAC RSIP and are considered compatible. In addition, no individual noise sensitive locations, such as schools or places of worship, are within the 2026 future Proposed Action 65+ DNL noise contour.

5.11.4. No Action and Proposed Action Comparison

Due to the change in aircraft operations from the proposed project, the 2026 Proposed Action 65 DNL contour is larger than the No Action 65 DNL contour primarily along the extended runway centerlines north and south of the airport. This results in an increase for both population and housing unit counts, as well as acreage. The number of people exposed to a DNL 65 dB or greater noise level increases by 429 people (204 housing units) with an increase in area of about 76 acres. Longwood Condominiums is located between Route 117 and Long Street, south of Runway 5. This condominium development is the reason the Proposed Action has a larger increase in population and housing units compared to the increase in the area of the contour.

Figure 5-3 provides a comparison of the DNL 65 dB contours for each of the 2026 alternatives.

A grid point analysis was conducted to identify any areas of significant impact (> 1.5 dB within the Proposed Action DNL 65 dB contour). The only location with a 1.5 dB or greater increase is located on the runway therefore there are no areas of significant impact due to the proposed project.

5.11.5. Ground Noise

Due to the proposed facility location and nearby residential homes, ground noise from the proposed facility was evaluated. The area that would experience an increase in ground noise greater than DNL 65 dB due to the Proposed Action falls within Airport property very close to Strawberry Field Road and not over any noncompatible land use.

Predicted DNL values at the nearest residences in the adjacent community to the Proposed Action range from approximately DNL 52 dB[58] to 60 dB from a combination of aircraft ground noise, cargo ground

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[58] Note that all sound levels from aircraft and trucks are A-weighted unless otherwise specified.

support equipment, and truck noise sources. Since the ground noise calculation results do not meet or exceed DNL 65 dB at any location off airport property, the proposed cargo facility expansion would not expose any homes to a DNL 65 dB or higher noise level due to ground noise sources. Also, in combination with aircraft flight operational noise levels, the noise levels resulting from the Proposed Action would not expand the aircraft operational DNL 65 dB contour as shown in Figure 5-3 to include any additional homes off airport property. Therefore, the Proposed Action would not result in the addition of noncompatible residential land use due to ground noise sources[59].

While not exceeding DNL 65 dB, these homes may be exposed to higher noise level events during facility operation hours[60] due to cargo aircraft operating on the ramp and trucking activity at the proposed facility. An analysis of maximum level noise levels (L_{max}) from the facility resulted in a range of approximately 52 dB[61] to 67 dB from aircraft ground noise, cargo ground support equipment, and truck noise sources during peak operational periods.

In order to reduce noise levels to the nearby residents from ground operations, an analysis of a proposed noise barrier was conducted. The analysis indicated that a 6-foot berm with a 9-foot wall on top of the berm would provide noise reduction— DNL 1 to 4 dB—to the adjacent homes, with the highest reduction occurring along Strawberry Field Road. The analysis summary indicates that a 6-foot berm with a 9-foot wall on top of the berm would also provide noise reduction from single noise events (L_{max} 1 to 13 dB) to the adjacent homes. The homes along Strawberry Field Road are closest to the proposed facility, and the 6-foot berm with a 9-foot wall on top of the berm would provide a substantial reduction—5 to 13 dB—in maximum level noise events to those homes. Therefore, RIAC plans to include construction of the noise barrier wall as part of the proposed cargo facility to comply with the City of Warwick Noise Ordinance and to reduce noise levels to the adjacent homes.

5.11.6. Construction Impacts

Construction noise would temporarily increase sound levels in the immediate vicinity of construction and land clearing. Pile driving, pavement removal, and grading operations are the noisiest, with such equipment generating noise levels as high as 75 to 95 dB within 50 feet of its operation. Distance rapidly diminishes noise levels, so depending on the distance from the site, area residents would likely experience some increase in noise during construction hours. The potential noise impact associated with the operation of on-site machinery would be temporary and can be reduced using construction timing and staging. To further minimize potential noise, construction equipment would be maintained to meet manufacturers' operating specifications.

Construction of a noise wall would result in the highest temporary impact to residents as the project site is directly across the street from many homes. Once the wall is constructed, temporary noise impacts from the construction of the proposed facility would be minimized.

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[59] FAA considers residential land use exposed to DNL 65 dB or higher as noncompatible with aircraft noise unless mitigation has been provided.

[60] Aircraft generally arrive in the evening and are unloaded; cargo is processed to trucks which would then leave the facility. During the night trucks arrive with cargo, which is processed and loaded onto the aircraft in time for an early morning departure.

[61] Note that all sound levels from aircraft and trucks are A-weighted unless otherwise specified.

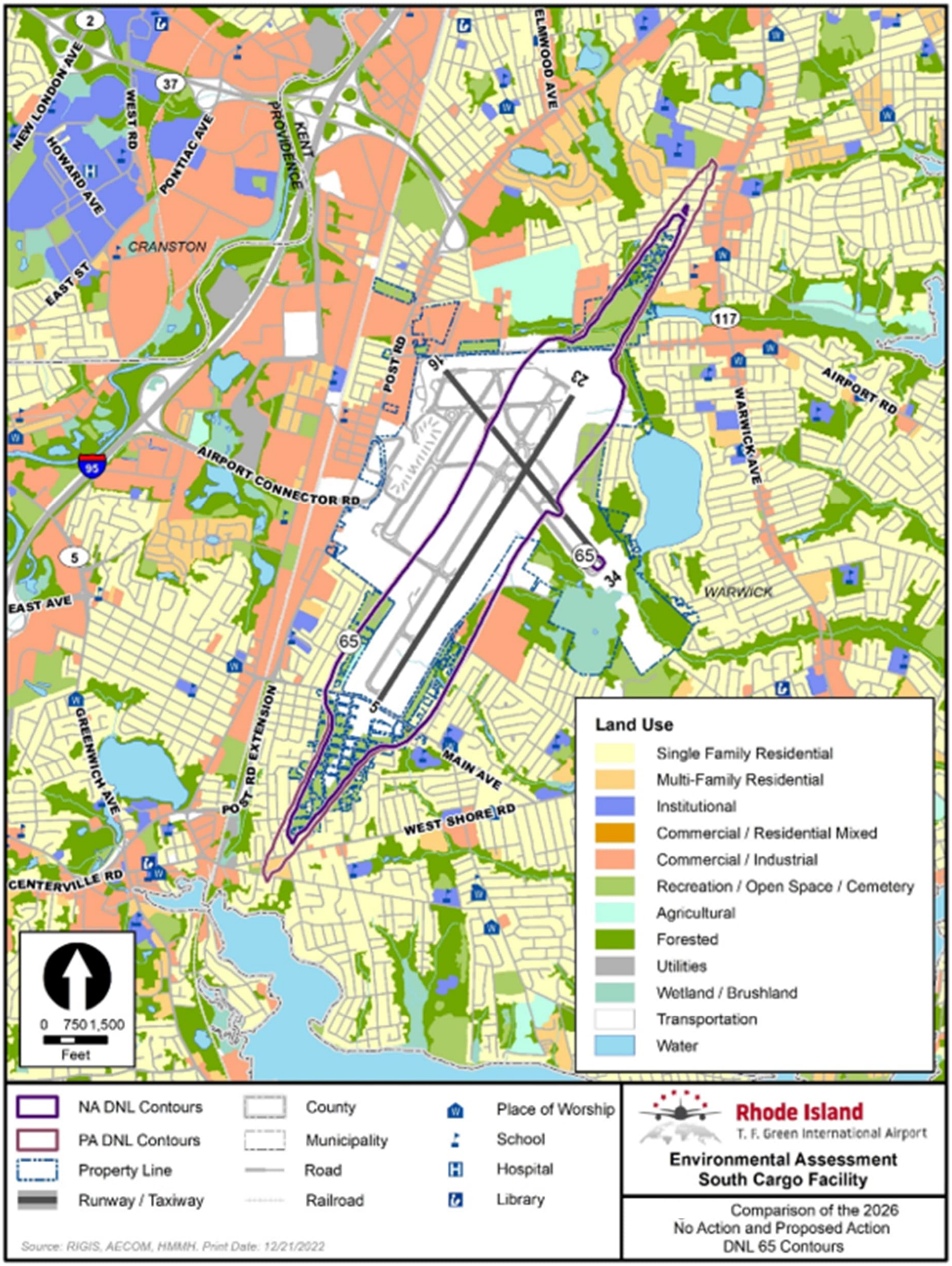
Impacts related to the delivery of materials may be minimized by requiring that the contractor use designated haul routes that directly connect to the Airport and avoid residential and other noise-sensitive areas. Overall, construction noise is expected to have a minor and temporary impact—and no permanent impact—to noise-sensitive lands or facilities.

5.11.7. Mitigation Measures

The residential areas north and south of the Airport that would experience an increase in noise due to the Proposed Action cargo aircraft operations have been previously mitigated by the RIAC. Therefore, no mitigation is proposed for these areas.

Although construction noise levels will be temporary and are not considered significant, the following measures are recommended for the contractor to reduce the effects of construction noise when operating near noise-sensitive areas:

- Provide appropriate manufacturer's noise reduction devices, including, but not limited to a manufacturer's muffler (or equivalently rated material) that is free of rust, holes, and exhaust leaks on construction equipment operating on-site.
- Ensure that the engine housing doors are kept closed on construction devices with internal combustion engines.
- Cover equipment, such as compressors, generators, pumps, and other such devices with noise insulating fabric as well as operate the device at lower engine speeds during work to the maximum extent possible.
- Use operational controls, such as limiting vehicle engine idling on-site and time-of-day restrictions for certain activities.
- Use quieter or ambient-sensitive back-up alarms on construction equipment whenever practical.
- Strategically position construction vehicles to minimize operation near receptors and direct construction haul vehicles away from receptors when traveling to and from the work site.
- Use noise pathway controls, including noise barriers and enclosures free from gaps and holes, placed as close as possible to construction areas.



Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

Figure 5- 3: 2026 No Action and Proposed Action DNL 65 Contours

5.12. Socioeconomics, Environmental Justice, And Children's Health and Safety

The FAA has not established a significance threshold for socioeconomics, environmental justice, or children's health and safety, in FAA Order 1050.1F. However, the following sections address the factors to be considered when evaluating the context and intensity of potential environmental impacts for each category (see Exhibit 4-1 of FAA Order 1050.1F). Additional information is provided in Appendix I.

5.12.1. Proposed Action

Under the Proposed Action, the South Cargo Facility project would be developed and cargo activity at PVD has the potential to increase due to increased efficiencies, resulting in potential social changes that could affect the surrounding community, directly and/or indirectly.

5.12.1.1. Socioeconomics

The Proposed Action would not have the potential to induce substantial growth in the community, either directly or indirectly. There would be a temporary increase in construction-related employment (estimated 1,000 jobs across various trades over a two-year period) followed by a permanent increase in employment associated with the expanded cargo operations (approximately 100 jobs). Project-induced employment opportunities would have the positive effect of contributing to the local economy, but not to the degree that this would cause or contribute to a noticeable shift in population, income, or employment levels in the community. In addition, the Proposed Action would not require the relocation of any businesses or residences, divide or disrupt an established neighborhood, disrupt local traffic patterns, or produce a substantial change in the community tax base. Also, the Proposed Action would not substantially reduce the levels of service of roads serving PVD and/or the surrounding community (project-related traffic impacts are discussed separately, next in Section 5.13). No significant socioeconomic impacts would occur.

5.12.1.2. Environmental Justice

The nearest environmental justice (EJ) population is located west of Post Road, approximately one-quarter mile from the Proposed Action.[62] The neighborhood is outside the Direct Impact Study Area, outside the aircraft noise exposure contours, and outside the visual impact study area. No significant impacts in other environmental categories are identified in this EA, and no impacts to the physical, natural, or social environments that affect the EJ community have been identified in the other environmental impact categories. Because the EJ community is one-quarter mile from the project site and the Proposed Action would not extend that far, there would be no potential for a disproportionately high and adverse impact to the EJ population. No significant EJ impacts would occur.

5.12.1.3. Children's Health and Safety

Potential impacts to children's environmental health and safety were also considered in the context of other resource categories. The Proposed Action would not cause or contribute to potentially significant adverse impacts to air quality or water quality, significantly change the Airport's existing or future noise

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[62] Block Group 1, Tract 221 is west of Jefferson Blvd. and the Airport, north of Main Ave., and east of I-95.

levels, require the relocation of businesses or residences, or change surface traffic patterns or volumes. It would not create or make more readily available products or substances that could potentially harm children via contact or ingestion through air, food, drinking water, recreational waters, or soil. Therefore, no disproportionate adverse impacts to health and/or safety risks to children would occur.

5.12.2. No Action Alternative

If no action is taken, the Proposed Action would not be implemented, air cargo activity at PVD would not increase as proposed, and the potential economic benefits of the project would not occur. No significant impacts would occur under the No Action Alternative.

5.13. Traffic

The FAA has not established a significance threshold for socioeconomics (traffic) in FAA Order 1050.1F. However, the FAA has identified a factor to consider when evaluating the context and intensity of potential impacts on the local roadway system (see Exhibit 4-1 of FAA Order 1050.1F). This factor includes, but is not limited to, situations in which the proposed action or alternative(s) would have the potential to disrupt local traffic patterns or substantially reduce the levels of service (LOS) of roadways serving an airport and its surrounding communities.

This section summarizes the assessment of potential impacts on roadways that would be affected by the Proposed Action. A Traffic Impact Analysis has been prepared and coordinated with RIDOT, and a copy of the report is provided in Appendix J.

5.13.1. Proposed Action

Under the Proposed Action, all cargo activities associated with the existing cargo facility on the north side of the Airport would relocate to the proposed cargo facility at the south side of the Airport. This would have the effect of reducing traffic volume on the north side of the Airport along Airport Road and increasing traffic volume on the west side of the Airport using the terminal area roadways. Existing roadways would be utilized. No new roadways, or major changes to the existing roadway network, are proposed. Minor physical improvements to existing intersection geometries along Aviation Avenue and Evans Avenue would be required to accommodate truck turning movements.

Entering vehicles would access the proposed air cargo facility via Airport Connector and Evans Avenue (if coming from I-95) or Post Road and Aviation Avenue (if coming from US 1). Exiting vehicles would leave the site via the Airport Connector (if going to I-95) or via Post Road and Coronado Road (if going to US 1). These modifications do not require access to RIDOT's right-of-way and would not require a Highway Occupancy Permit.

A Traffic Impact Assessment (TIA) was prepared to analyze the potential effects of the Proposed Action on the surrounding roadway network. The TIA study included the intersection of Airport Connector Road and Evans Avenue and the intersection of Post Road (US 1) and Aviation Avenue in addition to other intersections along Post Road (US 1). Two future analysis years were chosen for analysis—the first full year of operation (2026) and five years later (2031). Several scenarios were investigated to do a comparative analysis of the results, including:

- Existing Conditions (Year 2022)
- No-Build Conditions (Year 2026 and Year 2031) – Assumes no geometric changes are made to the existing roadway, but volumes are grown at 0.5% per year for four years for an opening year model and an additional five years for an opening year + 5 model.
- Build Preferred Conditions (Year 2026 and Year 2031) – Matches the No-Build condition, but project generated trips are added to the model.
- Build Mitigated Conditions (Year 2026 and Year 2031) - Matches the Build Preferred condition, but geometric modifications are made at Post Rd and Aviation Ave intersection to allow vehicles to exit to Post Rd without circulating through the airport terminal traffic.

Employee and truck traffic is expected to increase based on increased shipping capacity as well as meeting latent shipping demands. Under the Proposed Action, an estimated 77 tractor-trailers are estimated to use the new facility per day: a net increase of 37 tractor-trailers over the existing (No Build) condition. To keep deliveries and downstream shipping operations on schedule, shipping operations typically take place outside of typical morning and evening commuting hours to avoid delays during hours of heavy traffic. According to the TIA, the Proposed Action has the potential to generate 40 AM Peak hour trips and 34 PM Peak hour trips (employee and truck traffic) with 7 trucks in the AM Peak hour and 3 trucks in the PM Peak hour. The TIA concluded that:

- Under the 2022 Existing Condition, the proposed site access intersections (Evans Avenue at Airport Connector Road and Post Road (US 1) at Aviation Avenue) intersections operate at Level of Service (LOS) A in the AM and PM Peak hours.
- Under the 2026 and 2031 No-Build Condition, the proposed site access intersections (Evans Avenue at Airport Connector Road and Post Road (US 1) at Aviation Avenue) intersections operate at LOS A in the AM and PM Peak hours.
- Under the 2026 and 2031 Build Preferred Condition, the proposed site access intersections (Evans Avenue at Airport Connector Road and Post Road (US 1) at Aviation Avenue) intersections operate at LOS A in the AM and PM Peak hours.
- Under the 2026 and 2031 Build Mitigated Condition, the proposed site access intersections (Evans Avenue at Airport Connector Road and Post Road (US 1) at Aviation Avenue) intersections operate at LOS A in the AM and PM Peak hours.
- The Build Mitigated Condition did not provide a substantial improvement to operations and included a higher capital cost to make physical roadway improvements. Therefore, no mitigation measures are recommended under the Proposed Action.
- The results of the TIA indicate that the existing roadways in the vicinity of the Airport are sufficient to accommodate the projected traffic demands, no major improvements or changes would be necessary, and the affected intersections would continue to operate at acceptable levels of service. Therefore, the Proposed Action would not have the potential to cause or contribute to a significant traffic impact on roadways serving the Airport or the community.

5.13.2. No Action Alternative

If no action is taken, the Proposed Action would not be implemented, and the project induced traffic changes volume would not occur. Because there is no capacity or allowance for growth at the existing cargo facility on the Northeast Apron, the ongoing air cargo operations at PVD would continue unchanged for the foreseeable future, and the current cargo-related truck traffic volumes of 40 tractor-trailers per day to and from Airport Road would remain the essentially same.

5.13.3. Response to Comments on the Draft EA

Public comments on the Draft EA indicated local interest and concerns regarding the potential for project induced heavy truck traffic on the local roadways. The City of Warwick in their comment letter specifically objected to "the use of local roadways to circulate freight cargo vehicles when a viable alternative exists, that being the Airport Connector which provides direct access to Interstate 95."[63] In addition, the City asserted that "A review of intersections studied in the Appendices appears to indicate a project reliance on Main Avenue, Post Road, Coronado Road and Airport Road, all congested City roadways incapable of handling a substantial increase in tractor trailer vehicles.[64] The City also stated, "Deploying semi-tractor trucks carrying cargo from the Airport through the core of City Centre Warwick (Post/Coronado) is wholly inconsistent with the Master Plan for this area and the zoning."[65]

In response to the City's comments and others, this section of the Final EA includes more detailed information taken from the analysis and results of the TIA. This information clarifies that, while the total increase in vehicle traffic volume on the local roadways would be less than significant, under the Proposed Action, there would be no substantial increase in heavy truck traffic through the City Centre District or on any other local roadways, and any increase in current truck traffic volumes that could occur would be inconsequential. This is because nearly all the heavy trucks associated with the Proposed Action are intended to use the Airport Connector Road to/from I-95, as proposed by the City of Warwick and in conformance with the City's land use plans for the area surrounding the Airport.

- There are no diagrams in the Draft EA that depict the use of Main Avenue to access the proposed cargo facility. The route of I-95 to Main Avenue to Post Road is a longer and more undesirable route than using I-95 to the Airport Connector Road (which is the route depicted in the Draft EA). As stated in Section 3.12 of the Draft EA, geometric modifications would be made to accommodate truck turning movements (to the Airport Connector Road). These intersection modifications may include but are not necessarily limited to the following: curb cuts to widen the intersection, widening of approach and departure lanes, sign relocation, and revised pavement markings.

- The traffic analysis presented in the Draft EA (Appendix J) has been reviewed and approved by RIDOT, and they found that existing year (2022) traffic operated at an acceptable LOS. Future year operations (both 2026 and 2031) also operated at an acceptable LOS. It should also be noted that the incremental increase in delay from Existing conditions to the Build conditions (2031) is only by a few seconds, a negligible impact to traffic operations under the Proposed Action.

- Under the Proposed Action, all the FedEx semi-tractor trailers traveling to/from points north including Providence and Boston would utilize the Airport Connector Road to I-95, because it is the most efficient and practicable route. The remaining local trucks (FedEx and UPS) may also use the Airport Connector Road but not exclusively, because it might not provide the most efficient or practical route based on local traffic conditions that are subject to change at any given time. Even if all the heavy trucks associated with the Proposed Action intended to utilize the Airport Connector Road on a routine basis, it would not be prudent to assume every cargo truck would use the Airport Connector Road exclusively (or restricted to doing so). This is because Coronado Road is a state road, owned and operated by RIDOT, and one of only three local roads in the area of the Airport that heavy trucks can use to travel east-west over the north-south railroad right-of-way. Therefore, to be conservative (and

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[63] Letter from Tom Kravitz, Planning Director, City of Warwick (April 28, 2023).

[64] Ibid.

[65] Ibid.

not to be misleading), a nominal allowance for heavy trucks was included in the analysis to use local roads as needed for efficiency and/or maintenance of operations.

- Under the Proposed Action, there would be no substantial increase in tractor trailer vehicles on the terminal area roadways due to the Proposed Action. According to the traffic data collected at Evans Avenue and the Airport Connector Road (appended to Appendix J of the Draft EA) there are currently 9 heavy vehicles between 7AM and 8AM, and 14 heavy vehicles between 4PM and 5PM, that pass through the terminal area roadways. This heavy vehicle traffic represents 8.5% of all morning peak traffic and 2.3% of all afternoon peak traffic, without the proposed project. With the proposed project, there is 1 additional heavy vehicle projected to pass through the terminal area roadways between 7AM and 8AM and 1 additional heavy vehicle projected to pass through the terminal area roadway between 4PM and 5PM. In the future, with the Proposed Action, heavy vehicles represent 8.8% of morning peak traffic and 2.4% of afternoon peak traffic. This is a negligible increase of 0.3% in the morning peak and 0.1% increase in the afternoon peak when compared to existing conditions. During the cargo truck peak times (between 12AM and 7AM), 3 heavy vehicles are projected to pass through the bypass terminal roadways.

In sum, the Proposed Action includes intersection modifications as needed to permit project induced heavy truck traffic to utilize the Airport Connector Road between the proposed air cargo facility and I-95 to the degree practicable, and nearly all the heavy trucks are projected to use this route. Where the Airport Connector Road does not provide an efficient or serviceable route, the Proposed Action allows for a small number of heavy trucks to use the local roadways, the volume of which would have no appreciable adverse effect on local traffic operations during any hour of the day. In fact, assuming all cargo truck traffic is relocated from the north side to the south side of the airport, the Proposed Action has the potential to reduce future heavy truck traffic operations on Airport Road and other local roadways, when compared to the No Action Alternative, which is consistent with existing land use plans for the area surrounding the airport. No further traffic analysis is warranted for FAA or NEPA purposes.

5.14. Visual Effects

The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects (see Exhibit 4-1 of FAA Order 1050.1F). Factors considered in this analysis include visual resources and visual character, and light emissions effects.

5.14.1. Proposed Action

Under the Proposed Action, the cargo facility would be developed, the existing noise barrier wall would be removed, and the proposed noise barrier wall would be constructed as shown. Removing and replacing the barrier wall would have the effect of changing the viewshed along Strawberry Field Road and to a lesser extent behind the homes along Palace Drive.

5.14.1.1. Visual Resources and Visual Character

The proposed noise barrier would be a 9-ft high precast concrete wall set atop a 6-ft high earthen berm installed along the community-facing periphery of the project site. Based on existing topography, the top of the wall would be approximately 15-ft above existing grades. Both sides of the wall would be cast with an ashlar stone finish and painted a two-tone tan and medium brown pattern. The community-facing side of the wall would be landscaped with evergreen plantings consistent with the same species currently installed along Strawberry Field Road (see Figure 5-4).[66]

Figure 5- 4:Proposed Noise Barrier Wall (Typical View from the Community)

Strawberry Field Road and Palace Avenue are local roads which mainly serve residents of the adjacent neighborhood, meaning it is unlikely that there are many other drivers passing through this area to reach regional destinations. The wall would be set back from the edge of Strawberry Field Road approximately

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[66] The images provided depict proposed landscaping at maturity, not at project completion.

24-ft. Site activities and proposed features, including the cargo building, planes, trucks, and cars are not expected to be visible from residences facing the project area along Strawberry Field Road, as the total visual screen provided by both the wall and berm totals 15-ft high. While there are two-story structures scattered throughout in the adjacent neighborhood, most of the residences facing the project area from Strawberry Field Road are single story structures and therefore would not see the cargo building from their homes or front yards.

The existing noise barrier wall is not visible or is only partially visible from behind the residences along Palace Drive. The relocated section of the proposed barrier wall would be approximately 1,500 feet closer to the residences. However, the viewshed from behind the residences would not be appreciably different due to the backyard wooden fence line, and existing mature trees. Only viewers able to see over the backyard fence and through the mature trees would be able to see the proposed barrier wall.

Under the Proposed Action, the current land use would change from a vacant parking lot to an air cargo facility, and the visual character of the area would be redefined by a landscaped noise barrier wall that blocks or obscures the view of the Airport and the proposed air cargo operation. Although the nature of the visual character of the area would change due to the proposed barrier wall, the existing view of the Airport lacks the uniqueness or aesthetic value typically associated with a visually important resource. Further, any perceived negative effects on the viewshed caused by the loss of the view of the Airport, or the introduction of the noise barrier wall, would be offset by the positive effects of reduced annoyance due to light emissions. Therefore, the degree to which the Proposed Action would have the potential to impact the visual character of the area would be less than significant.

5.14.1.2. Light Emission Effects

Under the Proposed Action, existing high-mast lighting associated with parking Lot E would be removed and replaced with project related lighting necessary for safety, security, and nighttime cargo operations. On the landside of the cargo building, existing parking Lot E lighting would be replaced in-kind with area lighting for the employee parking lot, truck apron, and loading docks. Because the site’s current use as a parking lot also includes overhead parking lot lighting, future light emissions and/or ambient light visible from residences across Strawberry Field Road would not be appreciably different than existing conditions.

Lower level and ground level light emissions from vehicle headlights and area lighting around the cargo building would be mitigated by the noise barrier wall, thereby avoiding direct light emissions, and reducing the potential for spillover lighting along Strawberry Field Road. On the airside of the cargo building, area lighting would illuminate the aircraft parking apron. However, these activities would occur behind the cargo building and would not be visible to residents facing the project area along Strawberry Field Road. No light emissions are associated with the noise barrier wall in the area behind the residences along Palace Drive. Therefore, the degree to which the Proposed Action would have the potential to create annoyance or interfere with normal activities would less than significant.

5.14.2. No Action Alternative

If no action is taken, the Proposed Action would not be implemented, the existing barrier wall would not be removed, a new noise barrier wall would not be constructed, and the current visual character of the neighborhood including existing light emissions would remain unchanged. No significant visual effects would result from the No Action Alternative.

5.14.3. Mitigation Measures

As part of the project's design, RIAC would construct a 6-ft high berm with a 9-ft high noise barrier wall as described and illustrated in this section of the EA. To further reduce the potential for visual effects, the proposed berm and wall would be constructed early in the construction phase to provide noise attenuation and visual screening while the remaining site construction activities proceed. No additional mitigation measures are proposed. If the Proposed Action is implemented, common operational mitigation measures to reduce light emissions are available such as installing shields/baffles and adjusting the angle of the headframe and luminaries.

5.15. Water Resources

There are no surface water features within the Direct Impact Study Area shown in Figure 5-5. As discussed in other sections in this EA, there would be no direct or indirect impacts to wetlands, floodplains, wild/scenic rivers, coastal resources, or aquatic ecosystems. The remainder of this section analyzes the potential for indirect impacts on surface water and groundwater resources resulting from the implementation of the Proposed Action and No Action Alternative.

5.15.1. Proposed Action

Both the construction and operation of the Proposed Action have the potential to affect the quality and quantity of water resources, both surface and subsurface. Short-term impacts generally relate to construction operations and are limited to such factors as increased stream turbidities due to sedimentation or transient pollution from heavy equipment spilling fuel, greases, and oils, with these materials then being transported in site runoff. After construction, long-term impacts are adverse and irreconcilable only when mitigation measures cannot prevent, eliminate, or reduce nonpoint source pollution below applicable water quality standards.[67] In other words, the project may have the potential to degrade water quality, but proper treatment and controls can combat this hazard and bring the project into conformance with applicable water quality standards, thereby mitigating long-term adverse impacts.

5.15.1.1. Surface Water

The potential for soil erosion and degradation of water quality is greatest during the construction period when topsoil is exposed, thereby making it more susceptible to erosion that can contribute to increased sediment loading on downstream receiving waters. In addition, when stormwater flows over a construction site, it can pick up other pollutants such as debris, chemicals, concrete wash-out, etc., and transport them to nearby water bodies. RIDEM Soil Erosion and Sediment Control regulations are in effect, and it would be necessary to document that all required sedimentation and erosion controls would be provided during construction. To limit the potential for pollutant load on downstream receiving waters, a Soil Erosion and Sedimentation Control Plan would be developed and implemented in accordance with RIDEM's Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) (Stormwater Rules) Minimum Standard 10. During construction, RIAC would monitor compliance with the permit requirements practices and assure that the stormwater management systems are protected. All contractors would be required to comply with applicable federal, state, and local laws and regulations, including FAA guidance contained in AC 150/5370-10F, Standards for Specifying Construction of Airports, including Item P-156 Temporary Air and Water Pollution, Soil Erosion and Siltation Control; AC 150/5320-

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[67] No point source discharge of industrial wastewater to surface waters is proposed.

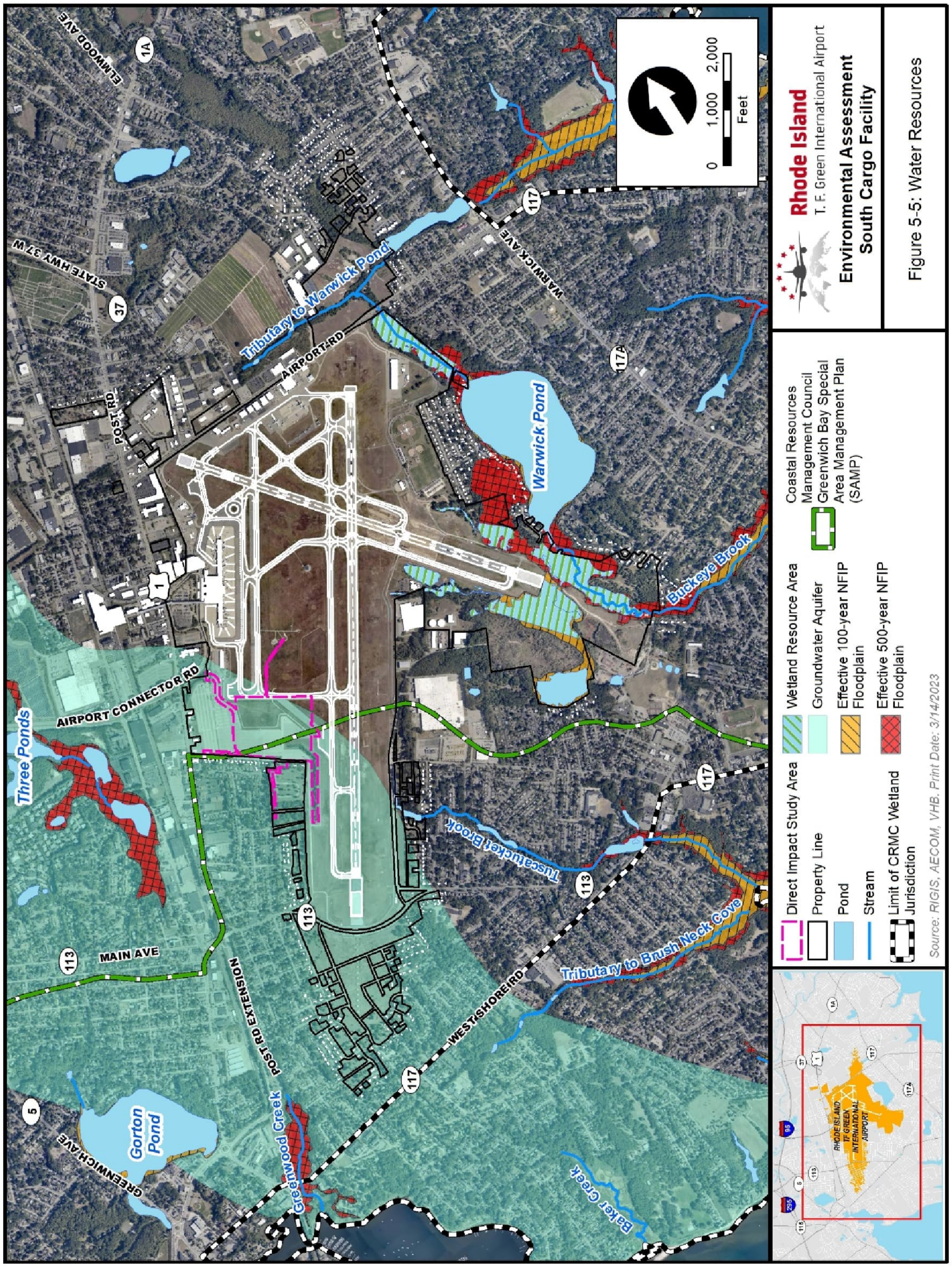
15A, Management of Airport Industrial Waste; and AC 150/5320-5C (including Change 1) Subsurface Drainage Design.

After construction, the addition of approximately 14.5 acres of new impervious surface would have the potential to increase stormwater runoff volumes and pollution concentrations, and to change hydrologic patterns. The resulting increase in storm runoff volume would be managed on-site through project-related improvements to the existing drainage system including best management practices and control measures in compliance with RIPDEM's Stormwater Management, Design, and Installation Rules, including a Long-Term Stormwater Operation and Maintenance Plan. The stormwater management system included with the project would be designed in accordance with RIDEM's Stormwater Rules to provide water quality treatment prior to discharging to receiving waters or infiltrated into the groundwater. Stormwater runoff from the Proposed Action would discharge to an unnamed Tributary to Buckeye Brook downstream of Warwick Pond and two outfalls that discharge into Tuscatucket Brook. During winter weather conditions, deicing runoff from the cargo aircraft apron would be treated separately from the stormwater management system. Contaminated runoff from deicing operations would be captured and conveyed to the existing glycol collection and treatment system to prevent deicing fluids from entering local waterways.

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for surface waters. A significant impact exists if: the action would: (1) exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or (2) contaminate public drinking water supply such that public health may be adversely affected. Under the Proposed Action, compliance with RIPDES permit requirements, including an approved Erosion and Sedimentation Control Plan, Long-Term Stormwater Operation and Maintenance Plan, and water quality BMPs included in the project's design, provide adequate assurance that the Proposed Action would not adversely affect surface water resources in the project area and any residual effects would be less than significant.

5.15.1.2. Groundwater

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for groundwater. A significant impact exists if the Proposed Action would: (1) exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or (2) contaminate an aquifer used for public water supply such that public health may be adversely affected. The Project Area is within the Providence/Warwick Groundwater Aquifer shown in Figure 5-5; however, this aquifer is not used for local public drinking water. No injection or extraction wells are proposed. However, groundwater recharge is required as part of the RIDEM permitting, mitigating effects of impervious cover. Pretreatment of runoff prior to groundwater infiltration assures that the Proposed Action would not adversely affect groundwater resources. Adding 14.5 acres of new impervious cover would not be expected to reduce infiltration rates such that groundwater levels would be adversely affected. No direct impacts to groundwater would occur, and the potential for indirect impacts would be limited and secondary to the potential impacts to surface waters discussed above. Compliance with RIPDES permit requirements, including an approved Soil Erosion and Sediment Control Plan and water recharge BMPs, provide adequate assurance that the Proposed Action would not adversely affect groundwater resources in the project area and residual effects to groundwater would be less than significant.



Source: RIGIS, AECOM, VHB. Print Date: 3/14/2023

Figure 5- 5: Water Resources

5.15.2. No Action Alternative

If no action is taken, the project induced short-term and long-term effects on surface water and groundwater resources would not occur, and the existing conditions would remain unchanged. No significant impacts on water resources would result from the No Action Alternative.

5.16. Cumulative Effects

Council on Environmental Quality (CEQ) regulations require that all federal agencies consider the cumulative effects of proposed actions. Cumulative effects 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." Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. This cumulative impact analysis was conducted to comply with the intent of FAA Order 1050.1F, DOT Order 5610.1C, and the January 1997 CEQ guidance.

If the Proposed Action would not cause direct or indirect impacts on a resource, then it may be concluded that it would not cause or contribute to a cumulative impact on the resource. As identified in prior sections of Chapter 5, Environmental Consequences, the Proposed Action is not likely to have a potentially significant adverse effect on any environmental resource categories. Although these impacts may not be significant themselves, cumulative impacts from one or more projects can result in the degradation of important resources. The other projects included in the analysis occur in the same proximate geographical location as the Proposed Action, and may occur in the past, present, or reasonably foreseeable future.

5.16.1. Geographic and Temporal Boundaries

The geographic boundary of the cumulative effects analysis varies by resource but generally includes the existing Airport property and adjacent properties along Strawberry Field Road. The temporal boundary (timeframe) for the analysis generally extends five years into the past (2016-2021) and five years into the future (2023-2028).

5.16.2. Past, Present, and Reasonably Foreseeable Actions

5.16.2.1. Projects Completed in the Past Five Years (2016-2021)

Projects undertaken by RIAC over the past five years at PVD have not been challenging on environmental grounds, and no difficulties were reported in obtaining permits or approvals for the projects. The projects include:

- Reconstruction of Runway 16-34
- Residential Sound Insulation Program
- Improvements to the western portion of Parking Lot E

Off-airport development projects within the past five years include the construction of residential and commercial development and energy producing projects in the vicinity of PVD. As an example, the Kilvert Street 6.0 MW Ground Mount Solar Array was constructed in 2018. The 37-acre brownfield site is located one mile east of Runway 5-23 and accommodates approximately 16,000 solar panels producing enough clean energy to power the City of Warwick's municipal buildings and other city locations.

5.16.2.2. Ongoing Projects (2022)

Two development projects are currently underway at the Airport. The following terminal enhancements and airfield improvements are ongoing at PVD.

- Taxiway C Realignment and Rehabilitation: This project is to realign and rehabilitate a portion of Taxiway C between Runway 5-23 and the Runway 34 end. The project shifts the portion of Taxiway C between Runway 5-23 and Taxiway C1 to provide 400-foot separation between runway/taxiway centerlines. The remaining section of the taxiway will be rehabilitated in its exiting location to avoid disturbing wetland areas adjacent to Taxiway C. In addition to increasing the separation between the runway and taxiway, the proposed project will also modify the taxiway width from 75 feet wide with 15-foot shoulders to 50 feet wide with 20-foot shoulders to meet current FAA design standards for Taxiway Design Group 4 taxiways. This project was categorically excluded from further environmental review under NEPA.

- ADA Compliance Modifications for Passenger Loading Zones and Canopy Drainage Repairs: This project includes accessibility upgrades and improvements at both the departures and arrivals passenger loading and unloading zones for compliance with the Americans with Disabilities Act (ADA). The construction elements of the project include installation of new ADA access ramps, pavement marking modification and signing improvements. No environmental impacts are associated with this project. The proposed building modifications will be conducted in accordance with local codes and ordinances.

- In addition, a major off-airport development, named the I-95 Gateway project, was approved by local officials in March 2022. The project, currently under construction, is a state-of-the-art 400,000 square foot warehouse and distribution facility. The facility offers prime access to I-95 and Interstate 295, allowing for easy regional and local industrial distribution, and is strategically located near the Airport, on the north side of Airport Road. The Proposed Action would have the effect of removing cargo operations and truck traffic volumes away from Airport Road. Therefore, there are no additive effects to consider.

5.16.2.3. Projects Schedule During the Next Five Years (2023-2028)

Future projects to be undertaken at PVD include additional airside, terminal, and landside improvements. Future projects will have their environmental impacts analyzed in separate documents, reviewed by the FAA, and by permitting/approval regulatory agencies, as applicable. These projects will be designed to avoid, minimize, and/or mitigate environmental impacts on Airport property to the degree practicable. They include:

- Emergency Back-up Power and Water Supplies: RIAC will implement improvements to provide adequate back-up power and water supply to the terminal facilities during times of unplanned service outages, such that passengers can continue to utilize the Airport facilities during these outages. Electrical back-up would be provided by a new generator. Water supply would be established through a new storage tank (either above ground or below ground). Locations have been identified close to the terminal facility, but the preferred sites have not been selected. New systems would tie into existing systems in accordance with local building codes. This is a maintenance project that would not be expected to cause or contribute to an adverse impact on the environment.

- Stormwater Conveyance System Improvements: This project involves lining and sealing key portions of the airfield stormwater infrastructure system to reduce the loading of groundwater infiltrating through the drainage system and into the Buckeye Brook tributary, which is listed by the Rhode Island Department of Environmental Management (RIDEM) as impaired by iron. This is a maintenance project that would not be expected to cause or contribute to an adverse impact on the environment.

- PVD Runway 5-23 and Taxiways A, M, N Rehabilitation: This project involves rehabilitating Runway 5-23 and associated taxiways A, M and N. Pavement rehabilitation projects normally do not cause or contribute to adverse environmental effects and are categorically excluded from the requirement to prepare an EA.

- Electrical Vault Relocation: To accommodate future development in the terminal area the electrical vault will be relocated to a new location which has not yet been selected. This is a maintenance project that would not be expected to cause or contribute to an adverse impact on the environment.

5.16.3. Cumulative Effects by Resource Category

If the Proposed Action would not cause an adverse impact on a resource, then it may be concluded that it would not contribute to a potentially significant cumulative impact on the resource. As identified in previous sections of this EA, noise is the only resource category that is predicted to have an adverse, but not significant, effect from the Proposed Action.

Construction Phase Noise

Construction noise would temporarily increase sound levels in the immediate vicinity of the construction site. Construction of the noise barrier wall would result in the highest temporary impact to residents as the project site is directly across the street from residences. The potential construction noise impact would be temporary and could be reduced utilizing construction timing and staging, operational controls such as limiting construction vehicle engine idling on-site and time of day restrictions for certain activities, and strategically positioning construction vehicles away from receptors when traveling to and from the work site.

Operations Phase Noise

The noise analysis results indicate that the Proposed Action would result in a less than significant increase in noise levels in the vicinity of the airport. This increase is primarily related to ground noise and affects properties very close to Strawberry Field Road. These properties would be exposed to higher noise levels due to cargo aircraft operating on the apron, cargo ground support equipment operations, and truck activity at the proposed facility. However, the affected properties have been sound insulated by RIAC and are compatible with the predicted noise levels. Moreover, potential noise levels would be mitigated by the noise barrier wall that is predicted to substantially reduce ground level noise (between 5dB-13 dB).

Past, ongoing, and reasonably foreseeable future projects were considered to determine if there is a potential for cumulative exposure of individuals to airport related noise in areas surrounding the airport. Neither the past nor the ongoing projects at PVD have any effect on airport noise exposure. None of the future 5-year projects would necessitate a change in aircraft operations or noise levels in the vicinity of the airport. The planned Runway 5-23 rehabilitation may require a temporary runway closure with operations shifted to Runway 16-34, but this would not change the noise contour. Therefore, it can be concluded that the Proposed Action would not cause or contribute to a significant increase in noise levels at the Airport.

5.16.4. Summary of Cumulative Effects

The direct and indirect effects of the Proposed Action are presented in the previous sections. No adverse environmental impacts are identified with the Proposed Action, other than noise, and the Proposed Action would not cause or contribute to a significant increase in noise levels at the Airport.

Further, no environmental resource category has been identified as potentially vulnerable to the effects of ongoing development at or near the airport. Because no potentially significant adverse effects have been linked to the Proposed Action in this EA, it is unlikely that the incremental impact of the proposed project would cause or contribute to a significant adverse impact on the environment when added to any past, ongoing, or future projects or actions at the airport.

5.17. Summary of Mitigation Measures

The section lists the means and measures RIAC proposes to mitigate environmental effects of the Proposed Action. It is noted, however, that no mitigation measures or other environmental commitments are needed to reduce potentially significant adverse environmental impacts below a threshold level to avoid a significance determination, so that a more detailed environmental impact statement (EIS) is not required.

Environmental permit requirements and best management practices notwithstanding, the following specific measures would be implemented with the Proposed Action:

5.17.1. Biological Resources

- Implement protocols to protect the northern long eared bat (NLEB), and to reduce invasive shrub species, as discussed in Section 5-2.

5.17.2. Cultural Resources

- Consult with the State Historic Preservation Officer (AHPO) and/or Tribal Historic Preservation Officer (THPO) to determine if additional archeological survey is warranted, as discussed in Section 5-8.

5.17.3. Noise and Compatible Use

- Construct a noise barrier wall to reduce the effects of noise on adjacent residential properties, as discussed in Section 5-11.
- Implement protocols to reduce the effects of construction noise when operating near noise-sensitive areas, as discussed in Section 5-11.

5.17.4. Visual Effects and Light Emissions

- In addition to noise reduction, the proposed barrier wall would have the effect of enhancing the viewshed and reducing light emissions along Strawberry Field Road, as discussed in Section 5-14.

5.17.5. Water Resources

- Incorporate a stormwater management system to capture and collect contaminated runoff from deicing/anti-icing operations and to convey the runoff to the Airport's glycol collection and treatment system, as discussed in Section 5-15.

6. PUBLIC INVOLVEMENT

RIAC has and will continue to involve the public in the decision-making process for the Proposed Action. RIAC is committed to ensuring that PVD stakeholders are informed about the South Cargo Facility Project and its benefits and potential impacts.

6.1. History

The South Cargo Facility has been discussed publicly since the start of the PVD Master Plan Update in 2019. Early in the master planning process, RIAC formed a Master Plan Technical Advisory Committee (TAC) which met regularly over the course of the study. RIAC also participated in meetings with the City of Warwick Mayor's office, hosted three open house events, and conducted one planning workshop so that the 20-year development plans for airside, landside, terminal, and cargo/general aviation areas could be presented for review and comment. The relocation of cargo facilities to the south side of the airport was included in these conceptual plans. There were no comments received in opposition to the project.

Since the completion of the Master Plan, RIAC has maintained open and transparent public communications to share airport development projects at monthly open public meetings and monthly meetings with Warwick officials. As part of the EA process, RIAC continues to perform outreach activities with the community. A Public Participation Plan was developed at the outset of the EA project to guide agency and public participation. A webpage was established to introduce the project and keep the public updated on its progress (https://www.flyri.com/riac/improvement/). Additionally, the public was able to email questions about the project at any time to PVDSouthCargo@vhb.com.

6.2. List of Agencies and Persons Consulted

During the EA process, the following agencies and organizations were consulted:

- U.S. Department of the Interior, Fish and Wildlife Service (IPaC)
- Rhode Island Historic Preservation & Heritage Commission (Jeffrey Emidy, Interim Executive Director/Deputy State Historic Preservation Officer)
- Rhode Island Tribal Historic Preservation Officer, Narragansett Indian Tribe (John Brown)
- Rhode Island Department of Transportation (Steven Pristawa, State Traffic Safety Engineer)
- FedEx (Jay Cassens, Senior Airport Properties & Development Representative)
- UPS (Trey Hettinger, Airport Properties)

Regulatory agencies were asked to review the Proposed Action for potential impacts to resources under their jurisdiction. Agency correspondence is provided in Appendix L and in resource specific appendices.

6.3. Public Involvement

RIAC conducted a Public Information Open House on January 10, 2023, at the Warwick Municipal Annex (located at 65 Centerville Road, Warwick RI 02886) to introduce the South Cargo Facility project and to explain the environmental assessment process. The Open House was held from 4:00-7:00pm. Email and/or hard copies of the invitation were sent to 82 individuals and organizations (56 were directly mailed to nearby residents and businesses; 26 were emailed).

The event was promoted on RIAC's website (https://www.flyri.com/riac/improvement/) and notices were placed in Warwick Post, the Warwick Beacon, and on the Rhode Island T. F. Green International Airport Facebook page.

A series of exhibit boards were on display to address the following topics: Project Location and Existing Conditions, South Cargo Facility Concept Plan, Project Area Views from Strawberry Field Road, Technical Studies Underway, and a Project Timeline from conceptual planning through construction. Subject matter experts and RIAC officials were available to answer questions and offer information on the studies underway.

Following the open house, RIAC received a letter from the City of Warwick pertaining to noise compatibility. The letter is included in Appendix L.

RIAC also conducted a Public Meeting on April 20, 2023 at the Warwick Municipal Annex to present the findings of the Draft EA. The meeting was held from 4:00-7:00pm. Email and/or hard copies of the meeting notification were sent to 93 individuals and organizations (56 were direct mailed to nearby residents and businesses; 37 were emailed).

A Notice of Availability of the Draft EA and the Public Meeting announcement were posted on RIAC's website (https://www.flyri.com/riac/improvement/) and published in the Warwick Beacon on March 30, 2023.

A series of exhibit boards were on display at the Public Meeting to present the key outcomes of the Draft EA. The boards included: the Proposed Action, an Alternative to the Proposed Action, Air Quality, Noise, Biological Resources, Cultural and Section 4(f) Resources, Water Resources, Site Access, and Visual Resources. Additionally, a project timeline was shared and a summary of annual aircraft operations at PVD between 1999 and 2022 was presented.

A printed copy of the full Draft EA was available for meeting attendees to review and, in addition to submitting handwritten comments, a Court Reporter was available to record verbal/oral comments by meeting attendees. Subject matter experts and RIAC officials were available to answer questions and offer information on the study findings.

The presentation materials for the Public Meeting and Open House summary can be found in Appendix L.

6.4. Opportunity for Public Comment

The Draft EA document was available for public review and comment between March 31, 2023 and May 1, 2023. The report was available for review and to download through RIAC's website (https://www.flyri.com/riac/improvement/) and a printed copy was available for review at the Warwick Public Library, 600 Sandy Lane, Warwick, RI 02889. To ensure the public was aware, RIAC published a Notice of Availability in the Warwick Beacon and posted the announcement on the Airport's website (https://www.flyri.com/riac/improvement/). During the review period, and as discussed in Section 6.3, a Public Meeting was held. All comments received at the Public Meeting (including transcripts), and during the public review period are included in Appendix L.

7. LIST OF PREPARERS

Name Affiliation	Project Responsibilities	Education	Years of Experience
Dawn Mineker, PE RIAC	Owner, Project Manager	Civil Engineering Technology	11
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Bryan Oscarson AECOM	Technical Lead	BBA, Airport Management MS, Engineering Management	34
Lynn Keeley AECOM	Senior Environmental Planner	BS, Urban Planning MA, Environmental Studies	36
Jennifer Lutz AECOM	Technical Review, QA/QC	BS, Environmental Soil Science & Plant Science; MS, Environmental Science & Policy	22
Issac Almy AECOM	Traffic & Transportation	MS, Civil Engineering BS, Civil Engineering	10
Arianna Mickee-Seguin, PE, PTOE AECOM	Traffic & Transportation	BSCE, Civil and Environmental Engineering MSCE, Civil Engineering Transportation Focus	16
Kayleigh Kern AECOM	Visual Resources	MLA, Liberal Arts MCP, City and Regional Planning	12
Robert Mentzer Jr. HMMH	Noise Technical Lead	BS, Meteorology	32
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Alice Richard HMMH	Project Manager QA/QC	BA, Applied Mathematics; MS, Civil & Environmental Engineering	13
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Susan Nichols VHB, Inc.	Technical Lead	BS, Biology	22
Fred Bevans VHB, Inc.	Hazardous Materials	BS, Environmental Science & Management	7
Ashley Cunha VHB, Inc.	Water Resources	BS, Civil Engineering	13
Donny Goris-Kolb VHB, Inc.	Socioeconomics; Climate; Natural Resources & Energy Supply; Land Use	ALM, Sustainability MUP, Urban & Regional Planning BA, Sociology	15
Jeff Peterson VHB, Inc.	Biological Resources; Coastal Resources	BS, Ecology	39
Quinn Stuart VHB, Inc.	Cultural & Historical Resources	BS, MA Historic Preservation	16
Carrisa Mills VHB, Inc.	Public Outreach Public Involvement	MA, Marine Affairs	17

APPENDIX A

Air Quality

APPENDIX A

HMMH
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781.229.0707

TECHNICAL MEMORANDUM

To:	Bryan Oscarson
From:	Alice Richard Robert Mentzer Mariano Sarrate
Date:	December 27, 2022, revised January 4, 2023
Subject:	Air Quality Technical Memorandum for South Cargo Facility Environmental Assessment, T.F. Green Airport
Reference:	HMMH Project Number 309620.010

This memo presents and discusses the potential air quality impacts from the development of a new cargo building and associated airside and landside facilities (hereinafter referred to as “the Proposed Action”) on the southside of T.F. Green International Airport (the Airport or PVD) in Kent County, Rhode Island.

1.0 Air Quality Regulatory Setting

The United States Environmental Protection Agency (USEPA) currently regulates six criteria pollutants with the National Ambient Air Quality Standards (NAAQS), including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$), and lead (Pb). The NAAQS are expressed in terms of pollutant concentration measured (or averaged) over a defined period of time and are two-tiered. The first tier (the “primary standard”) is intended to protect public health; the second tier (the “secondary standard”) is intended to protect public welfare and prevent further degradation of the environment. The primary and secondary NAAQS are shown in **Table 1**.

The NAAQS apply to the concentration of a pollutant in outdoor ambient air. If the air quality in a geographic area is equal to or better than the national standard, the USEPA will typically designate the region as an “attainment area.” An area where air quality does not meet the national standard is typically designated by the USEPA as a “nonattainment area.” Once the air quality in a nonattainment area improves to the point where it meets the standards and the additional requirements outlined in the CAA, the USEPA can re-designate the area to attainment upon approval of a Maintenance Plan, and these areas are then referred to as “maintenance areas.”

Each state is required to prepare a State Implementation Plan (SIP) that outlines measures that regions within the state will implement to attain the applicable air quality standard in nonattainment areas for applicable criteria air pollutant, and to maintain compliance with the applicable air quality standard in maintenance areas. The status and severity of pollutant concentrations in a particular area will impact the types of measures a state must take to reach attainment with the NAAQS. The USEPA must review and approve each state’s SIP to ensure the proposed measures are sufficient to either attain or maintain compliance with the NAAQS within a set period of time. The airport is located in Kent County, Rhode Island, which is currently designated by the USEPA as in attainment with the NAAQS for all criteria pollutants.

The CAA requires that federal agencies ensure that non-highway and transit-related actions proposed in a maintenance or nonattainment area conform to a SIP. This process is referred to as General Conformity. Part 93 of Title 40 of the Code of Federal Regulations (40 CFR Part 93) outlines the requirements for determining whether a proposed federal action conforms to a state’s SIP. The General Conformity Rule, 40 CFR Part 93 Subpart B, implements the CAA’s mandate that a proposed action must comply with a SIP’s purpose: eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of the standards [42 United States Code (U.S.C.) Section 7506(c)(1)(A)]. A General Conformity Determination is required if an action’s emissions exceed de minimis levels. Comparing project-related emissions to the de minimis levels is referred to as an Applicability Test, which is only conducted for the air pollutants for which an area is classified as maintenance or nonattainment. Because the Airport is in an area designated by the USEPA as in attainment for all criteria pollutants, General Conformity does not apply.

Table 1. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard	Secondary Standard	Form
Carbon Monoxide (CO)	1-Hour Average	35 ppm	35 ppm	Not to be exceeded more than once per year
	8-Hour Average	9 ppm	9 ppm	
Ozone *2015 Standard* (O_3)	8-Hour Average	0.070 ppm	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Sulfur Dioxide (SO_2)	1-Hour Average	75 ppb	-	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3- Hour Average	-	0.5 ppm	Not to be exceeded more than once per year
Nitrogen Dioxide (NO_2)	1-Hour Average	100 ppb		98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Annual Average	53 ppb	53 ppb	Annual mean
Particulate Matter with aerodynamic diameter of 10 microns (PM_{10})	24-hour	150 µg/m^3	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Particulate Matter with aerodynamic diameter of 2.5 microns ($PM_{2.5}$)	Annual Average	12.0 µg/m^3		annual mean, averaged over 3 years
	Annual Average		15.0 µg/m^3	annual mean, averaged over 3 years
	24-Hour Average	35 µg/m^3	35 µg/m^3	98th percentile, averaged over 3 years
Lead (Pb)	Rolling 3-month average	0.5 µg/m^3	-	Not to be exceeded

Notes:
(a) ppm: parts per million
(b) µg/m3: micrograms per cubic meter

Source: USEPA, October 2022

2.0 Modeling Methodology

For an action occurring on, or in the vicinity of a single airport, or as part of an air traffic action, FAA directs the use of the latest version of the Aviation Environmental Design Tool (AEDT) for detailed emissions modeling of aviation sources. The AEDT estimates emissions of the following criteria pollutants CO, NO_X, VOCs, SO_X, PM_{10}, and $PM_{2.5}$, which are primarily emitted through the combustion of fuel by mobile sources and from large industrial facilities. The air quality analysis evaluated herein estimates emissions from the following sources expected to be affected by the Proposed Action:

- **Aircraft Engines:** Aircraft engines typically represent the largest category of on-airport sources of emissions, which occur during takeoff, landing, taxiing, and idling on taxiways and aircraft apron areas.
- **Auxiliary Power Units (APUs):** APUs are small aircraft engines, incorporated into an aircraft's airframe and fueled by jet fuel, that are used while aircraft are on the ground. APUs can be used to provide electricity and heated or cooled air while passengers are enplaning or deplaning, during cargo operations, cleaning, and minor maintenance.
- **Ground Support Equipment (GSE):** GSE is categorized as off-road equipment and encompasses all equipment that is needed to service aircraft during ground operations and primarily includes baggage

tractors and belt loaders. Additional GSE-types include catering trucks, pushback tractors, lavatory trucks, potable water trucks, airline support staff vehicles, ground power units, and fueling trucks.

Additional emissions sources could include onroad and offroad vehicles and equipment from airport operational activities or construction of the Proposed Action, stationary sources, and training fires, where applicable. These additional sources should be estimated using the most recent guidance and tools from the USEPA, including USEPA's MOtor Vehicle Emission Simulator (MOVES[1]) for onroad and offroad equipment, and USEPA's AP-42 for point source emission factors.

2.1 Aviation Environmental Design Tool (AEDT)

The aircraft air quality analysis for the EA uses AEDT Version 3e (released May 9, 2022). All AEDT modeling conducted for this study adheres to "*Guidance on Using the AEDT to Conduct Environmental modeling for FAA Actions Subject to NEPA*" (FAA 2017). AEDT is a combined noise and emission model that uses a database of aircraft emission factors that have been established by the International Civil Aviation Organization (ICAO). The AEDT estimates emissions from aircraft engines, APUs, and GSE, in addition to its abilities to predict ground based DNL values from user input for aircraft types, AAD aircraft operations, airport operating conditions, aircraft performance, and flight patterns. The primary data input categories for the AEDT are:

- Airfield layout, which includes the coordinates of each runway centerline endpoint, runway widths, approach threshold crossing heights, and runway end elevations.
- Meteorological data, which refers to weather conditions affecting sound propagation and aircraft performance. AEDT's database of airports was accessed to obtain annual average daily PVD weather conditions. AEDT's airport database contains 10-year average meteorological data (from 2011 to 2020), which AEDT uses to adjust aircraft performance from standard day conditions.
    - Temperature: 52.68° F
    - Station Pressure: 1013.71 mbar
    - Sea Level Pressure: 1016.61 mbar
    - Dew point: 43.02° F
    - Relative humidity: 69.64%
- Terrain data, which refers to ground elevations. AEDT uses terrain data to adjust the aircraft-to-ground path length, which is the distance between the modeled location on the ground and the aircraft in flight, making the ground closer to or farther from the aircraft relative to flat-earth conditions. AEDT does not use terrain data to account for shielding or reflective effects of terrain.
- Specific aircraft types in PVD's fleet mix, defined by airframe and engine type combinations. All aircraft types evaluated for the PVD modeling are either in the AEDT database or have approved substitutions within the model.
- Aircraft flight operations, which are numbers of AAD aircraft operations by DNL time periods and by aircraft type. Daytime is defined as 7:00 a.m. to 9:59 p.m. and nighttime is defined as 10:00 p.m. to 6:59 a.m. Departures and arrivals were the two types of flight operations modeled for the EA. Touch-and-go or circuit operations were modeled on the main runway.
- Aircraft noise and emissions characteristics. The AEDT database contains noise and emissions data for more than 300 different aircraft types. AEDT accesses the noise and emissions data for takeoff, landing, and pattern operations by those aircraft. The database provides single-event noise levels for

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[1] United States Environmental Protection Agency, Motor Vehicle Emissions Simulator (MOVES) User Guide for MOVES3, November 2020, https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves

slant distances from 200 feet to 25,000 feet for several thrust or power settings for each aircraft type. Performance data includes thrust, speed, and altitude profiles for takeoffs and landings. For those aircraft types operating at PVD which are not directly represented in the AEDT database, the AEDT contains FAA-approved substitutions for noise and emissions modeling.

- Stage length, which is a surrogate for an aircraft's weight that varies according to its fuel load. Stage length is assigned according to each departure's trip distance to its destination, using city-pair information provided in the operations forecast. The assigned stage length then determines the appropriate flight performance profile from the AEDT database.
- Flight profiles, which are based on standard flight procedures for each aircraft type contained in the AEDT database. Information in the flight profiles describe the sequence of altitudes, thrust/power settings, and airspeeds for departure and arrival operations.
- Runway use, which is the allocation of flight operations to each runway, on an AAD basis, by DNL time periods, operation type, and aircraft type.
- Flight tracks and their usage. A flight track is the two-dimensional projection of the aircraft's three-dimensional flight path onto the ground. A modeled flight track represents one or more actual flight tracks. Modeled flight tracks for a given flight corridor typically consist of a backbone track and sub-tracks which represent the average location and dispersion of the actual flights in the corridor. Each backbone flight track typically represents a general heading for departures or originating point for arrivals. As each runway usually has multiple headings and originating points, the distribution of operations, or track use, on an AAD basis, must be specified. Operations are further spread on backbone tracks and sub-tracks via distribution percentages on an AAD basis.

2.2 MOtor Vehicle Emission Simulator (MOVES)

The USEPA's MOtor Vehicle Emission Simulator (MOVES) is a state-of-the-science emissions modeling system that estimates air pollution emissions for onroad vehicles such as cars, trucks and buses, and nonroad equipment such as bulldozers and lawnmowers. The most recent version of MOVES is MOVES3, released in March 2021. MOVES can estimate emission factors for at a county-level, and accounts for the phase-in of federal emissions standards, vehicle and equipment activity, fuels, temperatures, humidity, and emission control activities such as inspection and maintenance programs. MOVES models calendar years 1999 through 2060. Emissions from onroad and nonroad sources can be modeled at the national or county scale using either model defaults or user-supplied inputs.

For the air quality analysis, MOVES3 was used to estimate emissions factors for both onroad emissions (for passenger vehicles and trucks that would utilize the roadways surrounding the Airport, and for onroad and offroad emissions from construction activities.

3.0 Existing Condition

This air quality assessment was conducted in accordance with FAA guidelines for assessing environmental impacts. This section summarizes the emissions of criteria air pollutants that have been estimated to exist in the baseline year (2021), before commencement of the Proposed Action.

In analyzing the current status of operational emissions at the Airport, a baseline year of 2021 was selected as an indication of existing conditions. The baseline emissions inventory was estimated in accordance with FAA guidelines, using the AEDT as described in **Section 2.0**.

3.1 Aircraft Activity Levels and Fleet Mix

The existing aircraft air quality environment around the Airport was evaluated based upon the existing condition aircraft operations and the associated airport operational characteristics. Radar data from PVD Casper Flight Tracking System and the FAA's Operational Network (OPSNET) operational data for CY2021 were used to determine the existing conditions. The radar data provided the aircraft fleet mix and runway use. The fleet mix developed from the Casper data was grouped into FAA operational categories (Air Carrier, Air Taxi, and General Aviation).

The Air Traffic Control Tower at PVD is closed from midnight to 5:30 a.m.; therefore, using the radar data, we estimated the operational counts during the overnight period while the tower is closed. These totals were added to the FAA OPSNET data to get the total operations for the year as shown in **Table 2**. The fleet mix was then scaled to match the final count for CY2022. During the existing conditions period 57,391 annual operations occurred at PVD. RIAC provided counts for mainline cargo operations which were accounted for in the existing conditions fleet mix, and accounted for in the air carrier category throughout this analysis. **Table 2** presents the annual operations modeled for the Existing Condition along with the average annual day counts.

Table 2. Existing Condition Operations

Modeling Scenario	Air Carrier	Air Taxi	General Aviation		Military		Total
			Itinerant	Local	Itinerant	Local	
FAA OPSNET (CY 2021)	23,963	8,652	14,229	9.165	477	132	56,618
Operations while Tower is closed	378	214	181	0	0	0	800
Total CY2022	24,341	8,866	14,410	9,165	477	132	57,391
Average Annual Day	66.7	24.3	39.5	25.1	1.3	0.4	157.2

Note: Totals may not match exactly due to rounding

Source: FAA OPSNET, 12/16/2022

Table 3 provides the average daily operations, by aircraft type, that were used in AEDT for the existing conditions.

Table 3. PVD Modeled Average Daily Operations for Existing Conditions (CY2021)

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departure		Circuit		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	757PW	0.7	0.5	1.1	0.1	0.0	0.0	2.4
		757RR	0.7	0.5	1.1	0.1	0.0	0.0	2.4
		EMB190	1.3	<0.1	1.4	<0.1	0.0	0.0	2.7
		A319-131	0.7	0.2	0.6	0.2	0.0	0.0	1.7
		A320-211	1.6	1.0	1.6	0.9	0.0	0.0	5.1
		A320-232	2.4	0.4	2.4	0.4	0.0	0.0	5.6
		717200	0.3	0.1	0.2	0.2	0.0	0.0	0.8
		A320-271N	1.5	<0.1	1.5	<0.1	0.0	0.0	3.0
		CRJ9-ER	6.4	0.8	6.2	1.0	0.0	0.0	14.4
		EMB170	0.5	0.2	0.5	0.2	0.0	0.0	1.4
		EMB175	2.8	1.0	2.8	1.1	0.0	0.0	7.7
		7378MAX	0.3	0.2	0.3	0.2	0.0	0.0	1.0
		737700	4.9	0.9	4.8	1.0	0.0	0.0	11.6
		737800	2.6	0.9	2.4	1.1	0.0	0.0	7.0
Air Carrier Subtotal			**26.7**	**6.7**	**26.9**	**6.5**	**0.0**	**0.0**	**66.8**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
		CNA680	2.0	0.1	2.1	0.1	0.0	0.0	4.3
		CL600	2.5	0.3	2.6	0.2	0.0	0.0	5.6
		CNA55B	1.5	0.1	1.5	0.1	0.0	0.0	3.2
		EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
		EMB145	0.4	0.0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.2	<0.1	0.2	<0.1	0.0	0.0	0.4
		CNA208	3.6	0.6	3.4	0.8	0.0	0.0	8.4
		BEC58P	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
Air Taxi Subtotal			**10.9**	**1.2**	**10.8**	**1.5**	**0.0**	**0.0**	**24.4**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
		CNA560XL	0.8	0.0	0.8	<0.1	0.0	0.0	1.6
		CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6
		CNA750	2.6	0.1	2.5	0.2	0.0	0.0	5.4
		CL601	0.5	<0.1	0.5	<0.1	0.0	0.0	1.0
		GIV	0.7	<0.1	0.7	0.1	0.0	0.0	1.5
		LEAR35	0.5	0.1	0.5	<0.1	0.0	0.0	1.1
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
		GASEPF	2.4	<0.1	2.4	<0.1	0.0	0.0	4.8
		CNA172	7.4	0.1	7.4	0.1	24.8	0.3	40.1
		PA28	1.5	0.1	1.4	0.1	0.0	0.0	3.1

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departure		Circuit		Total
			Day	Night	Day	Night	Day	Night	
		COMSEP	0.5	<0.1	0.5	0.0	0.0	0.0	1.0
		CNA208	1.0	<0.1	0.8	0.3	0.0	0.0	2.1
		General Aviation Subtotal	**19.3**	**0.4**	**18.9**	**0.8**	**24.8**	**0.3**	**64.5**
Military	Non-Jet	S70	0.7	0.0	0.7	0.0	0.4	0.0	1.8
		Military Subtotal	**0.7**	**0.0**	**0.7**	**0.0**	**0.4**	**0.0**	**1.8**
		Grand Total	**57.6**	**8.3**	**57.3**	**8.8**	**25.2**	**0.3**	**157.5**
Note: Totals may not match exactly due to rounding									

Source: Casper, FAA OPSNET, HMMH 2022

3.2 Airfield Layout

PVD is located in Warwick, RI within Kent County, approximately six nautical miles southeast of downtown Providence, RI. As shown in **Figure 1**, the airport includes two 150-foot-wide runways, one of which is oriented in an northeast-southwest direction (Runway 5-23), and one “crosswind” runway (Runway 16-34) that intersects the northeast-southwest runway in a northwest-southeast direction. Runway 5-23 is the primary runway and provides PVD with the greatest capacity to accommodate larger aircraft. Runway 16-34 is primarily used by small aircraft.

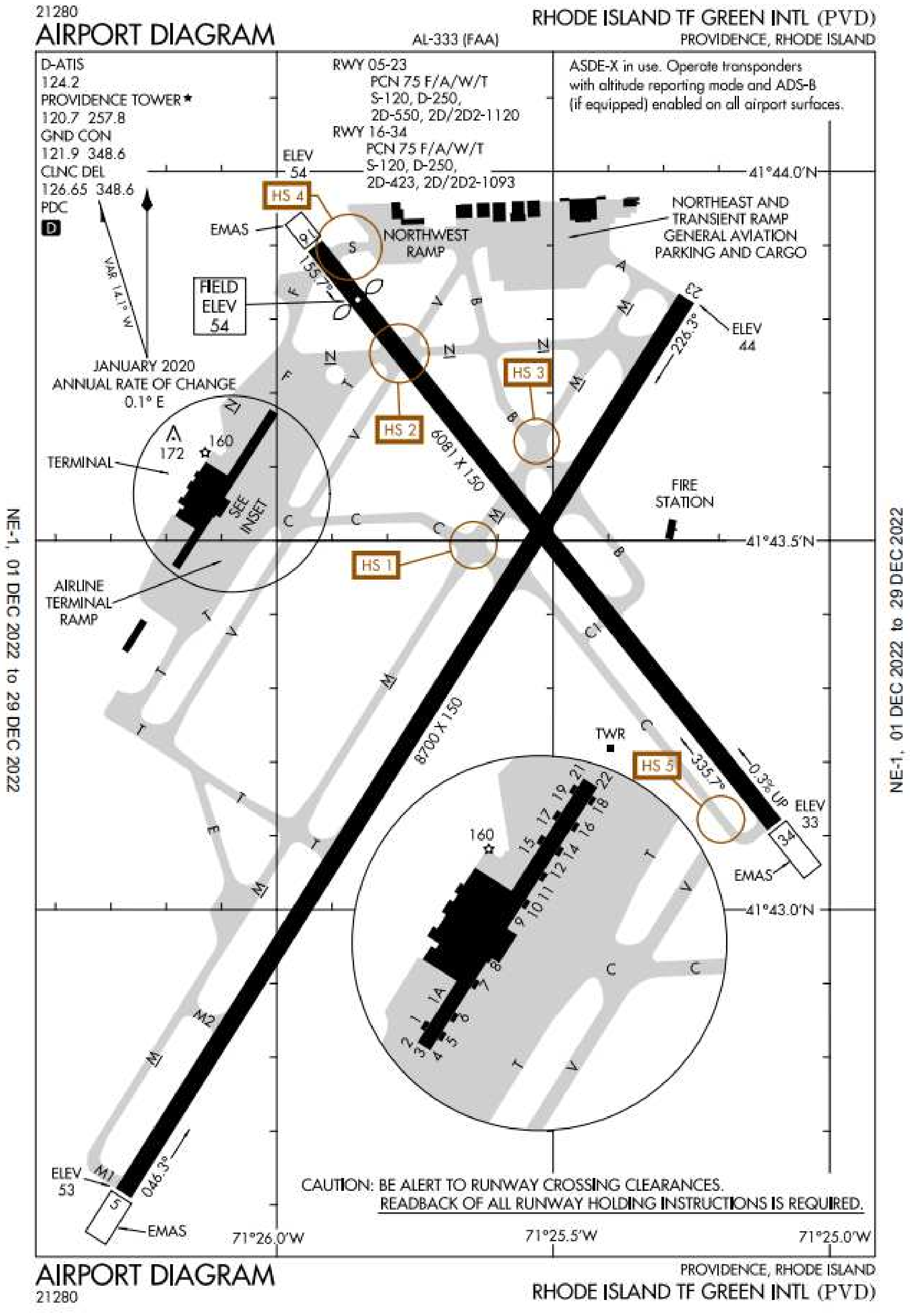

Figure 1. PVD Airfield Layout

Runway length, runway width, instrumentation, and declared distances do not directly affect emissions calculations. However, these parameters may affect which aircraft might use a particular runway and under what conditions and therefore how often a runway would be used relative to the other runways at the Airport. **Table 4** provides the detailed parameters for each runway end.

Table 4. Runway Details

Runway End	Latitude (dd-mm)	Longitude (dd-mm)	Elevation (feet, MSL)	Displaced Landing Threshold (feet)	Glide Slope (degrees)	Threshold Crossing (feet, AGL)	Length (feet)
Existing and No-Action Runways							
5	41-42.615697N	071-26.276960W	52.9	0	3.00	69	8,700
23	41-43.828312N	071-25.258860W	44.3	0	3.00	41	
16	41-43.899263N	071-25.930487W	53.7	565	3.00	49	6,081
34	41-43.114760N	071-25.099945W	32.8	0	3.00	60	

Sources: FAA Form 5010, October 2022

3.2 Runway Utilization

Weather, particularly wind direction and wind speed, is the primary factor affecting runway use at airports. Additional factors that may affect runway use include the position of a facility (such as a passenger terminal) relative to the runways and temporary runway closures, generally for airfield maintenance and construction.

In the development of the PVD noise exposure maps, runway usage rates were calculated for two aircraft groups sharing common runway use characteristics, using actual operations data from the Casper system. Jet and non-jet activity was calculated separately. Non-jet aircraft are the piston and turboprop groups. With no anticipation of significant difference in runway use for the five-year forecast, the same runway usage was modeled for the No Action and the Proposed Action Alternatives as for the existing conditions.

Table 5 provides the modeled jet and non-jet runway use percentages for departures and arrivals for the day and nighttime periods used in the calculation of DNL. Based on historical conditions, the Airport is operated in one of two main operating configurations – south flow (approximately 59 percent of the time) or north flow (approximately 41 percent of the time).

Table 5. Modeled Average Daily Jet and Non-Jet Runway Use for Existing and Future Alternatives

PVD Runway Use Arrivals				
Runway	**Jet Day**	**Jet Night**	**Non-Jet Day**	**Non-Jet Night**
05	40.2%	44.3%	40.1%	69.5%
16	0.0%	0.0%	0.0%	0.0%
23	59.2%	55.3%	59.2%	30.5%
34	0.6%	0.3%	0.7%	0.0%
H	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%
PVD Runway Use Departures				
Runway	**Jet Day**	**Jet Night**	**Non-Jet Day**	**Non-Jet Night**
05	40.1%	44.0%	48.1%	22.0%
16	0.0%	0.0%	0.0%	0.0%
23	59.7%	55.9%	51.3%	78.0%
PVD Runway Use Departures				
Runway	**Jet Day**	**Jet Night**	**Non-Jet Day**	**Non-Jet Night**
34	0.2%	0.1%	0.5%	0.0%
H	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%

Source: Casper, HMMH 2022

3.3 Aircraft Stage Length and Operational Profiles

Within the AEDT database, aircraft departure profiles are defined by a range of trip distances identified as “stage lengths.” Higher stage lengths (longer trip distances) are associated with heavier aircraft due to the increase in fuel requirements for the flight. For example, a departure aircraft with a trip distance less than 500 nmi would be assigned a stage length value of one, where a departure aircraft with a trip distance of 3,000 nmi would be assigned a stage length value of five. **Table 6** provides the stage length classifications by their associated trip distances.

Table 6. AEDT Stage Length Categories

Category	**Stage Length (nmi)**
1	0-500
2	500-1000
3	1000-1500
4	1500-2500
5	2500-3500
6	3500-4500
7	4500-5500
8	5500-6500
9	6500+
Note: Stage Length is defined as the distance an aircraft travels from takeoff to landing	

Source: AEDT 3e User Guide, May 2022

The stage lengths flown from PVD are based on the city pair information provided by the radar data operations. Typically, widebody aircraft which operate on long haul routes have the higher stage lengths.

3.4 Baseline Emissions Estimates

The baseline operational emissions, estimated based on the AEDT inputs described in this section, are shown in **Table 7**.

Table 7. 2021 Operational Emissions Inventory of the Baseline Year

<table>
<tr><th>Source</th><th>CO</th><th>VOCs^(a)</th><th>NO_x^(a)</th><th>SO_x</th><th colspan="2">PM₁₀</th><th colspan="2">PM_{2.5}</th></tr>
<tr><td>Aircraft</td><td colspan="8"></td></tr>
<tr><td>Airborne</td><td>230.64</td><td>15.46</td><td>175.70</td><td>12.46</td><td colspan="2">1.53</td><td colspan="2">1.53</td></tr>
<tr><td>Taxi/idle</td><td>194.34</td><td>25.95</td><td>31.80</td><td>8.50</td><td colspan="2">0.71</td><td colspan="2">0.71</td></tr>
<tr><td>Subtotal Aircraft</td><td>424.98</td><td>41.41</td><td>207.50</td><td>20.96</td><td colspan="2">2.25</td><td colspan="2">2.25</td></tr>
<tr><td>APU</td><td>14.30</td><td>0.94</td><td>8.90</td><td>1.36</td><td colspan="2">1.24</td><td colspan="2">1.24</td></tr>
<tr><td>GSE</td><td>52.88</td><td>1.91</td><td>5.23</td><td>0.03</td><td colspan="2">0.30</td><td colspan="2">0.28</td></tr>
<tr><td colspan="3">Total^(b) (tons/year)</td><td>492.16</td><td>44.27</td><td>221.63</td><td>22.35</td><td>3.78</td><td>3.76</td></tr>
</table>

Notes:
(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NO_x, and VOCs.
(b) Totals may not add due to rounding.

Source: HMMH, December 2022

4.0 Future Alternatives

The following sections discuss the development of the future 2026 aircraft operational forecast, runway use, flight tracks, and flight track usage for the future 2026 No Action Alternative and Proposed Action. **Section 4.3.3** discusses the comparison between the two alternatives.

4.1 Forecast

The forecast developed for the 2021 PVD Master Plan (MP) was used as the basis for this EA. The MP forecast was compared to the FAA Terminal Area Forecast (TAF) released in March of 2022 and while higher than the 2021 TAF the forecast was within eight percent of the total forecast operations and within 10 percent for commercial operations which is within FAA guidelines. Also, the fiscal year totals for 2022 were higher for both commercial and overall operations forecasted in the 2021 TAF demonstrating a quicker return in operations than forecasted at the airport in the TAF due to the global pandemic. Therefore, the MP forecast was used for the future 2026 operational levels in this EA, which are shown in **Table 8**.

Table 8. 2021 – 2026 Forecast Operations Compared to the FAA TAF

2026 Forecast	Commercial	General Aviation	Military	Total
MP Forecast	56,509	26,166	451	83,126
TAF 2026	51,559	24,632	625	76,816
Difference	4,950	1,534	-174	6,310
Percent Difference	10%	6%	-1%	8%

Source: HMMH, 2022; FAA March 2021 TAF, PVD 2021 MP.

The MP forecast was used to determine the number and type of operations for the 2026 No Action model schedule. For the 2026 Proposed Action model schedule, the 2026 No Action model schedule was used as a basis, with additional cargo operations added and upgauging accounted for (i.e., "upsizing" of aircraft from 757 narrowbody to 767 widebody aircraft), per information provided by RIAC. **Tables 9, 10,** and **11** display the results of the modeling inputs for future conditions.

Table 9. Future Condition Operations

2026 Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
No Action Annual	47,861	8,648	26,166	451	83,126
No Action Average Annual Day	131.1	23.7	71.7	1.2	227.7
Proposed Action Annual	49,407	8,490	26,166	451	84,514
Proposed Action Average Annual Day	135.4	23.3	71.7	1.2	231.6
Annual Difference	1,546	-158	0	0	1,388
Average Annual Day Difference	4.2	-0.4	0.0	0.0	3.8

Source: HMMH, 2022; FAA March 2021 TAF, PVD 2021 MP

Table 10. Future No Action Operations

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	757PW	0.6	0.5	1	0.1	0.0	0.0	2.2
		757RR	0.6	0.4	1	0.1	0.0	0.0	2.1
		EMB190	2.7	0.1	2.8	<0.1	0.0	0.0	5.6
		A319-131	1.4	0.4	1.3	0.5	0.0	0.0	3.6
		A320-211	3.2	2	3.3	1.9	0.0	0.0	10.4
		A320-232	4.9	0.9	5	0.9	0.0	0.0	11.7
		717200	0.5	0.2	0.3	0.4	0.0	0.0	1.4
		A320-271N	3.2	<0.1	3.1	0.1	0.0	0.0	6.4
		CRJ9-ER	13.1	1.7	12.7	2.1	0.0	0.0	29.6
		EMB170	1.1	0.3	1	0.4	0.0	0.0	2.8
		EMB175	5.8	2	5.6	2.2	0.0	0.0	15.6
		7378MAX	0.6	0.3	0.6	0.4	0.0	0.0	1.9
		737700	10	1.7	9.7	2.1	0.0	0.0	23.5
		737800	5.3	1.9	4.9	2.3	0.0	0.0	14.4
Air Carrier Subtotal			**53**	**12.4**	**52.3**	**13.5**	**0.0**	**0.0**	**131.2**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0.00	0.0	0.0	0.0
		CNA680	1.9	0.1	1.9	<0.1	0.0	0.0	3.9
		CL600	2.4	0.3	2.6	0.2	0.0	0.0	5.5
		CNA55B	1.4	0.1	1.4	<0.1	0.0	0.0	2.9
		EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
		EMB145	0.4	0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.1	<0.1	0.2	<0.1	0.0	0.0	0.3
		CNA208	3.6	0.6	3.3	0.8	0.0	0.0	8.3
		BEC58P	<0.1	0	<0.1	0	0.0	0.0	0
Air Taxi Subtotal			**10.5**	**1.2**	**10.4**	**1.3**	**0.0**	**0.0**	**23.4**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
		CNA560XL	0.9	0	0.9	<0.1	0.0	0.0	1.8
		CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6
		CNA750	2.9	0.2	2.8	0.3	0.0	0.0	6.2
		CL601	0.6	<0.1	0.6	<0.1	0.0	0.0	1.2
		GIV	0.8	<0.1	0.8	0.1	0.0	0.0	1.7
		LEAR35	0.6	0.1	0.6	<0.1	0.0	0.0	1.3
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
		GASEPF	2.7	<0.1	2.7	<0.1	0.0	0.0	5.4
		CNA172	8.3	0.1	8.3	0.1	27.1	0.4	44.3
		PA28	1.6	0.1	1.6	0.1	0.0	0.0	3.4
		COMSEP	0.5	<0.1	0.6	0	0.0	0.0	1.1

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
		CNA208	1.1	<0.1	0.9	0.3	0.0	0.0	2.3
General Aviation Subtotal			21.4	0.5	21.2	0.9	27.1	0.4	71.5
Military	Non-Jet	S70	0.5	0.0	0.5	0.0	0.2	0.0	1.2
Military Subtotal			**0.5**	**0.0**	**0.5**	**0.0**	**0.2**	**0.0**	**1.2**
Grand Total			**85.4**	**14.1**	**84.4**	**15.7**	**27.3**	**0.4**	**227.3**

Source: HMMH, 2022

Table 11. Future Proposed Action Operations

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	7673ER	0.0	4.3	4.3	0.0	0.0	0.0	8.6
	Jet	EMB190	2.7	0.1	2.8	<0.1	0.0	0.0	5.6
	Jet	A319-131	1.4	0.4	1.3	0.5	0.0	0.0	3.6
	Jet	A320-211	3.2	2	3.3	1.9	0.0	0.0	10.4
	Jet	A320-232	4.9	0.9	5	0.9	0.0	0.0	11.7
	Jet	717200	0.5	0.2	0.3	0.4	0.0	0.0	1.4
	Jet	A320-271N	3.2	<0.1	3.1	0.1	0.0	0.0	6.4
	Jet	CRJ9-ER	13.1	1.7	12.7	2.1	0.0	0.0	29.6
	Jet	EMB170	1.1	0.3	1	0.4	0.0	0.0	2.8
	Jet	EMB175	5.8	2	5.6	2.2	0.0	0.0	15.6
	Jet	7378MAX	0.6	0.3	0.6	0.4	0.0	0.0	1.9
	Jet	737700	10	1.7	9.7	2.1	0.0	0.0	23.5
	Jet	737800	5.3	1.9	4.9	2.3	0.0	0.0	14.4
Air Carrier Subtotal			**51.8**	**15.8**	**54.6**	**13.3**	**0.0**	**0.0**	**135.5**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0	0.0	0.0	0
	Jet	CNA680	1.9	0.1	1.9	<0.1	0.0	0.0	3.9
	Jet	CL600	2.4	0.3	2.6	0.2	0.0	0.0	5.5
	Jet	CNA55B	1.4	0.1	1.4	<0.1	0.0	0.0	2.9
	Jet	EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
	Jet	EMB145	0.4	0.0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.1	<0.1	0.2	<0.1	0.0	0.0	0.3
	Non-Jet	SD330	2.6	0	2.6	0	0.0	0.0	5.2
	Non-Jet	CNA208	1.4	<0.1	1.4	<0.1	0.0	0.0	2.8
	Non-Jet	BEC58P	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
Air Taxi Subtotal			**10.9**	**0.6**	**11.1**	**0.5**	**0.0**	**0.0**	**23.1**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
	Jet	CNA560XL	0.9	0	0.9	<0.1	0.0	0.0	1.8
	Jet	CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6
	Jet	CNA750	2.9	0.2	2.8	0.3	0.0	0.0	6.2

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
	Jet	CL601	0.6	<0.1	0.6	<0.1	0.0	0.0	1.2
	Jet	GIV	0.8	<0.1	0.8	0.1	0.0	0.0	1.7
	Jet	LEAR35	0.6	0.1	0.6	<0.1	0.0	0.0	1.3
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPF	2.7	<0.1	2.7	<0.1	0.0	0.0	5.4
	Non-Jet	CNA172	8.3	0.1	8.3	0.1	27.1	0.4	44.3
	Non-Jet	PA28	1.6	0.1	1.6	0.1	0.0	0.0	3.4
	Non-Jet	COMSEP	0.5	<0.1	0.6	0	0.0	0.0	1.1
	Non-Jet	CNA208	1.1	<0.1	0.9	0.3	0.0	0.0	2.3
General Aviation			**21.4**	**0.5**	**21.2**	**0.9**	**27.1**	**0.4**	**71.5**
Military	Non-Jet	S70	0.5	0.0	0.5	0.0	0.2	0.0	1.2
Military Subtotal			**0.5**	**0.0**	**0.5**	**0.0**	**0.2**	**0.0**	**1.2**
Grand Total			**84.6**	**16.9**	**87.4**	**14.7**	**27.3**	**0.4**	**231.3**

Source: HMMH, 2022

4.1.1 Roadway Forecast

According to the Traffic Impact Study prepared for this Draft EA, truck traffic is expected to grow based on increased shipping capacity as well as meeting latent shipping demands. Based on projected shipping operation needs and discussions with relevant stakeholders, approximately 77 tractor-trailers were estimated to use the new facility per day. Additionally, employee trips were estimated to include 33 morning peak hour employee trips at the new facility, while only 12 employee trips were estimated for the existing building, resulting in a 21-trip increase with the new facility.

As a conservative methodology, emissions were estimated from all 77 truck trips and 33 employee daily trips as if they would take place due to the Proposed Action. This is a conservative methodology because the existing facility handles a number of these trips today, and therefore they exist in the No Action scenario. As an additional conservative assumption, truck and employee trips were assumed to utilize the longest path out of Kent County, along Interstate 95 to the southwest, which is a 19-mile trip. This is a conservative estimate, as many vehicle trips would likely take Interstate 95 to the northeast, which is approximately 2.5 miles to exit Kent County.

From the MOVES model, truck trips were modeled with Kent County-specific emission factors for “DieselRural Unrestricted AccessCombination Long-haul Trucks,” and employee trips were assumed to have Kent County-specific emission factors for GasolineUrban Unrestricted AccessPassenger Car.” Roadway activity assumptions are shown in **Table 12**.

Table 12. 2026 Roadway Emissions Modeling Assumptions

2026 Forecast	Daily Trips	Annual Trips	Trip Length (miles)	Vehicle Miles Traveled
Long-haul Trucks	77	28,028	19	532,532
Employee Passenger Vehicles	33	12,012	19	228,228

Source: HMMH, based on Draft EA Traffic Study, December 2022.

4.2 Future Air Quality Analysis

This section describes the results of an analysis performed to evaluate the change in air pollutant emissions for the Proposed Action and the potential for the Proposed Action to impact air quality conditions. Operational emission estimates for the No Action Alternative and the Proposed Action are presented, as well as construction emission estimates for the Proposed Action.

4.2.1 Construction Emissions

The demolition and construction associated with the Proposed Action would result in short-term changes in air emissions due to exhaust from offroad construction equipment (e.g., dump trucks, pavers, and forklifts), onroad vehicles (e.g., transport of materials and equipment, and construction employee trips), and fugitive dust sources such as:

- Site preparation,
- Land clearing,
- Material handling,
- Equipment movement on unpaved roads and
- Evaporative emissions from the application of asphalt paving.

Off-road equipment emission factors representative of equipment used in Kent County for 2024 were estimated using MOVES (national average emission factors, as distributed to Kent County using default distribution assumptions). Emission factors in grams per horsepower (hp-hr) for each off-road equipment type were applied to the equipment size (in hp), load factor, and anticipated activity levels (in hours per year) of expected equipment use as generated in in the construction equipment inventory by the Airport Cooperative Research Board's (ACRP) Airport Construction Emissions Inventory Tool (ACEIT)[2]. The ACEIT model has the ability to generate construction schedules for a variety of standard airport construction projects including the associated activity types and the equipment used for this project. The annual emissions for off-road construction equipment were computed using the following equation:

> *Off-road Vehicle Construction emissions (tons per year) = emission factor (grams per hp-hr) x size (hp) x load factor x hours per year x (1 pound/453.6 grams) x (1 ton /2000 pounds)*

Vehicle miles traveled (VMT) data for each on-road employee trip and truck delivery vehicles were derived from round trip distances and the number of employee hours from the activity specific construction schedule. It is assumed that all on-road equipment will use gasoline for passenger vehicles and diesel fuel for truck deliveries. Emission factors in grams per mile (g/mile) for each on-road vehicle type were applied to the anticipated VMT. Similar to the offroad equipment, the latest version of MOVES3 model vehicle data representative of vehicles used in Kent County was used to estimate emissions factors in grams per mile.

The annual emissions for on-road construction equipment and passenger/delivery vehicles were computed for each year using the following equation:

> *On-road construction vehicles emissions (tons per year) = emission factor (g/mile) x annual vehicle miles traveled (VMT) x (1 pound/453.6 grams) x (1 ton/2000 pounds)*

Fugitive dust emissions from site preparation, land clearing, equipment movement on unpaved areas, material handling, along with evaporative emissions from asphalt paving activities, were calculated using USEPA emission factors and included in the total construction emissions. ACEIT default assumptions were used for each activity to estimate fugitive PM and VOC emissions.

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[2] ACRP, 2014 https://crp.trb.org/acrp0267/acrp-report-102-guidance-for-estimating-airport-construction-emissions/

Demolition and construction activities associated with the Proposed Action were assumed to take place wholly in the year 2024. This is a conservative assumption, given that construction could, in fact, spread across more than 12 months. However, for the purposes of this draft EA, a 12-month schedule is evaluated to show a maximum potential impact. The primary construction components of the Proposed Action, including estimated activity costs, area estimates (square feet) are shown in **Table 13.** This information, along with the ACEIT model, were used to estimate the construction equipment schedule for each construction component.

Table 13. Proposed Action Construction and Demolition Components

Construction Component	Estimated Project Costs	Square Footage	Construction Start	Construction End
New Cargo Building	$49.6M	92,000 ft^2	2024	2024
New Multi-Purpose Building	$19.02M	39,300 ft^2	2024	2024
Site Work Utilities	$4.53M	10,000 ft^2	2024	2024
New Parking Area/Access Road	$3.22M	263,424 ft^2	2024	2024
New Truck Apron	$4.72M	174,300 ft^2	2024	2024
New GSE Apron	$27.57	798,812 ft^2	2024	2024
Vehicle Service Road Markings	$0.22	179,472 ft^2	2024	2024
Demolition Noise Wall	$0.13	29,484 ft^2	2024	2024
Construction New Noise Wall	$3.35	30,564 ft^2	2024	2024
Pavement Demolition	$2.40	1,064,880 ft^2	2024	2024

Source: HMMH, based on information provided by AECOM, December 2022

The ACEIT model was used only to provide a schedule of equipment activity in hours or miles. The ACEIT model does have the ability to produce emission factors for construction activities. *However, ACEIT was developed in 2014 using emission factors from an outdated version of MOVES . Therefore, for this analysis, emission factors were generated outside of ACEIT using the current version of MOVES (Version 3.04), which includes on-road and off-road emission factors specific to Kent County.*[3] Off-road emission factors generated in MOVES, using USEPA's NONROAD database, assume the phasing of Tier 1, Tier 2, Tier 3, and Tier 4 engines over time based on USEPA regulations[4]. Construction-related emissions of criteria pollutants during the 2024 construction period are provided in **Table 14.**

Table 14. Construction Emission Inventory - Proposed Action

Year	CO	VOCs[(a)]	NO_2[(a)]	SO_2	PM_{10}	$PM_{2.5}$
2024	29.4	2.08	7.71	0.074	3.04	0.36

Note:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NO_x, and VOCs.

Source: HMMH, based on ACEIT and MOVES results using information provided by AECOM, December 2022

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[3] National average emission factors, as distributed to Kent County using default distribution assumptions, were assumed in this analysis

[4] National average emission factors, as distributed to Kent County using default distribution assumptions, were assumed in this analysis

4.2.2 Operational Emissions (2026)

As described in the methodology section, operational emissions were estimated for the future year (2026) for both the Proposed Action and the No Action Alternative, which are both presented in **Table 15.**

Table 15. 2026 Operational Emissions Inventory of the Forecast No Action and Proposed Action

Source	**CO**	**VOCs[(a)]**	**NO_2[(a)]**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2026 Proposed Action						
Aircraft	326.70	43.38	211.42	20.27	2.02	2.02
APUs	12.48	0.94	8.97	1.31	1.23	1.23
GSE	42.05	1.59	3.80	0.03	0.25	0.23
Roadways	1.53	0.09	2.77	0.00	0.04	0.04
Subtotal 2026 Proposed Action	**382.76**	**46**	**226.96**	**21.61**	**3.54**	**3.52**
2026 No Action						
Aircraft	287.43	29.75	187.27	18.51	1.84	1.84
APUs	12.09	0.90	8.03	1.22	1.14	1.14
GSE	38.77	1.45	3.46	0.03	0.23	0.21
Subtotal 2026 No Action	**338.29**	**32.1**	**198.76**	**19.76**	**3.21**	**3.19**
Net Change	**44.47**	**13.9**	**28.2**	**1.85**	**0.33**	**0.33**

Notes:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NOx and VOCs.

Source: HMMH, December 2022

4.2.3 Impact Analysis

Section 176(c)(4) of the Clean Air Act establishes the General Conformity rule, which ensures that the actions taken by federal agencies do not interfere with a state's plans to attain and maintain national standards for air quality. As a result, the General Conformity Rule requires that the FAA, as a federal agency, must work to ensure that its actions conform to state air quality plans, when those actions would take place in areas that are in nonattainment or maintenance of the NAAQS. General Conformity is defined as demonstrating that a project or action conforms to a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards.

As previously stated, the Airport is located in Kent County, which is designated by the USEPA as in attainment of the NAAQS for all criteria pollutants. Therefore, the General Conformity Rule does not apply in this circumstance. However, the General Conformity *de minimis* level for attainment/maintenance areas, even in an attainment area, is used as a suitable proxy to establish a threshold to determine significant impacts.

Table 16 presents the total emissions associated with demolition and construction of the Proposed Action for 2024 compared with the appropriate *de minimis* thresholds. As the table shows, the total emissions for 2024 would be below established maintenance area designation *de minimis* thresholds for all pollutants and would therefore not result in a significant air quality impact.

Similarly, **Table 17** presents the net change in operational emissions from the implementation of the Proposed Action and compares those emissions changes to the maintenance area designation *de minimis* thresholds for significance determination. As the table shows, the net change would be below established *de minimis* thresholds for all pollutants and therefore the Proposed Action would not result in a significant air quality impact.

Table 16. Construction Emission Inventory Compared to Maintenance Area *De Minimis* Thresholds

Year	CO	VOCs[(a)]	NO_2[(a)]	SO_2	PM_{10}	$PM_{2.5}$
2024	29.4	2.08	7.71	0.074	3.04	0.36
Maintenance area *de minimis* threshold	100	100	100	100	100	100
Emissions below *de minimis* threshold?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Note:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NOx, and VOCs.

Source: HMMH, December 2022

Table 17. Net Change in Operational Emissions Compared to Maintenance Area *De Minimis* Thresholds

Year	CO	VOCs[(a)]	NO_2[(a)]	SO_2	PM_{10}	$PM_{2.5}$
2026	44.47	13.9	28.2	1.85	0.33	0.33
Maintenance area *de minimis* threshold	100	100	100	100	100	100
Emissions below *de minimis* threshold?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Note:

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors, NOx, and VOCs.

Source: HMMH, December 2022

4.3 Mitigation Measures

As indicated above, impacts to air quality with the implementation of the Proposed Action would not exceed the *de minimis* levels that would be imposed if the area were in maintenance of the NAAQS (a conservative threshold given that the Airport is in an area determined by the USEPA to be in attainment of the NAAQS). Therefore, the emissions impacts from the Proposed Action are not considered significant. No mitigation measures are required.

APPENDIX B

Biological Resources

APPENDIX B

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/22/2022

Project #: 73330.00

From: Jeff Peterson, CPSS, PWS, CPESC, ENV SP

Re: Biological Resources
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Biological Resources

In accordance with Federal Aviation Administration (FAA) Order 1050.1F *Environmental Impacts: Policies and Procedures* (also known as the 1050.1F Desk Reference), this section describes the biological resources that are valued for their intrinsic, aesthetic, economic, and recreational qualities and include fish, wildlife, plants, and their respective habitats. It also considers the NEPA regulatory setting which consists of primary statutes, regulations, Executive Orders (EO), and other guidance concerning biological resources.[1]

Regulatory Setting

There are five federal regulatory programs designed to protect biological resources that need to be addressed during the preparation of the Environmental Assessment:

1. Federal Endangered Species Act (ESA)
2. Marine Mammal Protection Act (MMPA)
3. Magnuson-Stevens Fishery Conservation Management Act
4. Bald and Golden Eagle Protection Act
5. Migratory Bird Treaty Act

This Project will not involve any activity that has the potential to harass or otherwise impact marine mammals so no authorization under the MMPA will be sought. Similarly, the Project does not involve work in or near aquatic resources protected by Magnuson-Stevens Fishery Conservation and Management Act therefore coordination with the National Marine Fisheries Service or the Rhode Island Department Marine Fisheries Section will not be necessary.

Federal Endangered Species Act

Coordination with the USFWS under the Federal ESA (50 CFR parts 17 and 402) was initiated by utilizing the Information for Planning and Consultation (IPaC) website.[2] This consultation resulted in the identification of two listed species: northern long-eared bat (*Myotis septentrionalis*), a threatened species, and monarch butterfly (*Danaus plexippus*) a candidate species for protection under the ESA.

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[1] These federal regulatory and guidance items are succinctly summarized by Exhibit 2-1 in the 1050.1F Desk Reference.

[2] https://ipac.ecosphere.fws.gov/ accessed 11/21/2022.

The IPaC-generated verification letter, issued on November 21, 2022, reported that based on the description of the activity provided, *the proposed Action is consistent with the Programmatic Biological Opinion (PBO) of January 5, 2016. The PBO addresses activities excepted from "take" prohibitions applicable to the northern long-eared bat (NLEB) under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.*). This means that even though the Action may affect the NLEB, any take that may occur as a result of the action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). The USFWS has 30 days after issuance of this letter to rescind this determination.

The USFWS reclassified NLEB as Endangered on November 29, 2002, following an order by the U.S. District Court for the District of Columbia to complete a new final listing for NLEB by November 2022. This new classification takes effect on January 30, 2023 and may cause the Project approval provided under the existing Section 4(d) Rule to be vacated. It may become necessary for the project proponent to initiate a new consultation to obtain an Incidental Take Statement for the reclassified species.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (50 CFR part 22) protects these eagles from the unauthorized capture, purchase, or transportation of the birds, their nests, or their eggs There are no known reports for the presence of bald eagle or golden eagle at the Project Area and visits by these species to such an urbanized area would be unusual and not characteristic of these species. The proponent is not recommended to seek additional coordination with the USFWS under this federal regulation.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (50 CFR part 21) protects migratory birds by prohibiting private parties and some federal agencies from intentionally taking, selling, or conducting other activities that would harm migratory birds, their eggs, or active nests unless an approval of such a taking is issued by the under a special permit from the Secretary of the Interior.

Other Executive Orders and Guidance

In addition to the regulatory programs described above, EO 13112*, Invasive Species*, directs federal agencies consider the effects of their actions on invasive species spread and take practical measures to prevent the introduction of invasive species, and to provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. Subsequently EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, amended the earlier EO 13112 to strengthen coordination and cost effectiveness of the federal efforts to prevent and control invasive species.

State Programs

Rhode Island General Laws, 1956, § 20-37-1 to 5 is entitled *Endangered Species of Animal and Plants*. These statues provide legislative policy and definitions related to state endangered species law.

There are no known populations of state endangered species in the Project Area.

FAA Significance Threshold

According to the FAA Desk Reference A significant impact to biological resources would occur when: *The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally listed threatened or endangered species or would result in the destruction or adverse modification of federally-designated critical habitat*. The FAA has not established a significance threshold for non-listed species. The FAA Desk Reference also provides four factors to consider when evaluating potential impacts to biological resources:

- A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, nonnatural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.

Existing Conditions

The site consists mostly of the former long-term parking lot (Lot E) and areas of Field View Drive southwest of the airport (Refer to attached Biological Resources figure). There is an existing sound wall planted in trees and shrubs along with an existing Detention Basin east of Lot E. The paved portions of the Project Area are non-habitat and do not support plant or animal biodiversity. An open park-like woodland has been created proximate to the airfield where houses were demolished after acquisition by the Airport as part of the noise management program. The trees in this woodland are of adequate age and size to provide potential roosting habitat for NLEB, but there are more suitable roosting areas with far less disturbance associated with airport operations in the Three Ponds Brook watershed 3,500 feet west of the Airport and the Buckeye Brook watershed 6,000 feet east and south of the Airport. Nevertheless, the Project will be required to follow protocols recommended by the USFWS consultation.

No critical monarch butterfly habitat has been identified and the Project Area is not likely to include habitat utilized by this species.

The three vegetation cover types present in and around the Project Area are described below.

Grasslands

There are grassed infields in between gaps between the parking lot pavement, roadways, taxiways, and the proximate Runway 5-23. Grasslands cover most of the undeveloped airport and are dominated by warm season grasses including little bluestem (*Schizachyrium scoparium*), poverty grass (*Danthonia spicata*), purple lovegrass (*Eragrostis spectabilis*), Pennsylvania sedge (*Carex pensylvanica*), panic grass (*Panicum* sp.), and sheep fescue (*Festuca ovina*). Common forbs include bracted plantain (*Plantago aristata*), coastal jointed knotweed (*Polygonum articulatum*), rabbit-foot clover (*Trifolium arvense*), poor joe (*Diodia teres*), and partridge pea (*Chamaecrista fasciculata*). Grasslands closest to the runways are mown frequently to maintain grass height between six and eight inches to minimize usage by birds and other potential hazardous wildlife.

Woodlands

Woodlands are present South of Strawberry Field Road and east of Palace Avenue on airport property acquired as part of the noise mitigation program. The vegetation in this area is characterized by cool season turf grasses associated with residential lawns and scattered landscape trees. The grasses were closely mowed and difficult to identify but included fescues (Festuca spp.), bluegrass (*Poa pratensis*), hawkweed (*Hieracium* sp.), English plantain (*Plantago lanceolata*), cypress spurge (*Euphorbia cyparissias*), red clover (*Trifolium pratense*), common dandelion (*Taraxacum officinale*) and other common lawn "weeds". The widely spaced trees include exotic species such as Norway maple (*Acer pseudoplatanus*), Norway spruce (*Picea abies*) and native trees such as silver maple (*Acer saccharinum*) and red maple (*A. rubrum*). This woodland cover type provides foraging habitat for common songbirds such as northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), chipping sparrow (*Spizella passerine*), and mourning dove (*Zenaida macroura*). Small mammals such as eastern gray squirrel (Sciurus carolinensis), chipmunk (*Tamias striatus*), and red-backed vole (*Clethrionomys gapperi*) may also utilize this cover type as habitat. The area is accessible to adjacent residents who utilize this woodland like a park. This limits wildlife diversities to those species which can habituate to high levels of human disturbance.

Sound Wall Thicket

The top of the existing sound barrier east of the Woodlands described above is densely planted with horticultural species such as arborvitae (*Thuja occidentalis*), spruce (*Picea* sp.), birch (*Betula* sp.) and others. This thicket has low plant species diversity because it is dominated by horticultural planting and invasive species such as autumn olive (Elaeagnus umbellata) and Asiatic bittersweet (*Celastrus orbiculatus*). Certain songbirds seek such cover from predators and for nesting. Species such as northern cardinal (*Cardinalis cardinalis*), song sparrow (*Melospiza melodia*), gray catbird (*Dumetella carolinensis*) and other may frequent this cover type. The setting of the thicket next to an airfield limits the diversity of avian species utilizing the cover to those that can habituate to high levels of sound and human disturbance.

Probable Impacts

The project will only convert small areas of marginal urban wildlife habitat to non-habitat including clearing thick shrub cover from a sound barrier that will be relocated further from the airfield and closer to the existing residential neighborhood. No impact is anticipated on individuals of species protected under the Federal ESA, the Bald and Golden Eagle Protection Act, or the local Rhode Island Endangered Species Act. No significant impact to local or regional biodiversity is anticipated to result from the Project.

Mitigation Measures

The development and implementation of an invasive species protection plan could be useful in controlling further spread of these undesirable species. The existing sound barrier is infected with invasive species including autumn olive and Asiatic bittersweet. Herbicide treatment, manual removal or quarantining the soil from this area could minimize the spread of these two aggressive invasive species. If soil is to be reused from this area, a site-specific invasive species management plan should be developed to minimize the risk of further spread.

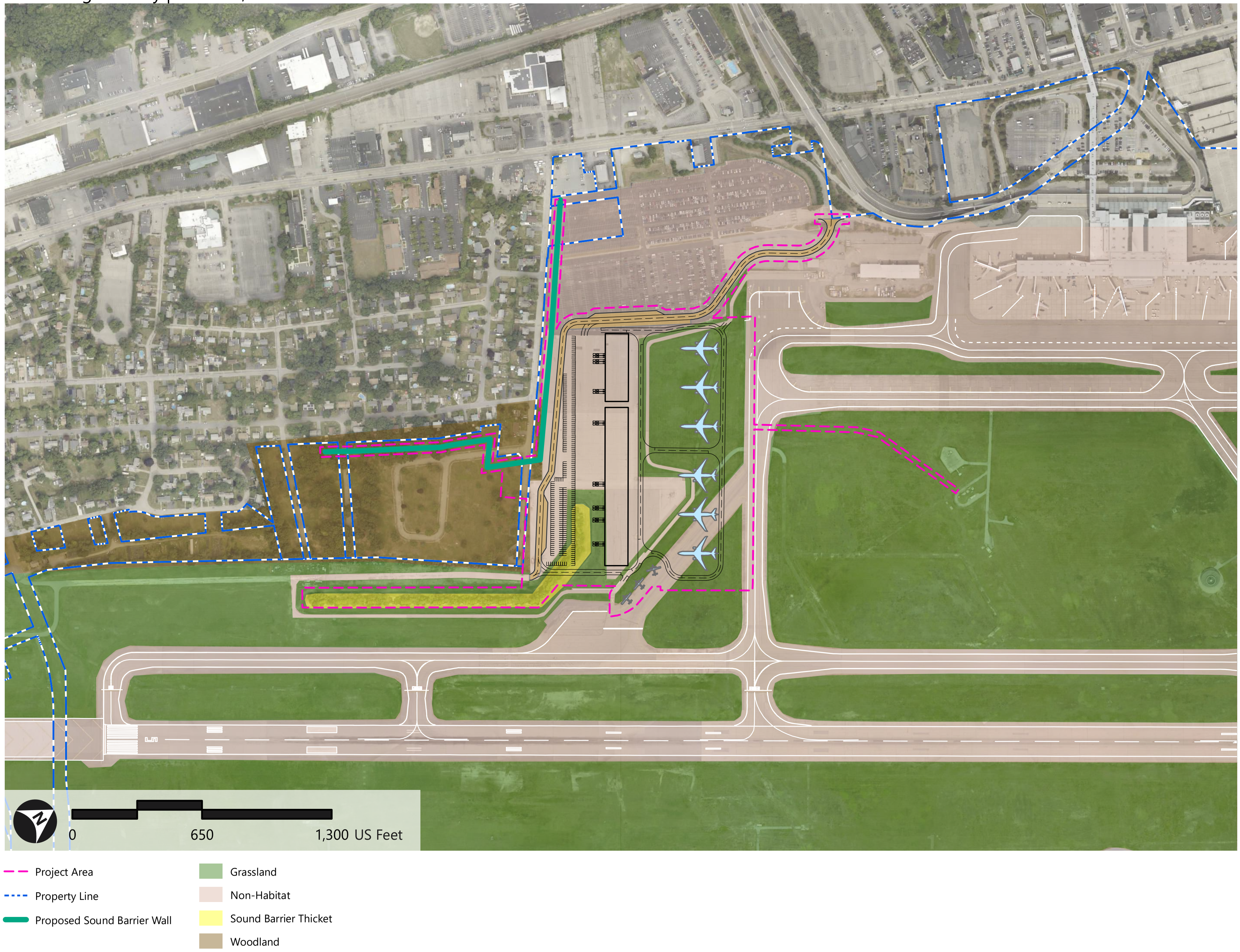
The timing of tree and shrub cutting can also mitigate potential impacts. Cut any necessary trees and the sound barrier thicket outside of the pupping season for NLEB and other bats and nesting season for migratory birds. This guidance for NLEB may need to be revised depending on the new policies developed by the USFWS due to its recent reclassification of as Endangered.

The new sound barrier should replace any lost habitat function provided by the existing thicket that will be removed. The new barrier's position further from the airfield may attract additional species and screen the woodlands from human activity in the adjacent subdivisions.

APPENDIX B

Biological Resources

South Cargo Facility | Warwick, RI



Path: \\vhb\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (zconner, 12/14/2022)

Source: RIGIS, VHB

APPENDIX B

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: November 21, 2022
Project code: 2023-0017140
Project Name: Southside Cargo Development and Associated Projects at Rhode Island T.F. Green International Airport

Subject: Verification letter for the 'Southside Cargo Development and Associated Projects at Rhode Island T.F. Green International Airport' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Jeffrey Peterson:

The U.S. Fish and Wildlife Service (Service) received on November 21, 2022 your effects determination for the 'Southside Cargo Development and Associated Projects at Rhode Island T.F. Green International Airport' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

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[1] Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Southside Cargo Development and Associated Projects at Rhode Island T.F. Green International Airport

2. Description

The following description was provided for the project 'Southside Cargo Development and Associated Projects at Rhode Island T.F. Green International Airport':

> The project site is approximately 45 acres and consists mostly of a former parking lot (Lot E) that was used for long-term parking for the passenger terminal building and also includes vacant land to the south across Strawberry Field Road. Major elements of the project include:
>
> Cargo Building. Construct two single-story warehouse type buildings providing up to 140,000-sf of multi-use space for processing cargo between the airside to the landside quickly and efficiently.
>
> Aircraft Parking Apron. On the airside of the cargo building, provide airfield pavement for parking six cargo freighters (up to MD11s) and three smaller turboprop/commuter type aircraft. Additional apron space is required for ground handling operations associated with aircraft loading and unloading.
>
> Truck Loading Docks. On the landside of the cargo building, provide for the truck-to-building interface with berths for trucks to back-up to the overhead doors that lead directly to the cargo staging areas inside the building.
>
> Access Road and Circulation. Vehicle access/egress would use existing roads and a portion of parking Lot E. Access to the cargo facility would be Post Road (US-1) to Aviation Ave to Evans Ave leading to the project site (egress would be the reverse route). The access road would connect to the truck docks, truck staging area, and employee parking.
>
> Employee Parking. Repurpose a portion of the existing surface parking lot for airline employees and visitors.
> Truck Parking/Staging Area. Repurpose a portion of the existing surface parking lot for trucks to safely park and wait their turn for loading dock assignment at the cargo building.
>
> Noise/Visual Barrier System. The project also includes construction of a new noise/visual barrier system to replace the existing barrier wall that would be removed. The existing barrier consists of a landscaped earthen embankment planted with trees and shrubs that provide for visual screening and noise reduction

for residences south of Strawberry Field Road. The proposed barrier system would be lengthened and moved closer to the residential area, but the structure would remain on airport property.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.7182447,-71.4374816155648,14z

Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

   No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

    No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type ‘0’ in questions 1-3.

1. Estimated total acres of forest conversion:

0.1

2. If known, estimated acres of forest conversion from April 1 to October 31

0.1

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type ‘0’ in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type ‘0’ in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type ‘0’ in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: Rhode Island Department of Transportation
Name: Jeffrey Peterson
Address: 1 Cedar Street, Suite 400
City: Providence
State: RI
Zip: 02903
Email jpeterson@vhb.com
Phone: 4012728100

Lead Agency Contact Information

Lead Agency: Federal Aviation Administration
Name: Jessica Damicis
Email: jdamicis@pvdairport.com
Phone: 4016912486

APPENDIX C

Climate

APPENDIX C

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/19/2022

Project #: 73330.00

From: Donny Goris-Kolb, AICP, Senior Sustainability Planner

Re: Climate
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Climate

In the *1050.1F Desk Reference*, the Federal Aviation Administration (FAA) acknowledges the potential incremental atmospheric impacts caused by aviation through the generation of greenhouse gas (GHG) emissions—typically computed for carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), with totals expressed in CO_2-equivalents (CO_2e). In doing so, the FAA discusses the importance of reducing GHG emissions to minimize increasing climate hazards and related risks.

The following sections describe the applicable regulatory setting as well as the applicable FAA significance thresholds under the National Environmental Policy Act (NEPA). Specific to the project, this technical memorandum details existing conditions, environmental consequences, and proposed mitigation measures, as appropriate.

Note that the consumption of fossil fuels is covered under the Natural Resources and Energy Supplies environmental impact category.

Regulatory Setting

Related to this environmental category, the Clean Air Act (CAA) and its subsequent amendments regulate GHG emissions both from stationary power sources (e.g., boilers and emergency generators) and mobile sources (e.g., on-road surface transportation). Executive Order (EO) 14008, *Tackling the Climate Crisis at Home and Abroad*, among other requirements, requires federal agencies to leverage federal procurements to support climate action and lead by example. EO 13990, *Climate Crisis; Efforts to Protect Public Health and Environment and Restore Science*, directs federal agencies to review, and take action to address, federal regulations promulgated, and other actions taken during the Trump administration (2017 to 2021) that conflict with national objectives such as ensuring access to clean air and water and reducing GHG emissions, among other public health and environmental concerns. Implementing instructions from the Council on Environmental Quality (CEQ) are pending.

EO 14008 also requires all federal agencies to complete a climate action plan. In November 2021, the FAA released the *Aviation Climate Action Plan*, which provides a policy framework for whole-of-government GHG emissions reduction within the aviation sector. The FAA's vision for decreased emissions centers on a number of key initiatives, including but not limited to, "the introduction of new, more efficient aircraft by airlines into their operational fleets and retirement of older, less efficient aircraft" and "advancements in airport operations across the United States."[1]

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[1] FAA. (2021). *2021 Aviation Climate Action Plan*. Retrieved from https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf.

At the state level, the Resilient Rhode Island Act of 2014 (RIGL §46-6.2-2) established the Executive Climate Change Coordinating Council and provided for specific GHG emissions reduction targets, in addition to mandating consideration of climate change impacts in state agency operations and decision-making. The emissions targets include a reduction of CO_2e to ten percent below 1990 levels by 2020, 45 percent by 2035, and 80 percent by 2050.

Resilient Rhody (2018) is Rhode Island's first comprehensive climate resilience action strategy. This plan puts forth actions to better prepare the state for increasing climate hazards. It provides an overview of Rhode Island's changing climate.[2]

FAA Significance Threshold

The FAA has not established a significance threshold for climate. Further, the FAA has not provided specific factors to consider in making a significance determination.

Existing Conditions

GHG Emissions

Typical sources of GHG emissions at airports are broken down and reported by scope:

- Scope 1/Direct: GHG emissions from sources that are owned and controlled by the reporting entity (in this case, the Rhode Island Airport Corporation [RIAC]). These include on-airport owned and controlled stationary power sources, as well as airport-owned ground support equipment and fleet motor vehicles.
- Scope 2/Indirect: GHG emissions associated with the generation of electricity consumed by the reporting entity.
- Scope 3/Indirect and Optional: GHG emissions associated with the activities of the reporting entity but that occur at sources owned and controlled by others. These include aircraft-related emissions, emissions from airport tenants' activities, as well as ground transportation to and from the airport.

RIAC conducts an annual air emissions inventory that, in addition to the U.S. Environmental Protection Agency "criteria pollutants" (and their precursors), reports on GHG emissions associated with Airport-related activities. Based on these inventories, Scopes 1 and 2 combined typically comprise approximately 2 percent or less of total Airport emissions, while Scope 3 comprises the remainder. Scope 3 emissions sources of aircraft and off-Airport motor vehicles are the largest contributors of GHG emissions associated with operations at T.F. Green International Airport. **Table 1** provides GHG emissions estimates at the Airport by scope from 2017 to 2021. Demonstrated reductions in GHG emissions after 2019 are largely due to reduced operations as a result of the COVID-19 pandemic.

To place the Airport's GHG emissions in context, based on the latest reporting year for statewide GHG emissions, total gross GHG emissions in Rhode Island were about 10.8 million $MTCO_2e$ in 2019.[3] The Airport's GHG emissions comprised nearly 3 percent of the statewide emissions for that year.

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[2] Rhode Island. (2018). *Resilient Rhody*. https://climatechange.ri.gov/sites/g/files/xkgbur481/files/documents/resilientrhody18.pdf.

[3] Rhode Island Department of Environmental Protection. (2022). 2019 Rhode Island - Greenhouse Gas Emissions Inventory. https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-12/ridem-ghg-inventory-2019.pdf.

Table 1 – Greenhouse Gas Emissions at T.F. Green International Airport

Scope	Source	Metric Tons Carbon Dioxide Equivalents (MT CO_2e)				
		2017	**2018**	**2019**	**2020**	**2021**
Scope 1	Ground Service Vehicles	505	457	493	361	361
	Stationary	1,218	1,157	1,146	959	923
	Refrigerants	<1	<1	<1	<1	<1
Scope 2	Electricity (Airport)	2,261	4,262	4,289	3,348	3,085
Subtotal – Scopes 1 and 2		**3,984**	**5,877**	**5,929**	**4,668**	**4,369**
Scope 3	Aircraft	295,623	322,307	279,959	56,656	194,776
	Auxiliary Power Units	848	NA	1,690	862	640
	Ground Support Equipment	1,086	1,312	1,197	636	704
	Motor Vehicles	42,128	46,122	43,114	7,740	11,511
	Electricity (Tenant)	93	176	177	138	127
	Stationary	NA	287	314	298	296
	Waste Management Practices	(672)	(732)	(715)	(229)	(70)
Subtotal – Scope 3		**339,106**	**369,472**	**325,736**	**66,101**	**207,984**
Grand Total		**343,762**	**375,349**	**331,665**	**70,769**	**212,352**

Climate Adaptation

As a result of climate change, Rhode Island should expect to experience warmer air and water temperatures, more extreme weather events (e.g., droughts), more intense precipitation, more frequent and severe storms and flooding, increasing rates of sea level rise, shorter winters and longer summers, and less snowfall and ice coverage.[4] These climate hazards pose risks to the state's people, economy, and natural resources. They also have implications for the state's infrastructure, including buildings and facilities, runways and pavements, and water and wastewater treatment systems.

Specific to the project site, a review of FEMA's National Flood Hazard Layer revealed no flood hazard information indicating flood risk.[5] Further, a review of *Rhode Island Sea Level Rise: Impacts on Transportation Assets* revealed no expected sea level rise inundation.[6]

RIAC incorporates climate hazards and associated risks in its capital project planning. As part of the T.F. Green Airport Runway 5-23 extension, for example, it considered potential flooding that could result in infrastructure erosion, heat waves that could necessitate additional runway length due to altered operating conditions for aircraft, and energy outages that could negatively impact critical airfield lighting, signage, and navigational aids. To mitigate these concerns, RIAC incorporated design strategies, such as reducing the project's impervious areas and replacing energy system components that were at the end of their useful life.

Probable Impacts

Construction and operation of the project will increase GHG emissions at the Airport compared to the No-Action Alternative; however, such increases are expected to minimal compared to the Airport's overall emissions – and even more so compared to statewide emissions. Construction related trucks trips to and from the Airport, as well as the use of construction equipment on the project site, will consume fossil fuel-based energy sources (e.g., gasoline and diesel). Operationally, the cargo building will consume natural gas for space conditioning and water heating and electricity to power its building and lighting systems; a standby emergency generator (diesel, propane, or natural gas) will support continuity of operations. Electricity will also be consumed by lighting and security systems at the aircraft parking apron (i.e., lighting), access road and associated circulation, employee parking area, and the truck parking/stage area. Additional employee commuting will increase gasoline consumption. Increased operations of cargo freighters and general aviation-based aircraft will result in additional Jet-"A" consumption.

Mitigation Measures

As there are no significant climate impacts under NEPA, mitigation measures are not required. However, RIAC will avoid construction-related GHG emissions by encouraging the installation of criteria pollutant emission control devices on certain construction vehicles and equipment (e.g., front-end loaders, backhoes, excavators, cranes, and air compressors). These devices also have the potential to reduce fuel consumption and, in turn, GHG emissions. RIAC will

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[4] Rhode Island. (2022). *Climate Change - Climate Sciences*. Retrieved from https://climatechange.ri.gov/climate-sciences.

[5] FEMA. (2021). National Flood Hazard Layer. Retrieved from https://www.fema.gov/flood-maps/national-flood-hazard-layer.

[6] Rhode Island. (2022). Rhode Island Sea Level Rise: Impacts on Transportation Assets. https://ridoa.maps.arcgis.com/apps/mapviewer/index.html?webmap=66285526ea454e0a8e6c110128780733.

also encourage the use of construction materials with recycled content to minimize raw material demand, which would reduce upstream (embodied) carbon emissions.

Operationally, RIAC will encourage the tenant/developer to reduce vehicle idling through on-site anti-idling signage at loading and waiting areas. It will also encourage the incorporation of energy efficient systems, such as heat pumps and light emitting diodes (LED) fixtures, as well as water efficient fixtures and equipment.

As appropriate, RIAC will encourage the incorporation of resilient design strategies. Examples include reducing impervious areas or replacing those areas with pervious systems where feasible to reduce localized flooding, and installing redundant power sources (i.e., generators) capable of providing power to critical systems during grid power loss.

APPENDIX D

Coastal Resources

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 1/3/2023

Project #: 73330.00

From: Jeff Peterson, CPSS, PWS, CPESC, ENV SP

Re: Coastal Resources
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Coastal Resources

In accordance with Federal Aviation Administration (FAA) Order 1050.1F Environmental Impacts: Policies and Procedures (also known as the 1050.1F Desk Reference), this section describes the coastal resources within the Project Area protected under the Coastal Barrier Resources Act (16 U.S.C. § 3501 et seq), the Coastal Zone Management Act (16 U.S.C. § 1451-1466), and the National Marine Sanctuaries Act (16 U.S.C. § 1431 et seq.) These Orders require that the FAA follow procedures for ensuring that a proposed action is consistent with approved coastal zone management programs.

Regulatory Setting

Coastal zone analyses are conducted in accordance with applicable FAA guidance; National Oceanic and Atmospheric Administration (NOAA) regulations (15 CFR Part 930, Subparts C, D and F); the Coastal Zone Management Act (CZMA) of 1972; and the Rhode Island Coastal Resources Management Plan (CRMP, codified as 650-RICR-20-00-1) established pursuant to R.I.G.L. 46-23-1 et seq. The Coastal Zone Management Act is administered through the Coastal Zone Management Program (CZMP) under the NOAA Office of Ocean and Coastal Resource Management. In Rhode Island, the routine management of the CZMP is delegated to the Rhode Island Coastal Resources Management Council (RICRMC). FAA is also required to comply with Executive Order 13547 Stewardship of the Ocean, our Coasts, and the Great Lakes Executive Order 13089, Coral Reef Protection.

Rhode Island Coastal Management Plan

Under the CZMP the entire state of Rhode Island is within the Coastal Zone. The CZMP is administered in Rhode Island by the RICRMC through the CRMP. The CRMP has direct jurisdiction over tidal waters that extends landward from the territorial sea limit three miles off-shore (State waters) and includes upland and wetland areas within 200 feet of the most landward coastal (or shoreline) feature, including coastal wetlands, and extends inland along rivers to the limits of tidal influence. The landward limit of RICRMC jurisdiction 200 feet from the shoreline feature is called the contiguous area. In addition, the RICRMC is provided jurisdiction over specific activities within all upland areas that have the potential to impact tidal waters of Rhode Island, including power-generating plants (excluding facilities of less than a 40-megawatt capacity); petroleum storage facilities (excluding those of less than a 2,400-barrel capacity); chemical or petroleum processing; minerals extraction; sewage treatment and disposal facilities (excluding individual sewage disposal systems); solid waste disposal facilities; and desalination plants. This list of activities does not include airports.

Additionally, RICRMC coastal zone management policies are extended to include those areas within the watershed boundaries of certain coastal estuaries, along beach fronts, specific urban areas and into federal waters. These areas have special regulations and policies under Special Area Management Plans (SAMPs). To date, the RICRMP has published seven SAMPs including Greenwich Bay. The Greenwich Bay SAMP (650-RICR-20-00-6) provides regulations and guidance (Rule 6.4 et seq.) for development in the 21-square mile watershed in Warwick, East Greenwich and West Warwick (See attached Coastal Resources figure for the portion of the Airport with this SAMP). The program focuses on reducing the load of bacterial contamination and nutrient and pesticide levels reaching the bay.

Coastal Barriers

The purpose of the Coastal Barrier Resources Act (CBRA) is to provide for the appropriate use and conservation of coastal barriers along the Atlantic, Gulf, and Great Lakes coastlines.

The CBRA defines "undeveloped coastal barriers" as geological features including bay barriers, barrier islands, and other associated aquatic resources including wetlands, marshes, and estuaries that protect landward aquatic habitats from the detrimental effects of direct wind and wave action. Barriers have been found to provide essential habitats for wildlife and marine life, natural storm buffer zones, and areas of scientific, recreational, historic, and archaeological significance.

Under the CBRA, the United States Fish and Wildlife Service (USFWS) was tasked with the preparation of maps depicting areas designated for protection. The John H. Chafee Coastal Barrier Resource System (CBRS) includes all areas designated for protection under the CBRA.

Other Executive Orders and Guidance

The FAA is also required to comply with Executive Order 13547 Stewardship of the Ocean, our Coasts, and the Great Lakes and Executive Order 13089, Coral Reef Protection.

FAA Significance Threshold

According to the FAA Desk Reference: The FAA has not established significance thresholds for coastal resources but has identified factors to consider. These factors consist of activities that would:

- Be inconsistent with the relevant state coastal zone management plan(s);
- Impact a coastal barrier resources system unit (and the degree to which the resource would be impacted);
- Pose an impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- Cause an unacceptable risk to human safety or property; or
- Cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.

The Project does not include any activities that would adversely affect the factors listed above.

Existing Conditions

The Project Area consists mostly of former long-term parking lot (Lot E) and areas of woodland along Field View Drive southwest of the airport where houses were removed as part of the airports sound mitigation program. There is an existing sound wall along with an existing Detention Basin east of Lot E.

A southernmost portion of the Project Area is depicted within the watershed of Greenwich Bay. However, based on the network of closed drainage systems on the Airport, only a small portion of the stormwater generated and treated in the Project Area reaches Greenwich Bay in surface waters via Tuscatucket Brook.

The Project Area is outside of CRMC direct jurisdiction and conforms to all of the Greenwich Bay SAMP rules.[1] While the Project Area is outside of CRMC direct jurisdiction, the project should be designed consistent with the Greenwich Bay SAMP policies to maintain Federal Consistency with the CZMP.

The activities proposed for the South Cargo Facility were included in the T. F. Green Airport Improvement Program EIS which received a CZM Consistency Determination from the RICRMC. The CRMC determination is an attachment to this Environmental Assessment.

Neither the Project Area nor the Study Area contains any coastal barriers mapped in the John H. Chafee CBRS.

No work is proposed in the vicinity of the ocean or the coast and while temperate coral species are present in Rhode Island waters they do not form reefs. Executive Order 13547 Stewardship of the Ocean, our Coasts, and the Great Lakes and Executive Order 13089, Coral Reef Protection do not apply to this Project.

Probable Impacts

The Project will not conduct any activities within the direct jurisdiction of the CRMC. Indirect impacts in the coastal zone would be limited to air quality, noise, and water quality and found not to involve significant impacts.

Mitigation Measures

The project includes sound and water quality mitigation measures that are protective of the existing functions and values provided by Greenwich Bay and other coastal resources present in the vicinity of the project. The project avoids any activity that could directly affect coastal resources.

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[1] Rule 6.4.1 regarding Coastal Buffer Zones, Rule 6.4.2 Shoreline Features, Rule 6.4.3 Areas of Historic and Archeological Significance, 6.4.4 In Tidal and Coastal Pond Waters, On Shoreline Features and Their Contiguous Areas, 6.4.5 Protection & Enhancement of Public Access to the Shore, and 6.4.6 Natural Hazard Mitigation, Rule 6.4.7 Pest Management and Fertilizer Uses on Golf Courses and Public Properties

APPENDIX D

COASTAL RESOURCES MANAGEMENT COUNCIL

State of Rhode Island
Coastal Resources Management Council

MEMORANDUM

To: Grover Fugate, CRMC Executive Director

From: James Boyd, CRMC Coastal Policy Analyst James Boyd

Date: May 8, 2012

Re: T.F. Green Airport Improvement Program – Staff Findings and Recommendation for Coastal Zone Management Federal Consistency Review; CRMC File 2012-01-027

Introduction

The Rhode Island Airport Corporation (RIAC) has proposed the T.F. Green Airport Improvement Program project located within the City of Warwick and described in the Final Environmental Impact Statement (FEIS) issued by the Federal Aviation Administration (FAA) in July 2011. The FAA subsequently issued a Record of Decision (ROD) on September 23, 2011 based upon the FEIS and all relevant documentation comprising the entire Environmental Impact Statement record. Based upon its review the FAA selected Alternative B4 as the preferred Airport Improvement Program project (hereafter referred to as the Project). The Project is shown below in Figure 2-1 obtained from the ROD.

The improvements of the Project consist primarily of extending Runway 5-23 approximately 1530 feet south for a total runway length of 8700 feet and the relocation of Main Avenue to the south to facilitate the extension at the Runway 5 end. In addition, Runway 16-34 safety enhancements will require a partial relocation of Airport Road 100 feet north of the current intersection with Post Road to accommodate the installation of engineered materials arresting system (EMAS). EMAS will also be installed at the Runway 5 end to reduce the degree of relocation needed for Main Avenue. The safety improvements to the Runway 34 end, which include EMAS, necessitate the placement of fill material into approximately 5.0 acres of freshwater wetlands that form the headwaters for Buckeye Brook. The proposed wetland fill activity triggers both federal (USACE) and state (RIDEM) wetland permit requirements.

The RIAC filed a federal Section 404 permit application with the U.S. Army Corps of Engineers (USACE) in July 2011 to alter and fill approximately 5.0 acres of federal jurisdictional wetlands and waterways located within the Project area at the Runway 34 end. Consequently, the Project is subject to CRMC Federal Consistency review authority pursuant to the federal Coastal Zone Management Act (CZMA), 16 USC §§ 1451-1464, and the CZMA's implementing regulations at 15 CFR Part 930 Subpart D. After filing the USACE application, the RIAC then filed a federal consistency certification with the USACE for the Project pursuant to 15 CFR Part 930 Subpart D and furnished same to the Coastal Resources Management Council (CRMC).

The CRMC as the State's authorized coastal zone management agency must make a determination as to whether the proposed T.F. Green Airport Improvement Program project complies with and will be conducted in a manner consistent with the enforceable policies of the State's coastal program. The CRMC issued a public notice on January 24, 2012 that was published in the Providence Journal inviting interested parties to submit written comments no later than February 29, 2012 as to whether the project is consistent with the enforceable policies of the Rhode Island coastal resources management program. The CRMC received comments from the City of Warwick and from Richard Langseth, and prepared a response document.

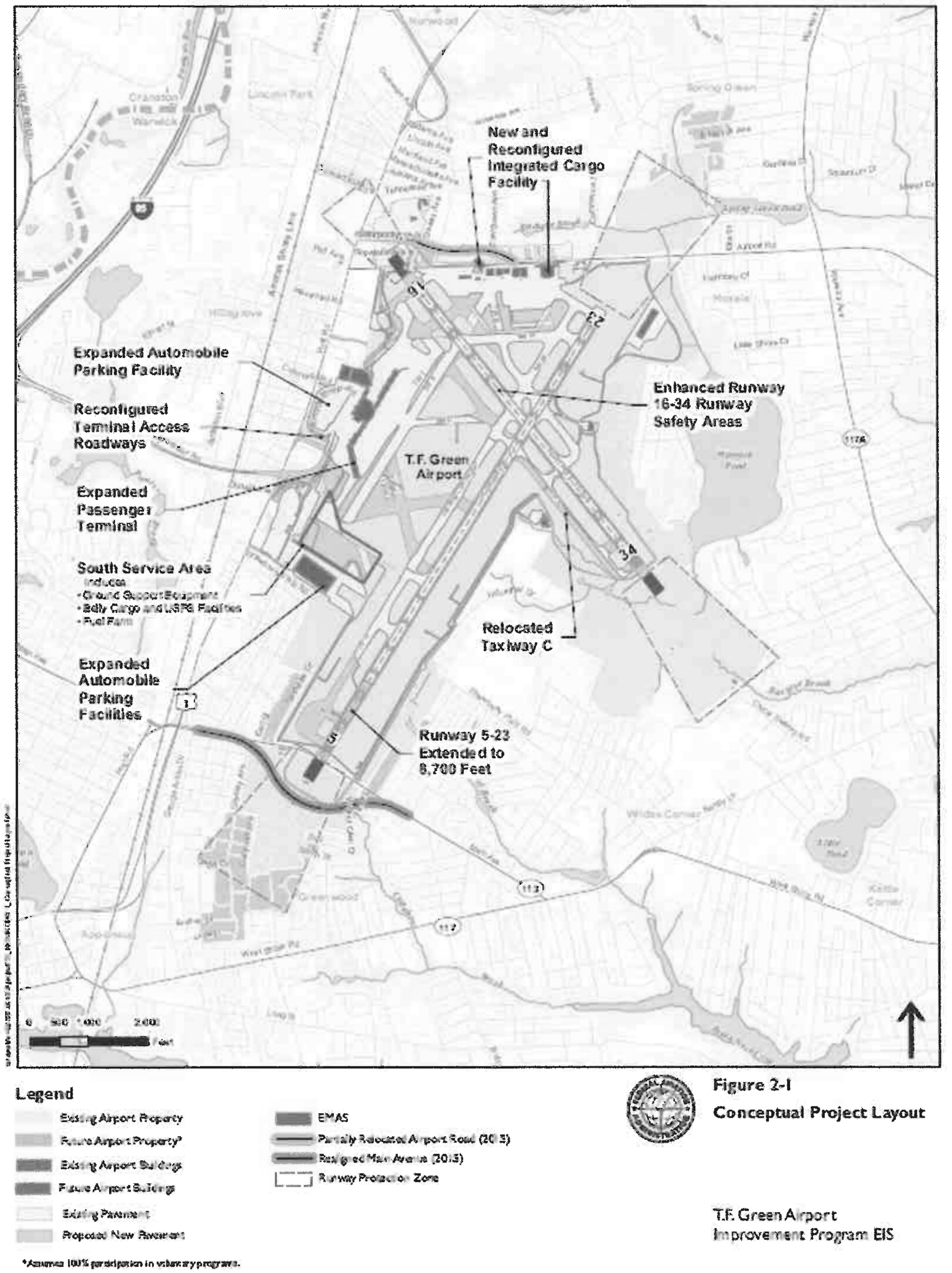


Figure 2-1
Conceptual Project Layout

Project Background and History

The RIAC is proposing an improvement program for T.F. Green Airport, the purpose of which is to provide facilities that would conform to current FAA airport design standards to enhance airport safety and the efficiency of the Airport, as well as the New England Regional Airport System, to more fully meet the current and anticipated demand for aviation services. The T.F. Green Airport Improvement Program evaluated in the FEIS includes safety projects (enhancement of Runway 16-34 Runway Safety Areas (RSAs); removal of Hangar No. 1; relocation of Taxiway C) and efficiency projects (extend Runway 5-23; expand passenger terminal and parking facilities; construct new ground support equipment facilities, new belly cargo facility and new fuel farm facilities; construct a new Integrated Cargo Facility; and reconfigure terminal access roadways). See FEIS at 1-1.

Based on its review of the proposed T.F. Green Airport Improvement Program the FAA in compliance with the National Environmental Policy Act (NEPA) determined that a Draft Environmental Impact Statement (DEIS) was necessary due to the potential for significant environmental impacts. The NEPA process and DEIS was initiated in 2002 and then re-initiated in 2005 after consideration of long-term airport operations. The DEIS was completed and filed in July 2010 and the Final Environmental Impact Statement was issued by the FAA in July 2011. The FAA then issued a Record of Decision (ROD) on September 23, 2011 based upon the FEIS and all relevant documentation comprising the EIS record. As noted in the ROD, the FAA selected Alternative B4 as the preferred Airport Improvement Program project. See ROD at 1.

In November 2011 the Warwick City Council filed an appeal of the FAA ROD with the U.S. Circuit Court of Appeals for the District of Columbia. In the interim, the Warwick City Council and the RIAC have entered into preliminary terms of an agreement and have prepared a draft Memorandum of Understanding (MOU) that when finalized and executed by the parties would result in the withdrawal of the City's appeal of the ROD. In a letter dated April 6, 2012 the FAA advised the RIAC that it approves of the terms and conditions of the MOU. As part of the MOU the RIAC agrees, among other items, to fund water quality monitoring in area streams and water bodies that may be impacted by activities at the airport.

Basis for CRMC Jurisdiction

The Project is located within a coastal community, the City of Warwick, but does not involve any construction activity or alterations within tidal waters of the state or on a coastal shoreline feature or its 200-foot contiguous area. The alteration of freshwater wetlands associated with the Project does not involve freshwater wetlands in the vicinity of the coast. **Therefore, the CRMC will not be issuing a State Assent for the proposed Project**. The southern portion of the Project area, however, namely the improvements associated with the extension of Runway 5 and the relocation of Main Avenue, lie within the Greenwich Bay watershed. The CRMC and RIDEM freshwater wetlands jurisdictional areas and the extent of the Project within the Greenwich Bay watershed are shown below in Figure 4-32 obtained from the FEIS. State jurisdiction for freshwater wetland alterations associated with the Project fall under the exclusive jurisdiction of the RIDEM. However, because the Project is located within a coastal community and a federal Section 404 permit is required, the CRMC has consistency review authority in this matter pursuant to the CZMA and its implementing regulations at 15 CFR Part 930 Subpart D.

APPENDIX D

Legend

▭ No-Action Airport Property Boundary (2015)
▬ ▬ Project Area
▬ ▬ Study Area
■ Airport Buildings
▬ ▬ Municipal Boundary
▭ Greenwich Bay Watershed
▨ Coastal Resources Management Council Greenwich Bay Special Area Management Plan (SAMP)
▬ ▬ Limit of CRMC Wetland Jurisdiction

Figure 4-32
RI CRMC Jurisdictional Areas

T.F. Green Airport
Improvement Program EIS

Source: Coastal Barrier Resources System, U.S. Fish and Wildlife Service 1990; Watersheds (RIGIS 2003); CRMC (Coastal Resources Management Council Special Area Management Plan for Greenwich Bay Watershed 2005); Limit of CRMC Wetland Jurisdiction ([illegible] 2007)

Requirements for Project Consistency with the CZM Program

As noted above, the Project requires a federal permit, the USACE Section 404 permit, which is one of the federal permits listed in Table 2 of the CRMC's Federal Consistency Manual. Accordingly, the Project is subject to Subpart D of the CZMA's implementing regulations for federal consistency, which contains provisions "to ensure that any required federal license or permit activity affecting any coastal use or resource is conducted in a manner consistent with the approved management program." See 15 CFR § 930.50.

In accordance with the federal requirements of 15 CFR § 930.57(b), RIAC submitted a letter to the USACE stating that "after duly assessing impacts associated with the Improvement Program through the EIS process, and understanding the enforceable policies of state and federal regulatory agencies having permitting authority over the Improvement Program, RIAC hereby certifies that the T.F. Green Airport Improvement Program complies with the enforceable policies of Rhode Island's approved Coastal Zone Management Program, and will be conducted in a manner consistent with such program." See RIAC letter to USACE dated November 22, 2011 at 2.

Findings

The Staff findings herein pertain to a discussion of the enforceable policy provisions of the RI Coastal Resources Management Plan that are applicable to the Project. The Greenwich Bay Special Area Management Plan (SAMP) was adopted by the CRMC in May 2005 and was federally approved by NOAA in August 2007, and thence became part of the State's approved Coastal Zone Management Program. The SAMP contains five key primary goals for Greenwich Bay that are articulated in Section 120. And, within each of the five goal sections an associated table lists priority actions intended to achieve the specified SAMP goal. In this matter, two of the SAMP goals and their applicable priority actions specifically pertain to the T.F. Green Airport expansion proposal. As noted in the RIAC consistency certification letter, the CRMC had previously advised RIAC of the two specific applicable sections within the Greenwich Bay SAMP that the Project must comply with as follows.

Section 390.5B.5 is a priority action to meet the Greenwich Bay SAMP goal 120.3 - Maintain high quality fish and wildlife habitat in the Greenwich Bay watershed. The priority action pertaining specifically to the airport reads as follows:

> The Rhode Island Airport Corporation should examine the impacts from any expansion proposal on Greenwich Bay's tidal and freshwater wetlands and mitigate for any impacts within the watershed. Due to surficial geology and potential groundwater flow impacts from the airport may extend beyond the surface watershed.

As detailed within the FEIS, there are no direct impacts (*i.e.*, alteration of or fill material placed within) to any coastal or freshwater wetlands ***within*** the Greenwich Bay watershed as a result of the Project. However, approximately 5.0 acres of freshwater wetland alterations are necessary to construct the Project and are located at the Runway 34 end, which is located within RIDEM freshwater wetland jurisdiction and the watershed of Buckeye Brook (see Figure 4-32). Nevertheless, in accordance with federal and state requirements, mitigation is proposed to offset the significant wetland impacts. As stated within the ROD, "the Wetland Working Group developed a conceptual mitigation program to offset the unavoidable significant impacts that construction of the Project would cause to 5.0 acres of federally-regulated wetlands and waterways. In accordance with federal policies and RIDEM requirements, this program includes a recommended minimum equivalent of 10.2 acres of wetland restoration and creation." See ROD at 61. In addition, the "FAA finds that there is no practicable alternative to the Project's construction in or around 5.0 acres of wetlands. The Project's mitigation plan includes all practicable measures to minimize harm to wetlands that may result from this direct effect. This Project complies with Executive Order 11990 and DOT Order 5660.1A." *Id.*

As to potential groundwater impacts from the Project, the FEIS examines this issue within Section 5.17 - Hazardous Materials, Pollution Prevention, and Solid Waste, and concludes that none of the alternatives "will result in the generation of additional hazardous materials or solid waste. Alternatives B2 and B4 (the Project) would result in an overall net benefit related to hazardous materials and solid waste because RIAC would close and remediate known or previously unidentified USTs (underground storage tanks) impacted by program elements as part of the demolition activity. Demolition debris from the structures on acquired land would be disposed of at an appropriately licensed landfill." See FEIS at 5-267. In addition, Section 10.12 of the ROD states that there "are no significant impacts of the Project relative to hazardous materials, solid waste, or pollution prevention and, therefore, no mitigation is required. The Project, however, will require the removal of seven underground storage tanks (USTs). The USTs will be removed and the Project will be constructed in accordance with applicable local, state, and federal laws and regulations concerning hazardous or solid waste management." See ROD at 52. And, the ROD states that appropriate mitigation in accordance with all applicable regulations will be undertaken if any contaminated soil or groundwater is encountered during construction of the Project. *Id.* at 53. Moreover, RIAC operations are in compliance with RIDEM *Rules and Regulations for Hazardous Waste Management*. See FEIS at 4-73.

Based on these facts, there are no direct impacts to Greenwich Bay's tidal and freshwater wetlands as a result of the Project. Additionally, the proposed remediation of known or previously identified USTs and hazardous materials discovered during construction of the Project and compliance with state rules governing hazardous wastes will protect local groundwater resources. There are, however, potential indirect impacts from the Project to tidal and freshwater wetlands within the Greenwich Bay watershed, namely due to stormwater discharges to Tuscatucket Brook, which empties into Brushneck Cove. These potential impacts and the proposed mitigation actions for the Project are detailed in the findings below in regard to water quality.

Section 470.5B.17 is a priority action to meet the Greenwich Bay SAMP goal 120.2 - Improve Greenwich Bay's water quality so that it is a safe place to fish and swim. The priority action pertaining specifically to the airport reads as follows:

> The Rhode Island Airport Corporation should examine impacts from any expansion proposal on Greenwich Bay water quality, including the effects on stormwater runoff volume and quality and groundwater flow. Based on surficial geologic maps (See Appendix C) and potential groundwater flow, airport activities outside the watershed could affect Greenwich Bay water quality. Any expansion plans should address the use of BMPs that:

- Reduce nitrogen and bacteria concentrations
- Eliminate from reaching surface or groundwater other pollutants used at the airport, such as deicing chemicals
- Provide for a reduction in runoff volume and increase in water quality

The FEIS examines potential water quality impacts from the Project in Section 5.11 and includes an analysis of cumulative water quality impacts in Section 5.11.6. The FEIS indicates that there would be no significant water quality impacts and specifically states that the "Project will be designed to meet water quality standards. Stormwater management systems will be designed (during the final design stage) to meet stormwater standards, mitigating the impacts resulting from increases to impervious surfaces from either Alternative B2 or B4. Alternative B2 and B4 would each decrease roadway and parking areas in the Tuscatucket Brook, and Brush Neck Cove watersheds, thereby decreasing potential pollutants entering downstream waterbodies." See FEIS at 5-210.

The Project will be required to meet the standards of the recently revised *Rhode Island Stormwater Design and Installation Standards Manual*, which includes using best management practices (BMPs) that reduce pollutants in stormwater runoff. Standard 3.2.3 of the state stormwater manual requires BMPS to achieve the following minimum average pollutant removal efficiencies: 85% removal of total suspended solids (TSS), 60% removal of pathogens, 30% removal of total phosphorus (TP) for discharges to freshwater systems, and 30% removal of total nitrogen (TN) for discharges to saltwater or tidal systems. According to the FEIS in Appendix A, a conceptual design for the stormwater management system was completed to evaluate the initial size and potential location for BMPs for the Project to meet the stormwater manual requirements. A more detailed analysis and design will be completed in preparation for submitting applications to the RIDEM RIPDES and RIDEM Freshwater Wetlands programs for compliance with Standard 3.2.3 of the state stormwater manual. See FEIS Appendix A at A-41. Potential stormwater BMP locations for the Project are shown in Figure 5-43 of the FEIS.

An analysis of pollutant loads for the No-action Alternative and the Project (Alternative B4) was completed in Section 5.11 of the FEIS. Potential average annual pollutant loads were calculated using Schueler's (1987) Simple Method without the removal expected from the installation of BMPs. Table 5-111 shows the average annual pollutant loadings for the No-Action Alternative. It should be noted that the cumulative loadings calculated for Brushneck Cove are incorrect and likely due to a spreadsheet formula error. It appears that the cumulative loading is a combination of both Mill Cove and Brushneck Cove loadings. The cumulative loading for Brushneck Cove, however, can be determined by the sum of Tuscatucket Brook and Callahan Brook watershed loadings. Table 5-118 of the FEIS shows the average annual pollutant loadings for the Project. Using the corrected cumulative loadings for Brushneck Cove for the No-Action Alternative and comparing them to the Project shows no net change for nitrogen and a slight decrease for bacteria. **Nevertheless, it is important to note that the pollutant loadings for nitrogen and bacteria are expected to decrease significantly due to the required installation of BMPs as part of the Project to meet the minimum average pollutant removal efficiencies required by Standard 3.2.3 of the RI Stormwater Manual (*i.e.*, 30% reduction for nitrogen and 60% reduction for bacteria)**. According to Table 5-118 there is an overall 0.3% reduction in the annual pollutant loadings to Brushneck Cove, a tributary to Greenwich Bay, as compared to the No-Action Alternative. See FEIS at 5-219.

In regard to aircraft deicing chemical use at the airport, the FEIS provides an impact analysis in Section 5.11.4 with additional information in Appendix Section A.1.14. Table 5-115 in the FEIS shows the historic and projected use of aircraft deicing fluid (propylene glycol). The airport is currently using less deicing fluid as compared to the average annual usage from 2004 to 2006 due to the completion of a consolidated glycol dispensing and blending facility in 2009. RIAC expects that the use of this new facility will reduce overall propylene glycol use as compared to historic use by up to 30% in future years. See FEIS at 5-213. The potential impacts from glycol-impacted stormwater runoff from the airport have been a water quality concern for sometime, especially in Buckeye Brook, which is not located within the Greenwich Bay watershed. The discharge of such stormwater is regulated by the RIDEM through the RIPDES permit program.

RIDEM is the state-delegated authority for the federal Environmental Protection Agency (EPA) National Pollution Discharge Elimination System permit and establishes state water quality standards based on the federal Clean Water Act and EPA guidance. In November 2004 RIDEM issued RIPDES permit No. RI0021598 to RIAC authorizing the discharge of stormwater associated with (industrial) activities conducted at the airport. The RIPDES permit was subsequently appealed by RIAC in December 2004 seeking a stay of certain conditions of the permit. In February 2009 RIAC and RIDEM executed a Memorandum of Agreement, and in August 2009 RIAC submitted to the RIDEM a Stormwater Pollution Prevention Plan (SWPPP) describing how stormwater at the airport is managed through a variety of structural stormwater controls and management practices that reduce the amount of pollutants, including aircraft deicing chemicals, discharged from the site into local water bodies.

In March 2011 RIAC submitted to the RIDEM a conceptual design report for a propylene glycol (airport deicing fluid) impacted stormwater and snow melt collection, storage and treatment system. Then in November 2011 RIAC submitted to the RIDEM a more advanced 30% design report that included a design for the discharge of treated effluent from the airport deicing fluid treatment system into the Warwick Sewer Authority sanitary sewer system. This long-term deicer management system is being designed for the Airport's terminal and cargo areas and will prevent the discharge of deicing fluid impacted stormwater runoff to surface waters when the concentration of propylene glycol exceeds specified thresholds (2950 ppm for the terminal ramp and 1000 ppm for the cargo ramp). RIDEM has determined that based on the historical data, the system is designed to collect on average 60% of the deicing fluid applied, which meets or exceeds the average collection efficiencies associated with centralized deicing pads across the country.

Recently (January 2012), RIAC and RIDEM entered into a Consent Agreement that requires the RIAC, among other conditions, to: (1) comply with the 2009 Stormwater Pollution Prevention Plan; (2) submit to RIDEM by June 12, 2012 an application for an Order of Approval for the propylene glycol collection, storage and treatment system with a minimum 90% design; (3) complete construction and begin operation of the propylene glycol collection, storage and treatment system by October 13, 2014; (4) the operation of mobile collection units and glycol recovery vehicles at secondary deicing locations; and (5) abide by the terms and conditions of

RIPDES Permit RI0021598. Until the propylene glycol collection, storage and treatment system is operational in October 2014 RIAC must manage deicing fluid application and collection under the terms and conditions of the 2009 Stormwater Pollution Prevention Plan.

Deicing fluids are applied to aircraft prior to takeoff at the terminal and cargo facilities, which do not have stormwater outfalls that discharge into the Greenwich Bay watershed. There is, however, a secondary deicing area located near the Runway 5 end that discharges stormwater through Outfall 10 into Tuscatucket Brook. See FEIS at 5-221 and Figure 4-27. The secondary deicing areas are used only under limited, extreme weather circumstances when additional deicing may be required. Catch basin inserts will continue to be utilized at secondary deicing locations and GRV (glycol recovery vehicles) will collect glycol-impacted stormwater and transfer it to storage tanks for onsite treatment and discharge to the sewer. See FEIS Appendix A at 4-47. In addition, Stipulation B.4.a.(1)(vii)c of the RIPDES stormwater discharge permit (RI0021598), states "[p]rocedures for ensuring that aircraft deicing fluids (ADFs) do not enter the storm drainage system near secondary deicing areas. Catch basin inserts in secondary deicing areas shall remain closed during deicing events. The inserts may be opened once the deicing fluids have been collected." See RIPDES Permit No. RI0021598 at 16. Based on these conditions, the RIPDES permit prohibits the discharge of deicing fluids into catch basins and storm drains at secondary deicing areas. Therefore, the implementation of these RIDEM requirements will prevent the direct discharges of deicing fluids from airport operations into the receiving waters of the Greenwich Bay watershed.

The RIDEM-issued draft RIPDES stormwater discharge permit and the associated RIDEM Fact Sheet can be accessed at the DEM web pages at the following URL: http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/pdfs/tfgreen.pdf.

As to mitigation methods to minimize or prevent potential groundwater impacts from the Project due to construction and operation activities the FEIS states the following:

> The relocated fuel farm and expanded terminal would include spill prevention control measures to prevent the contamination of groundwater or surface water with fuel products. See FEIS at 5-212.
>
> An accidental release of hydraulic fluid, or fuel during refueling could have the potential to contaminate soil, groundwater, and surface water. Spill containment procedures, including limiting the areas in which fueling could be performed, would be implemented to minimize this risk. *Id.* at 220.
>
> Discharge to waters of the state and groundwater would need to comply with RIPDES Regulations. *Id.* at 260.

As to the issue of providing for a reduction in stormwater runoff volume, the Project will have a cumulative net increase of 12.2 acres of new impervious areas within the Greenwich Bay watershed as a result of the extension of Runway 5-23, the relocation of Main Avenue, and the construction of new parking and taxiway areas. See Table 5-119 in FEIS at 5-223. However, as indicated above, all new impervious surfaces will require the construction of new BMPs to manage stormwater runoff in accordance with the current standards of the *Rhode Island Stormwater Design and Installation Standards Manual*. Standard 3.2.2 of the manual requires groundwater recharge to maintain base-flow at pre-development recharge levels to the maximum extent practicable. The Project has preliminary stormwater BMPs that include proposed surface infiltration basins and subsurface infiltration chambers intended to achieve the groundwater recharge stormwater manual standard. See FEIS Figure 5-43.

In regard to mitigation for any potential water quality impacts, the ROD states in section 10.9 that "[t]he Project will avoid significant water quality impacts by reducing roadway and parking areas within the Tuscatucket Brook and Brush Neck Cove watersheds, thereby reducing pollutant loading. In addition, the Project includes improved water quality treatment for the relocation of existing roadways (Airport Road and Main Avenue). Total avoidance of the potential to impact water quality is not possible, as the Project involves new impervious surfaces, new parking, and increased aircraft operations. The Project design includes avoidance and minimization efforts to prevent any risks to water quality. The Project will be designed to comply with all applicable federal and state regulatory standards, including 2010 RIDEM Water Quality Regulations and the *Rhode Island Stormwater Design and Installation Standards Manual* adopted in December 2010." See ROD at 51. Further, in reference to the above manual the RIAC consistency certification letter states that "every component of the Improvement Program will be designed in compliance with the Manual." See RIAC letter to USACE dated November 22, 2011 at 3.

Accordingly, based on these facts, the Project will be designed and constructed to incorporate best management practices (BMPs) that will result in a reduction of nitrogen and bacteria concentrations; eliminate from reaching surface or groundwater other pollutants used at the airport, such as deicing chemicals; and provide for a reduction in runoff volume and increase in water quality to receiving waters that discharge into Greenwich Bay.

Section 10 of the ROD summarizes the mitigation measures necessary to address any significant adverse impacts that cannot be avoided. In regard to coastal resources, the ROD states "[t]he proposed T.F. Green Airport Improvement Program is within the Coastal Zone, but will not directly impact any coastal resources. Thus, there are no significant impacts of the Project to the Coastal Zone and no mitigation is required. The Project will, however, be designed to comply with the applicable performance standards of the Rhode Island Coastal Resources Management Plan, Rhode Island Soil Erosion and Sediment Control Handbook, the Rhode Island Stormwater Design and Installation Standards Manual, and the Greenwich Bay Special Area Management Plan (SAMP) goals and objectives, as required by the Rhode Island Coastal Resources Management Council. See ROD at 51. These measures will address and mitigate for any potential indirect impacts, primarily water quality issues that may result from the Project.

Recommendation

In summary, given the above facts the Project would appear to be consistent with Greenwich Bay SAMP Sections 390.5B.5 and 470.5B.17. Accordingly, based on the information provided within the FEIS and the ROD, as well as the supplemental information from RIDEM regarding the RIPDES stormwater discharge permit for RIAC, it is Staff opinion that the proposed Project will comply with and be conducted in a manner consistent with the applicable enforceable policies of the Rhode Island Coastal Resources Management Program.

APPENDIX D

State of Rhode Island
Coastal Resources Management Council

In Re: T.F. Green Airport Improvement Program - Coastal Zone Management Federal Consistency Review; CRMC File 2012-01-027

Response to Comments

Introduction

The Rhode Island Airport Corporation (RIAC) has proposed the T.F. Green Airport Improvement Program project located within the City of Warwick and described in the Final Environmental Impact Statement (FEIS) issued by the Federal Aviation Administration (FAA) in July 2011. The FAA issued a Record of Decision (ROD) on September 23, 2011 based upon the FEIS and all relevant documentation comprising the Environmental Impact Statement record. Based upon its review the FAA selected Alternative B4 as the preferred Airport Improvement Program project (hereafter referred to as the Project). After filing a federal Section 404 permit application with the U.S. Army Corps of Engineers (USACE) the RIAC then filed a federal consistency certification with the USACE for the Project pursuant to 15 CFR Part 930 Subpart D and furnished same to the Coastal Resources Management Council (CRMC). The Project is subject to CRMC Federal Consistency review authority pursuant to the federal Coastal Zone Management Act (CZMA), 16 USC §§ 1451-1464, and the CZMA's implementing regulations at 15 CFR Part 930 Subpart D.

The CRMC as the State's authorized coastal zone management agency must make a determination as to whether the proposed T.F. Green Airport Improvement Program Project complies with and will be conducted in a manner consistent with the enforceable policies of the State's coastal program. The CRMC issued a public notice on January 24, 2012 that was published in the Providence Journal inviting interested parties to submit written comments no later than February 29, 2012 as to whether the Project is consistent with the enforceable policies of the Rhode Island Coastal Resources Management Program.

The CRMC received comments from the City of Warwick and from Richard Langseth during the public comment period. The following pages contain the CRMC responses to these written comments. In addition, several of the comments pertained to the recently issued draft RIDEM Rhode Island Pollution Discharge Elimination System (RIPDES) stormwater discharge permit. For convenience of the reader the RIPDES permit and associated RIDEM Fact Sheet can be accessed at the RIDEM web page at the following URL:
http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/pdfs/tfgreen.pdf

Response to Comments

The following are comments submitted on behalf of the City of Warwick by Planning Director William DePasquale followed by the CRMC's response.

Comment: *Based on our review, we assert that a determination of consistency offered by RIAC with the Coastal Zone Management Act citing "no significant threshold for impact" is deficient a practicable study of the specific and long term "cumulative" impacts on Greenwich Bay from a constantly growing airport landuse whose stormwater contribution has effected water quality, fish/wildlife and wetland habitat within Greenwich Bay its waters and riparian environment.*

Response: An analysis of cumulative impacts was completed in accordance with the requirements of NEPA regulations at 40 CFR 1508.7 and FAA Order 5050.48, section 1007(i), as detailed within the FEIS. The findings for water resources are described in FEIS Section 5.11.6 Cumulative Impacts. CZMA federal consistency review is limited to what potential coastal resource impacts may occur from a proposed project and whether the proposed project will be conducted in a manner consistent with the approved coastal management plan.

In the instant matter, RIAC has applied for a federal (USACE Clean Water Act Section 404) permit to alter and fill federal jurisdictional wetlands and waterways as described in the USACE application. It is the activities associated with the federal permit that trigger CRMC federal consistency jurisdiction pursuant to 15 CFR Part 930 Subpart D. Accordingly, the CRMC must evaluate what potential impacts to the coastal resources may occur from the Project. While the Project is located within the coastal zone, it will not result in any ***direct*** impacts (*i.e.*, physical alterations) to any coastal resources. However, the CRMC can evaluate any potential ***indirect*** impacts that may result from the Project. Since a portion of the Project is located within the CRMC Greenwich Bay Special Area Management Plan (SAMP) boundary, it must conform to the goals and policies of the SAMP that are applicable to the Project.

Comment: *Furthermore without enhanced stormwater retrofit of existing point discharges from the airport into the Greenwich Bay watershed the consistency pretense forwarded is discordant with the "Greenwich Bay Special Area Management Plan", as amended, particularly "Chapter 1 entitled: Goals and Objectives", "Chapter 4 - Water Quality" and its secondary impacts on "Chapter 3 - Habitat and Environmental Assets".*

Response: See response discussion below regarding outfalls and stormwater management.

Comment: *In the instant case, the FEIS relies on a wide ranging RIPDES permit essentially assuming consistency with the Greenwich Bay Special Area Management Plan. The FEIS's assessment does not suitably study, disclose and mitigate the specific short and long term impact on groundwater and surface waters of Greenwich Bay from chemicals and pollutants associated the B4 build option that will occur within the northern portion of the GBAY watershed.*

Response: RIDEM is the state delegated authority for the federal National Pollution Discharge Elimination System permits and establishes state water quality standards based on the federal Clean Water Act and EPA guidance. RIDEM has indicated that the RIPDES permit limitations, which RIAC must comply with, are consistent with state water quality anti-degradation policy. Accordingly, it is reasonable for the CRMC to rely upon the RIDEM issued RIPDES permit as probative evidence that the Project and RIAC will be in compliance with state water quality standards. In addition, proposed subsurface stormwater treatment systems will be subject to a RIDEM Underground Injection Control (UIC) permit and must also comply with state water quality standards. Moreover, the ROD states that "[t]he Project design includes avoidance and minimization efforts to prevent any risks to water quality. The Project will be designed to comply with all applicable federal and state regulatory standards, including 2010 RIDEM Water Quality Regulations and the *Rhode Island Stormwater Design and Installation Standards Manual* adopted in December 2010." See ROD at 51.

Comment: *As an example the new consent agreement prepared by and between RIAC and RIDEM allows a certain threshold of deicing material dispensed within the cargo and terminal areas to enter the waters either directly or to the Greenwich Bay watershed entering the drainage system from material dripping or lost on the runway and taxiway when the aircraft is taxing or upon takeoff allowing entry into the waters of Greenwich Bay. The outstanding question is how much deicing chemicals are entering the Greenwich Bay ecosystem and secondarily what are there* (sic) *BOD impacts on area streams and their aquatic resources.*

Response: Deicing fluids are applied to aircraft prior to takeoff at the terminal and cargo facilities, which do not have stormwater outfalls that discharge into the Greenwich Bay watershed. RIDEM and RIAC entered into a Consent Agreement in January 2012 to resolve a long-standing appeal of a 2004 RIPDES stormwater discharge permit. The consent agreement binds RIAC to abide by a newly issued RIPDES permit and implement a glycol impacted stormwater and snow melt collection, storage and treatment system. The system is designed to collect on average 60% of aircraft deicing fluid applied at the airport, which achieves or exceeds the average collection efficiencies consistent with centralized deicing pads across the country. See RIDEM Fact Sheet – Permit RI0021598 at 2. In addition, it is projected that deicing fluid usage in future years will decrease by about 30% over the average annual usage from 2004 to 2006 due to the completion of a consolidated glycol dispensing and blending facility in 2009. Based on water quality monitoring studies conducted by both RIDEM and RIAC, RIDEM has determined that the proposed level of control provided within the RIPDES permit will prevent violations of in-stream dissolved oxygen criteria. *Id.* at 12.

There is, however, a secondary deicing area located near the Runway 5 end that discharges stormwater through Outfall 10 and into Tuscatucket Brook, which is a tributary to Greenwich Bay. See FEIS at 5-221 and Figure 4-27. The secondary deicing areas are used only under limited, extreme weather circumstances when additional deicing may be required. Catch basin inserts will continue to be utilized at secondary deicing locations and GRV (glycol recovery vehicles) will collect glycol-impacted stormwater and transfer it to storage tanks for onsite treatment and discharge to the sewer. See FEIS Appendix A at 4-47. The discharge of deicing fluids into the storm drain system at the secondary deicing area is prohibited under the terms and conditions of the RIDEM RIPDES permit.

Comment: *Consequently we proffer a determination of "no significant impact" should include provisions for considering the entirety of impact from instant as well as past airport projects measured against what has been a consistently degrading baseline of condition. Moreover how can the existing and proposed drainage be improved to comply with the goals, objectives and recommendations of the Greenwich Bay Special Area Management Plan.*

Response: As noted above, the FEIS conducted an analysis of baseline conditions compared to what potential impacts the Project may have on the coastal resources, including a cumulative impacts analysis for water resources in Section 5.11.6 of the FEIS. Stormwater drainage will be improved with the implementation by RIAC of their RIDEM-approved stormwater pollution prevention plan (SWPPP), the glycol recovery and treatment facility to be operational in October 2014, and the RIPDES stormwater discharge permit. In addition, all new impervious areas including the extended Runway 5-23, new parking areas and taxiways, and the relocated Main Avenue constructed as part of the Project will require stormwater treatment in accordance with the 2010 *Rhode Island Stormwater Design and Installation Standards Manual*. Indeed, the RIAC consistency certification letter in reference to the above manual states that "every component of the Improvement Program will be designed in compliance with the Manual." See RIAC letter to USACE dated November 22, 2011 at 3.

Comment: *We find the instant proposal inconsistent with the following:* (referencing specific sections of the Greenwich Bay SAMP)

Response: Please see the CRMC Staff Review and Recommendation document for the Project addressing this comment (a separate document to be posted online with this response document).

Comment: *We request consideration for improving end-of-pipe stormwater treatment solutions for all soluble pollutants including BOD (Biochemical Oxygen Demand) related to glycol contribution entering the system from outfalls draining areas 10, 11, and 12 (see map) to Tuscatucket Brook that are outside the planned collection area for glycol collection areas.*

Response: Outfalls 011A and 012A have been combined behind a single headwall and the two drainage areas have a single shared stormwater discharge now noted as Outfall 011A. See FEIS Table 4-32 at 4-48 and Figures 4-27 and 5-42. Neither outfall is noted as receiving stormwater drainage from the secondary deicing area in Table 4-32. However, Outfall 010A receives stormwater runoff from the southern end of Runway 5-23 and an associated taxiway including a secondary deicing area. *Id.* This particular secondary deicing area, however, is rarely used and involves far less glycol than the primary terminal and cargo area deicing locations. See FEIS at 5-221.

Specifically in regard to the secondary deicing areas, the RIDEM states in a Fact Sheet issued on April 10, 2012 that "[u]nder limited circumstances (*e.g.,* extreme weather) deicing may be required at secondary deicing locations during wet weather deicing events. Catch basin inserts will be utilized at secondary deicing locations and glycol collection vehicles will collect the retained deicing runoff and transfer it to on-site storage tanks for on-site treatment." See RIDEM Fact Sheet – Permit RI0021598 at 7. In addition, Stipulation B.4.a.(1)(vii)c of the Stormwater Pollution Prevention Plan Requirements, which is incorporated in the pending RIPDES stormwater discharge permit (RI0021598), states "[p]rocedures for ensuring that aircraft deicing fluids (ADFs) do not enter the storm drainage system near secondary deicing areas. Catch basin inserts in secondary deicing areas shall remain closed during deicing events. The inserts may be opened once the deicing fluids have been collected." See RIPDES Permit No. RI0021598 at 16.

Limited water quality monitoring data was collected during the periods 2006 to 2010 for these particular outfalls. The data show propylene glycol concentrations of less than 10mg/L or no data for Outfall 10A and no data for Outfall 11A/12A during the limited sampling dates. In addition, BOD levels were generally less than 3.0mg/L for all three outfalls with the highest recorded levels of 8.1mg/L on two separate dates at Outfall 10A. See FEIS Appendix K.3 at K-22 and 23. Water quality monitoring conducted during 2004 to 2007 in development of the FEIS indicate extremely low fecal coliform counts during dry and wet weather events for Outfall 011A/012A. See FEIS at 4-60.

Both RIDEM and RIAC monitored in-stream water quality during a winter storm in February 2011 where aircraft deicing fluids were applied at the airport. Both data sets indicate that there was no exceedance of dissolved oxygen (DO) criteria. And, in reference to the implementation of the RIAC stormwater pollution prevention plan and the proposed Deicer Management system, RIDEM states that "[b]ased on the historical monitoring, DEM has determined that the proposed level of control will prevent violations of in-stream DO criteria." See RIDEM Fact Sheet Permit No. RI0021598 at 12.

The RIDEM also states that "[w]ater quality monitoring to date does not indicate discharges from T.F Green are significant sources of Phosphorus, Fecal Coliform bacteria, or Enterococcus.", and that RIDEM "has determined that all permit limitations are consistent with the Rhode Island Anti-degradation policy." See RIDEM Fact Sheet Permit No. RI0021598 at 11.

Given the above information concerning aircraft deicer fluid application and management, the RIDEM findings in regard to the pending RIPDES stormwater discharge permit and that the installation of new stormwater BMPs will be required for the Project to address all new impervious surface areas, it is reasonable to conclude based on these facts, that it appears the water quality of Tuscatucket Brook will not be significantly impacted as a result of the Project.

Comment: *It is our opinion that the proposed runway improvements to 5-23 should be considered a new development with all the drainage within the subject watersheds depicted in this map subject to today's structural stormwater treatment practices defined in the 2010 Rhode Island Stormwater Design and Installation Standards Manual including retrofitting said outfalls to meet the water quality objectives of the Greenwich Bay Special Area Management Plan.*

Response: The CRMC agrees that all new improvements to Runways 5-23, as with all other new impervious areas of the Project, should be considered new development for purposes of implementing state regulatory stormwater management requirements. As stated in the FEIS in Section 5.11.4.3 "[t]he construction of any new impervious areas would be designed to meet the 2010 *Stormwater Design and Installations Standards Manual* and therefore would not adversely affect water quality." See FEIS at 5-218. In the discussion pertaining to Water Quality in Section 10.9 of the ROD, it states "[t]he Project will be designed to comply with all applicable federal and state regulatory standards, including 2010 RIDEM Water Quality Regulations and the *Rhode Island Stormwater Design and Installation Standards Manual* adopted in December 2010." See ROD at 51.

Additionally, the planned relocation of Main Avenue to accommodate the 1530-foot extension of Runway 5-23 to the south will result in a new roadway segment. See ROD Figure 2-1 at 3. The entire new segment of Main Avenue will be required to meet state regulatory stormwater management standards and will incorporate stormwater best management practices (BMPs) that may consist of bioretention, vegetated swales and vegetated buffers. See FEIS Table 6-13. Currently, the Project is only at the 30% design stage and stormwater designs have yet to be finalized. As stated in the FEIS, "[t]he stormwater management report for the Improvement Program projects would include a more detailed analysis that would include an evaluation of the smaller storm events and could also redistribute the subsurface and surface infiltration/detention systems within smaller sub-watersheds. This analysis would also include design of the outlet control structures to increase the efficiency of these systems resulting in smaller systems than those determined in the FEIS analysis." See FEIS at 6-34.

Since all new BMPs must be designed in accordance with new state stormwater standards, they will provide improved water quality treatment as compared to the existing drainage system along Main Avenue. Further, there will be a net reduction of 2.4 acres of impervious area within the Callahan Brook watershed after completion of the Project. See FEIS Table 5-116 at 5-217. The combined effects of the new Main Avenue segment stormwater BMPs and the reduction of impervious surface area will decrease the volume of stormwater runoff and associated pollutants to Callahan Brook, a tributary to Greenwich Bay.

APPENDIX D

The following are comments submitted by Richard Langseth, Executive Director of the Greenwich Bay Watershed Group. His comments are based primarily on a review of the FAA Record of Decision (ROD) and on a United States Environmental Protection Agency (EPA) letter dated September 6, 2010 followed by the CRMC's response.

Comment: *I have found no reference in the ROD addressing stormwater pipes and bedding materials left in place within the Greenwich Bay Special Area Management Plan areas being impacted. This is an area of special concern to the Greenwich Bay Watershed Group. I have commented on this item in written comments presented to the FAA's consultant and at public meetings and the hearing. This issue has been ignored and presents a stormwater deluge challenge to Brushneck Cove and Greenwich Bay. This entire issue falls within the SAMP and should be directly addressed by the CRMC in its consistency determination.*

Response: The EPA in their comments on the DEIS identified issues concerning the assumptions for the conversion of impervious to pervious areas, accounting for appropriate drainage characteristics, and stormwater drainage pipes and bedding material within the Voluntary Land Acquisition Program (VLAP) areas. The CRMC raised similar concerns in its September 13, 2010 letter to RIAC. See FEIS Appendix A at A-91. As shown in Figure 5-8 (Volume 2) of the FEIS, VLAP areas are located at the headwaters of Tuscatucket Brook and near the headwaters of Callahan Brook, both which drain to Brushneck Cove and into Greenwich Bay.

The assumptions and stormwater drainage analysis for these voluntary land acquisition areas was modified in the FEIS. See FEIS Section 5.11 and Appendix A.1.13. Although the roadways and drainage structures will remain after residential structures and parking areas are demolished and replanted with grass within the voluntary land acquisition areas, overall runoff volumes will decrease from these areas because there will be less overall impervious surface area. The Tuscatucket Brook watershed will see a 0.4 acre decrease and the Callahan Brook watershed will see a reduction of 3.5 acres of impervious surface area within these voluntary land acquisition areas. See FEIS Table 5-116.

Additionally, the FEIS states that "stormwater runoff characteristics of land that is converted from impervious surfaces to pervious surfaces and any remaining stormwater collection infrastructure would be accounted for in the design of stormwater BMPs. Any areas that are converted from impervious to pervious surfaces will result in water quality improvements, regardless of any stormwater collection systems that remain." See FEIS Appendix A.2 at A-68.

Further, all new impervious areas, including the extended Runway 5-23, new parking areas and taxiways, and the relocated Main Avenue, will require stormwater best management practices (BMPs) in accordance with the recently revised *Rhode Island Stormwater Design and Installation Standards Manual* that has been adopted by both RIDEM and CRMC. The ROD and FEIS both state that all improvements will meet such requirements. For example, the ROD states the following:

> "To address CRMP Section 300.6 Stormwater Management for Large Projects, the Project will comply with the requirements of the most recent version of the Rhode Island Stormwater Design and Installation Standards Manual for the stormwater design." See ROD at 66.
>
> "Greenwich Bay SAMP Section 120.2 — Improve Greenwich Bay's Water Quality, which indicates that RIAC should "implement Best Management Practices (BMPs) to reduce storm water discharge volume and nitrogen and bacteria concentrations," will be implemented according to SAMP Section 470.5B.17, which identifies recommended actions for meeting the goal of improved water quality within Greenwich Bay. RIAC will implement BMPs to reduce storm water discharge volume and nitrogen and bacteria concentrations as part of the design and implementation of the Project." *Id.*

In addition, the EPA in a letter to the FAA dated August 2, 2011 stated "EPA's comments on the DEIS requested that the FAA address deficiencies and concerns related to wetland impacts and mitigation, water and air quality impacts, and environmental justice. While we have no further comments on the FEIS regarding those issues, we anticipate continued involvement with the project through the Corps of Engineers' Clean Water Act Section 404 process."(Emphasis added.) See ROD at A-5. It appears from the EPA statements therein that the Agency is satisfied that previously noted deficiencies and concerns within the DEIS were adequately addressed within the FEIS.

Thus, since the FEIS does account for the new hydrologic analysis, as detailed in Sections A.1.13, and all new impervious surfaces will be treated with best management practices as describe above, the issue of concern has not been ignored and should not result in a stormwater deluge to Brushneck Cove or Greenwich Bay.

Comment: *I have found no correction of analysis in the ROD. Some of this acquired land is within the Greenwich Bay Special Area Management Plan area. To the extent that this issue falls within the SAMP it should be directly addressed by the CRMC in its consistency determination.*

Response: The correction of analysis was completed in the FEIS. See preceding response.

Comment: *Regarding Wetlands Mitigation Site 12, the Conimicut Point Marsh, Page 50 of the Record of Decision shows that a Wetlands Working Group was convened on February 23, 2011. It reports that "USACE will act on the (Section 404) permit following publication of this ROD and completion of the RIDEM permitting process. This area is within the CRMC coastal jurisdiction and not the RIDEM jurisdiction and I have not found evidence that a CRMC process was initiated or completed. I am asking for a review of the CRMC files to determine if CRMC has conducted a review of this matter. It should be included in the consistency determination.*

Response: As noted in Section 10 of the ROD and the FEIS in Section 6.9.1, wetland mitigation is proposed to meet the federal EPA and U.S. Army Corps of Engineers (USACE) compensatory wetland mitigation requirements for proposed wetland alterations at the Runway 34 end. Potential compensatory wetland mitigation sites are shown in Figure 6-2 of the FEIS. Federal jurisdictional vegetated freshwater wetland impacts have been reduced from 7.3 acres in the DEIS to 5.0 acres in the FEIS as a result of modifying the Alternative B4 airport Project design. The 5.0 acres of impacted freshwater wetlands are located on airport property at the Runway 34 end and are located exclusively within the state freshwater wetland jurisdiction of the RIDEM and ***not*** within the Greenwich Bay watershed. <u>See</u> FEIS Volume 2, Figures 4-32 and 5-40. RIDEM has exclusive freshwater wetland jurisdiction in this matter and will be processing all necessary state permits associated with the proposed freshwater wetland alterations associated with the Project.

As noted above, the construction activity associated with the Project does ***not*** involve any alteration of freshwater or coastal wetlands within CRMC jurisdiction. Furthermore, there are no proposed wetlands alterations associated with the Project that are located within the Greenwich Bay watershed. Consequently in this matter, compensatory mitigation under Section 300.12 of the state coastal program is ***not*** required. Thus, the CRMC federal consistency review process does not need to address this particular issue. Nevertheless, the CRMC was involved in the Wetland Working Group process and had previously suggested sites 10 and 11 as potential mitigation sites if alternative off-site locations were needed to fulfill federal mitigation requirements. <u>See</u> FEIS Appendix C.5. Mitigation sites 10 and 11 were suggested by the CRMC because they are located within the Greenwich Bay watershed and are listed in Table 10 and depicted in Figure 15 of the CRMC Greenwich Bay Special Area Management Plan as recommended potential coastal wetland restoration sites. Ultimately, these two sites were not selected by the Wetland Working Group, and consequently not included in the FEIS.

Mitigation Site 12, which is adjacent to Mill Cove at Conimicut Point (see FEIS Figures 6-2 and 6-8), was added as a result of the suggestion of Save The Bay and the Mill Cove Conservancy and was discussed at the February 15, 2011 Wetlands Working Group meeting. <u>See</u> FEIS Appendix C.5. Mitigation Site 12 was suggested because of the development pressure on existing undeveloped parcels within the coastal wetland complex there. It was proposed that the coastal saltmarsh at this location could be better preserved by purchasing development rights and preventing further wetland and upland buffer alterations. This proposed mitigation action would not involve alterations to coastal wetlands, and thus a CRMC state Assent is not required. The USACE affirmed that the proposed mitigation program (which includes Mitigation Site 12) meets the federal mitigation requirements and that USACE is likely to approve a Clean Water Act Section 404 Permit for the Project. <u>See</u> ROD at 50.

APPENDIX E

Hazardous Materials

APPENDIX E

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 1/4/2022

Project #: 73330.00

From: Fred Bevans, Project Manager, Site Investigation & Remediation

Re: Hazardous Materials, Solid Waste, and Pollution Prevention
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Hazardous Materials, Solid Waste, and Pollution Prevention

Regulatory Setting

Per FAA Order 1050.1F and its associated Desk Reference, the following information is provided relative to hazardous materials as governed by the Rhode Island Department of Environmental Management (RIDEM) and the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), CAA, Clean Water Act (CWA), Toxic Substances Control Act (TSCA), and other statutes, regulations, executive orders, and requirements, as applicable.

FAA Significance Threshold

The FAA has not established a significance threshold for hazardous materials. Further, the FAA has not provided specific factors to consider in making a significance determination.

Existing Conditions

Hazardous Materials

VHB conducted a review of the RIDEM Environmental Resource Map (ERM), the RIDEM Enviro Site Search and a Radius Map Report dated November 21, 2022, provided by Environmental Data Resources, Inc. (EDR), to identify state and/or federally listed sites in the vicinity of the Project Area which may have the potential to impact environmental media due to oils and/or hazardous materials (OHM). Nearby listings obtained from the RIDEM ERM are shown on the attached Hazmat Tech Memo figure.

According to the RIDEM ERM, the Project Area does not lie within an Environmental Justice Area and is therefore not subject to the RIDEM environmental justice requirements in accordance with the *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases* (DEM-DSR-01-93), as amended, also known as the Remediation Regulations. Groundwater in this area is classified as GB which may not be suitable for drinking water use without treatment due to known or presumed degradation.

According to the Radius Map Report, a total of 30 state and/or federally listed sites are associated with the T.F. Green Airport property (2000 Post Road). These include but are not limited to Site Investigation and Remediation (SI&R)/State Hazardous Waste Sites (SHWS), Underground Storage Tank (UST), Leaking Underground Storage Tank (LUST), RCRA Generators and spills database listings. However, these listings are generally associated with the overall airport and not in close proximity to the Project Area. Of those listings, four sites appear to be located in proximity to the Project Area as shown on attached figure. These sites are summarized in Table 1 below.

Table 1 - Listed Sites Proximate to Project Area

Site Name/Address	Listing	Site No.	Status	Location	Notes
T.F. Green Airport - Western Noise Barrier (Post Rd.)	SI&R	SR-35-1534	Inactive	Abutting to the east	Not associated with an Environmental Land Use Restriction (ELUR)
T.F. Green Airport – Air Cargo, Inc. (2000 Post Rd)	SI&R	SR-35-1507 A SR-35-1507 B	Inactive	Abutting to the east	Not associated with an ELUR
Redwood Lodge Motel (2282 Post Rd.)	UST	UST-18782	Permanently Closed	Abutting to the west	1,000-gallon tank of unknown contents
T.F. Green Airport (Post Rd.)	SI&R	SR-35-1533	Active	Northeast	Not associated with an ELUR

Source: RIDEM ERM and Enviro Site Search

The **Western Noise Barrier** and **Air Cargo SI&R** listings are considered inactive and are not associated with an existing ELUR, which suggests contamination may have been remediated to a point where compliance has been achieved without contamination being left in place.

The **Redwood Lodge Motel** UST listing is considered permanently closed and therefore does not appear likely to impact the Project Area.

The T.F. Green Airport SI&R listing (**SR-35-1533**) is considered active; although the location is shown further northeast on the RIDEM ERM and does not appear to be in close proximity to the Project Area. The horizontal extent of this listing is unknown as it is only generally shown within the airfield.

Solid Waste

General municipal solid waste (MSW) is anticipated to be generated from the two small buildings currently located within the Project Area. No significant amounts of solid waste are currently generated within the Project Area.

Probable Impacts

Hazardous Materials

Based on the proximity to the Project Area and the unknown horizontal extent of the listed sites identified during the Existing Conditions analysis, it is likely that similar OHM may exist within the Project Area. If construction-related activities result in the discovery of previously unknown hazardous substances, RIAC would be responsible for removing and disposing of contaminated media in accordance with state and local regulations for hazardous waste management as outlined in Mitigation Measures.

Solid Waste

Construction-generated debris and non-hazardous solid waste disposal requirements include minor tree clearing, demolition of two small buildings, and removal of existing pavements for foundation work related to construction of cargo building and the aircraft parking apron. Other common wastes generated from construction activities include cardboard, metal, and wood. Construction wastes not diverted, recycled, or re-used would be transported to and disposed of in local permitted construction/demolition waste facilities. Airport construction projects do not normally generate significant amounts of perishable or non-perishable waste, other than wastes associated with large scale construction projects and/or substantial demolition work. After construction, there would be an incremental increase in MSW commensurate with the larger cargo building and facility operations. The cargo airline tenants would be responsible for using a licensed contractor/hauler to provide regularly scheduled trash pick-ups and proper disposal. The contractor would analyze the anticipated waste stream and determine the appropriate mix of commercial recycling services vs. waste disposal.

Pollution Prevention

Potential operational impacts of the Project may include spills or releases. To minimize the risk of fuel spills, the SPCC Plan is intended to identify precautions, training requirements, and response measures that would be taken to prevent and contain accidental releases of hazardous materials.

The spill or release of OHM in the process of constructing the Project is an unlikely event, and measures will be required to prevent and control any such spills. The following practices will be employed on site to prevent, reduce, and clean up spills.

- All spills will be reported to the appropriate state and/or federal agency in accordance with the RIDEM Remediation Regulations.
- Spill cleanup materials will be kept in any chemical or petroleum storage area.
- All spills will be cleaned up immediately after discovery.
- A spill report will be prepared after each occurrence.
- An appropriately trained employee involved in day-to-day operations will be identified to be the spill prevention coordinator. Each employee will be instructed to report spills to the spill prevention coordinator.
- An inventory of construction and maintenance materials (and corresponding Material Safety Data Sheets) will be maintained.

Mitigation Measures

Soil and/or groundwater impacted by OHM that may be generated during future construction activities will be properly characterized, managed, and disposed of in accordance with RIDEM's Remediation Regulations, the RIDEM Groundwater Quality Rules, RCRA, TSCA, and any other applicable state and federal regulations.

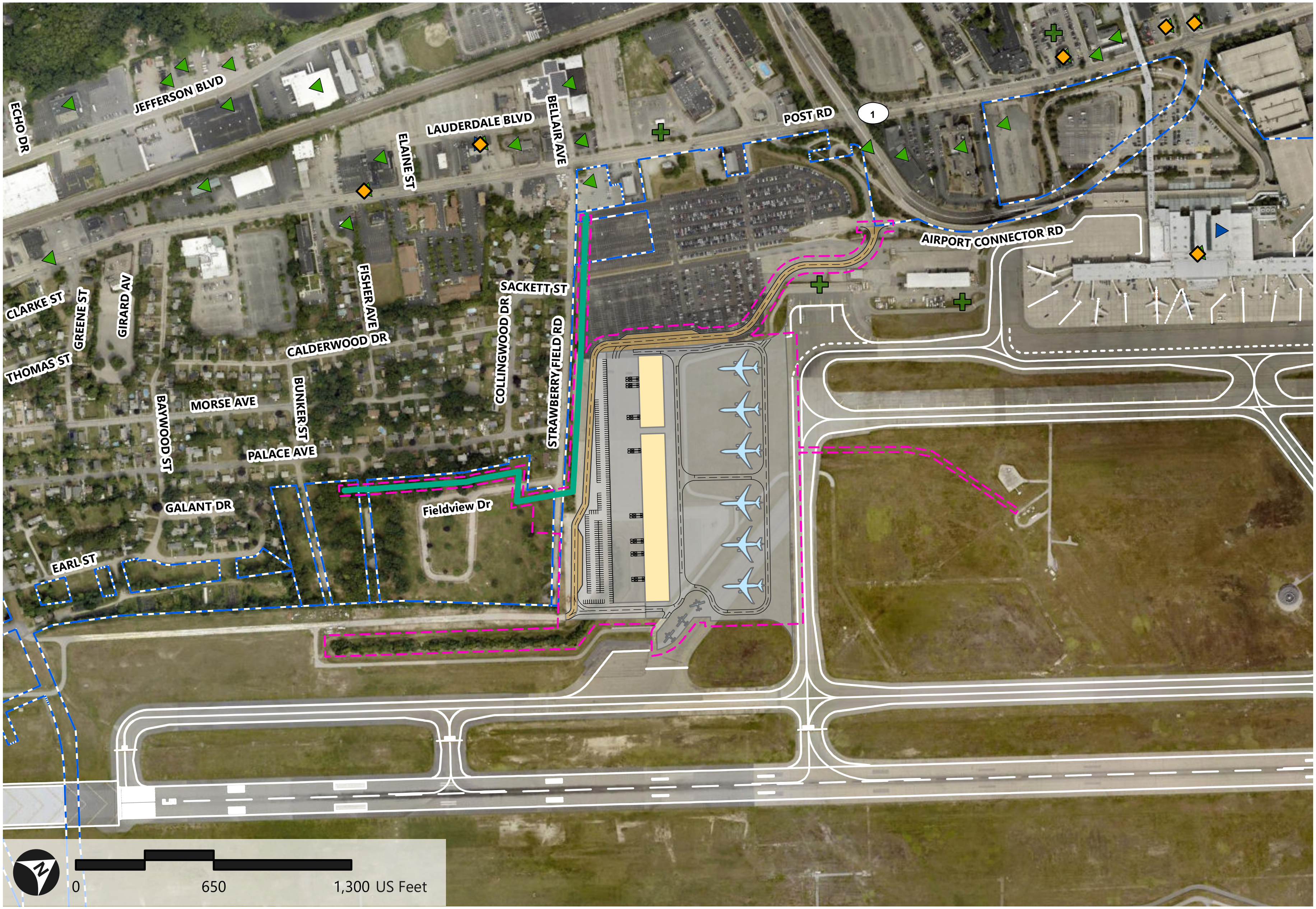
RIAC maintains a Hazardous Waste Contingency Plan (HWCP) for the management and disposal of hazardous waste materials. The HWCP is maintained in accordance with the requirements of RCRA and the RIDEM Hazardous Waste Regulations. RIAC will coordinate with local disposal facilities to ensure that the capacities of each facility are sufficient to receive project-related wastes. Should polychlorinated biphenyls (PCBs) or other wastes regulated by TSCA be generated because of the proposed action, RIAC will select a licensed and permitted receiving facility for disposal.

APPENDIX E

Path: \\vhb.com\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (SPelletier, 12/5/2022)

Hazmat Tech Memo

South Cargo Facility | Warwick, RI



- Project Area
- Proposed Sound Barrier Wall
- Property Line
- ✚ DEM Site Investigation Remediation
- ◆ Storage Tank - Underground L-UST (2021)
- ▶ Storage Tank - Above Ground (2016)
- ◀ Storage Tank - Underground (2021)
- Proposed Building
- Proposed Access Road
- Proposed Parking Area

Resources not within current extent: CIRCLIS, Closed Landfill, Environmental Land Use Restriction, and EPA Superfund.

Source: RIDEM ERM, AECOM, VHB

AECOM

Geotechnical Report

Southside Development
TF Green International Airport
Warwick, RI

Project Number: 60682737

Client: Rhode Island Airport Corp. (RIAC)

Draft

August 31, 2022

Quality information

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Figures

Tables

1. Introduction

AECOM is pleased to submit our geotechnical report for the planned improvements associated with Rhode Island Airport Corp.’s (RIAC) Southside Site Work and Grading project at TF Green International Airport in Warwick, Rhode Island. The planned improvements to date consist of a roughly 1,600-foot-long noise wall atop a 5-foot-tall berm on the southern portion of the airport as well as future redevelopment of the parking lot immediately north of the proposed berm and noise wall. Note that the design of the berm and noise wall had not been finalized at the time of this report.

1.1 Scope of Report

This geotechnical report will serve to support the design and construction of the proposed berm and noise wall at the site. Data collected during the recent exploration and laboratory testing programs are provided in this report. The collected data were used in conjunction with readily available subsurface information to develop the geotechnical design recommendations and construction considerations presented herein. These conclusions are rendered in accordance with the requirements of the Rhode Island Building Code (RIBC).

1.2 Site Description

The project site is located in an urban environment on the south side of TF Green International Airport in Warwick, Rhode Island. The existing ground is generally flat with elevations ranging from approximately 45 to 55 feet in North American Vertical Datum of 1988 (NAVD 88). The southern portion of the site consists of asphalt parking lot, roadways, and grass covered fields with sparse tree coverage. Historically, the grass covered fields on the southern end of the proposed development, east of the proposed noise wall, were a residential neighborhood that has since been demolished. Subsurface utilities in association with the demolished residences are still present underground. The location of the site is presented on Figure 1.

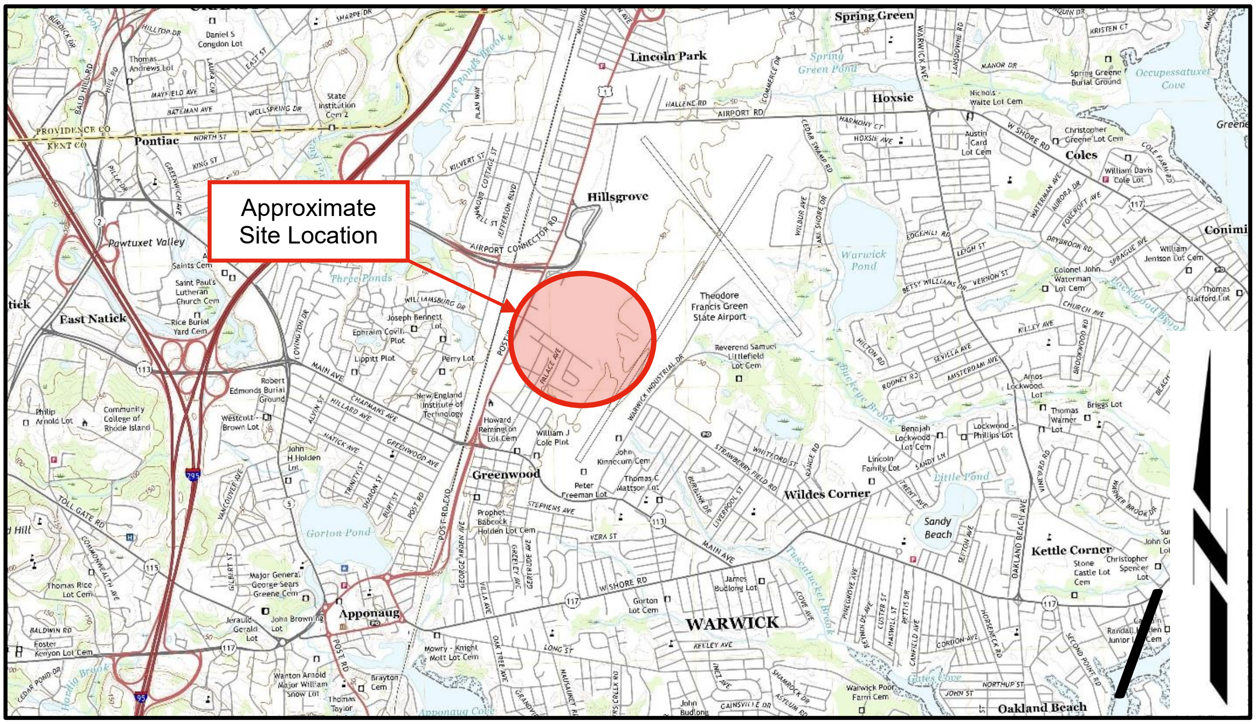


Figure 1. Project Location Map

2. Subsurface Conditions

2.1 Surficial Geology

According to the USGS map of the surficial geology of the East Greenwich quadrangle, the surficial materials at the site are considered part of a glacial outwash plain and mainly consist of well-graded sands with local deposits of coarse gravel. An excerpt of the USGS surficial geology map is presented in Figure 2 below.

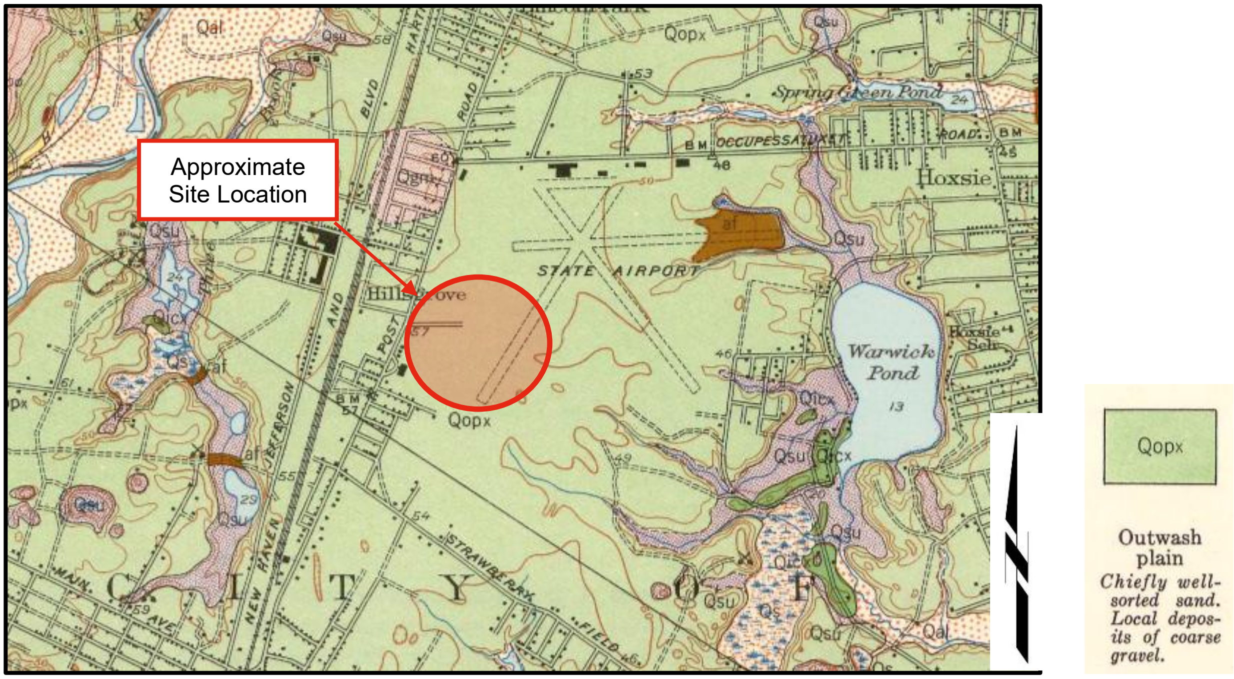


Figure 2. Surficial Materials

2.2 Subsurface Exploration Program

A subsurface investigation program consisting of nine (9) soil borings and ten (10) pavement cores was performed by Geologic Earth Exploration, Inc. of Norfolk, MA between July 15 and July 25, 2022. The test borings were logged by AECOM representatives.

Soil borings were all completed to a depth of 51 feet below ground surface. Borings were vacuum excavated to five (5) feet below ground surface prior to the start of drilling to clear for existing utilities. Two proposed boring locations, borings B-02 and B-08, encountered utility lines during vacuum exploration and were offset by 5 feet to avoid the utilities. Standard 2-inch outside diameter split spoon (SPT) samples were typically collected at 5-foot intervals from 7 feet below ground surface until the end of the borings. Soil samples were identified and described by an AECOM field representative using procedures outlined in ASTM D2488-17, “*Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)”.* Upon completion, the boreholes were backfilled with the drilled-out materials. When needed holes were additionally infilled with silica sand. The subsurface exploration location plan and soil boring logs are presented in Appendix A.

Pavement cores were collected using a 4 5/8-inch outer diameter core barrel. The pavement consisted of asphalt underlain by gravel and sand or gravel subbase. Asphalt thickness ranged between 4.31 to 5.75 inches. Asphalt thicknesses are presented in Table 1 in Section 2.4.

2.3 Subsurface Profile

Soil borings followed a numerical naming convention ranging from B-01 to B-09. The subsurface conditions encountered within these borings are summarized by strata below, in order of increasing depth.

Surficial Materials

Ground surface conditions at all borings consisted of grass or topsoil. This covering was less than one (1) inch in thickness at all boring locations.

Fill

The grass and topsoil at the ground surface was underlain by possible fill in borings B-6 and B-7, with the depth of the potential fill deposit recorded as 2.1 and 2.0 feet below ground surface, respectively. The potential fill materials consisted of a well-graded sand containing few fine to coarse grained gravel underlain by a poorly graded sand. Within the well graded sand, sand and gravel sized particles were observed to range from fine to coarse. The poorly graded sand had particle sizes ranging from fine to medium sand.

Sand Deposit

The fill in borings B-6 and B-7, and the grass and/or topsoil in the remainder of the borings were underlain by a glacial outwash deposit consisting primarily of sand. Samples collected from this deposit were most often classified as well-graded or poorly graded sand, and less often classified as poorly graded sand with silt or silty sand. The sand in the samples was generally observed to be fine to coarse grained. Gravel, where observed, generally varied between trace and few fine to coarse grained gravel. Where observed, fines were noted to be non-plastic. The glacial outwash sand deposit extended to depths between 37 and 47.5 feet below the ground surface.

The SPT N-values within the sand deposit ranged between 10 and 108 blows per foot (bpf) indicating cohesionless densities ranging from medium dense to very dense, with 28 of 74 samples with N-values corresponding to medium dense, 34 of 74 samples corresponding to dense, and 12 of 74 samples corresponding to very dense.

Silt and Sand

A silt and sand deposit was encountered beneath the glacial outwash sand deposit at depths ranging from 37 to 47.5 feet below the ground surface. Samples collected from this deposit were classified as either silt with sand or silty sand, with the fines mostly noted as non-plastic, and the sand noted as being fine grained. All borings were terminated in this deposit at a depth of 51 feet below the ground surface.

The SPT N-values within the silt and sand deposit ranged between 7 and 124 bpf indicating densities ranging from loose sand / moderately stiff silt to very dense sand / hard silt, with 1 of 16 samples with N-values corresponding to loose/ moderately stiff, 9 of 16 samples corresponding to medium dense / stiff, 5 of 16 samples corresponding to dense / very stiff, and 1 of 16 samples corresponding to very dense / hard.

Groundwater

The groundwater depths in borings B-1 through B-9 were recorded at start of the day and on completion of each borehole. Depth to water ranged between 9.2 and 11.7 feet below ground surface. It should be noted that groundwater levels may fluctuate with precipitation, season, construction activities, run-off controls, and other factors. As a result, water levels during construction may vary from those observed during the subsurface exploration.

2.4 Pavement Cores

Pavement cores were collected for pricing of future pavement demolition as part of the redevelopment of the parking lot located immediately north of the proposed noise wall. The cores followed a numerical naming convention ranging from PC-1 to PC-10. All pavement cores consisted of bituminous pavement with average measured thickness being 4.95 inches. The thickest core was measured to a length of 5.75 inches, while the thinnest core was measured to a length of 4.31 inches. Complete results of the pavement coring effort are presented in Table 1 below. Sub bottom aggregate consisted of fine to coarse subrounded gravel and sand.

Table 1: Summary of Pavement Cores

Core ID	Collection Date	Thickness (inches)	Location*
PC-1	7/25/2022	4.69	41°43'06"N 71°26'22"W
PC-2	7/25/2022	4.50	41°43'04"N 71°26'18"W
PC-3	7/25/2022	5.00	41°43'07"N 71°26'19"W
PC-4	7/25/2022	4.50	41°43'06"N 71°26'17"W
PC-5	7/25/2022	5.00	41°43'04"N 71°26'14"W
PC-6	7/25/2022	5.75	41°43'09"N 71°26'20"W
PC-7	7/25/2022	5.25	41°43'08"N 71°26'17"W
PC-8	7/25/2022	4.31	41°43'07"N 71°26'14"W
PC-9	7/25/2022	5.50	41°43'05"N 71°26'11"W
PC-10	7/25/2022	5.00	41°43'04"N 71°26'09"W

* Positional data collected with internal iPhone GPS.

2.5 Laboratory Testing

Soil samples from the subsurface exploration were selected by AECOM and submitted for geotechnical laboratory testing. The soil samples submitted were tested for gradation analyses

(ASTM D6913). The laboratory testing was performed by GeoTesting Express of Acton, MA and results are presented on the test data sheets in Appendix B.

3. Geotechnical Design Recommendations

Geotechnical engineering evaluations have been made on various aspects related to the foundation options for the proposed noise wall. In general, these recommendations have been based on the results of subsurface investigations, laboratory testing results, and our project understanding. These data were then incorporated into our engineering evaluation, in accordance with the requirements of the RIBC.

3.1 Foundations

Drilled shaft foundations are recommended for support of the proposed noise wall. Table 2 below presents the generalized subsurface design profile to be used by the designer to complete the lateral load-deformation analyses that will dictate the length of the drilled shafts. It is assumed that the designer will use computer software such as Lpile by Ensoft or similar.

Table 2: Design Subsurface Profile

Soil Type	Model As	Effective Unit Weight (pcf)	Top of Layer Depth (ft)	Bottom of Layer Depth (ft)	Friction Angle Top & Bottom (deg)	k Top & Bottom (pci)	Cohesion, c (psf)
Fill	Sand (Reese)	120	0.0	2	32	6.4	0
Dry Sand	Sand (Reese)	125	2	9	34	45	0
Wet Sand	Sand (Reese)	62.6	9	42.5	34	30	0
Silt	Silt/Cemented Soil 1	52.6	42.5	51	32	4.2	0

Note that the above material properties were estimated based on material correlations to the SPT N-values obtained in each of the soil layers during our subsurface exploration, with the exception of the Fill, as no SPT samples were collected during vacuum explorations. Fill parameters are based on a loose to medium dense granular material.

Similarly, Table 3 below presents the estimated parameters for the axial design of the recommended drilled shafts. Axial design parameters have been calculated based on an average of the subsurface profile at the site and in accordance with the FHWA Drilled Shafts Design Manual (2018). Note that the upper 4 feet should be disregarded when calculating axial capacities due to frost.

Table 3: Axial Design Parameters

Soil Type	Top of Layer Depth (ft)	Bottom of Layer Depth (ft)	Allowable Unit Side Resistance (psf)
Sand	2	42.5	575
Silt	42.5	51	675

Note that drilled shaft design should neglect end bearing due to strain compatibility issues. Final designs should be submitted to the geotechnical engineer of record for review.

3.2 Soil Berm

The geometry of the soil berm has not been finalized at the time of this report. We assumed a berm 30 feet wide, with 2H:1V side slopes will be constructed. Based on this geometry, we estimate settlements on the order of one inch or less and settlement should occur during construction.

3.3 Seismic Design Criteria

For seismic design, a site class D is recommended in accordance with Chapter 16 of the RIBC and the seismic criteria for the site are as follows:

- Site Class:	D
- Spectral Response Acceleration at short period (S_s):	0.174 g
- Spectral Response Acceleration at 1 sec (S_1):	0.060 g
- Site Coefficient Fa (Table 1613.5.3(1)):	1.6
- Site Coefficient Fv (Table 1613.5.3(2):	2.4
- Adjusted spectral response S_{MS}:	0.2784 g
- Adjusted spectral responses S_{M1}:	0.1440 g

Based on the density of the submerged granular layers, soils at the site are not likely to be susceptible to liquefaction.

4. Construction Considerations

The purpose of this section is to discuss geotechnical related construction issues for the planned noise wall.

4.1 Drilled Shaft Construction

Design recommendations provided herein assume drilled shaft concrete will have a minimum 28-day compressive strength of 4,000 psi and a slump of 8 to 9 inches. Drilled shafts that extend more than 9 feet below the existing grade will likely encounter water and wet shaft construction using tremie placement methods will be required.

Cohesionless soils will likely necessitate the use of temporary casing during drilled shaft construction. If temporary casing is used, we recommend it consists of smooth wall structural steel of adequate strength to resist damage and deformation from transportation, handling, installation, and extraction. In addition, if temporary casing is used, we recommend the drilled shaft installer to perform the following:

- Verify the casing is slowly extracted to allow the concrete to flow into the space vacated by the casing.
- Verify the top of concrete level remains within the casing until completion of concrete placement.
- Verify the casing is pulled vertically out of the shaft to avoid disturbance to the soils around the shaft.

The outside diameter of the temporary casing should not be less than the specified diameter of the drilled shaft. Drilled shaft construction should be observed an AECOM representative to ensure shafts are properly advanced to the required depths, materials encountered are adequate for design loadings, and are consistent with conditions assumed in the design. Disposal of drilling spoils will be the responsibility of the foundation contractor.

4.2 Subgrade Preparation

Prior to fill placement for the construction of the proposed berm, loose or soft soils identified during the compaction of the subgrade should be excavated to a suitable bearing stratum as determined by the field representative of AECOM. Grades should be restored by backfilling with Granular Borrow, Gravel Borrow, or crushed stone. The fill should be placed in maximum 12-inch loose lifts.

When crushed stone is required on the drawings or it is used for the convenience of the contractor, it should be wrapped in a geotextile fabric for separation except where introduction of the geotextile promotes sliding.

4.3 Subgrade Protection

The onsite soils may be frost susceptible. If construction takes place during freezing weather, special measures such as heat blankets or other measures should be taken to prevent the subgrade from freezing. Soil used as fill should be free of frozen material, as should be the ground on which it is placed. Fill placement should be halted during freezing weather.

Surface drainage of the site should be properly maintained during construction such that subgrades are kept free of standing water. Up to the time of subgrade preparation, elevations of unsuitable areas to be excavated should remain several inches above the final bearing elevation to minimize potential exposure to wet weather and softening of the underlying soils.

4.4 Berm Considerations

Soil used as fill for the berm construction should be free of frozen material, organic matter, cobbles, boulders, un-natural soil materials such as slag, asphalt, or concrete, and other rubble greater than 6-inches in largest diameter. The fill should be placed in maximum 12-inch loose lifts.

Berm slopes should be vegetated to prevent erosion but should remain free from trees.

4.5 Protection of Existing Utilities

Existing utilities may be encountered in the vicinity of the work. Proper planning and protection measures should be implemented to protect the existing utilities and minimize impacts accordingly.

4.6 Construction Monitoring

It is recommended that AECOM be retained to provide geotechnical engineering observation and consultation services during construction to observe compliance with design and construction recommendations and specifications. The field representative would undertake the following responsibilities:

- Verify drilled shaft installation procedures;
- Observe and document drilled shaft installation;
- Monitor all dewatering operations, if used;
- Provide recommendations regarding re-use of on-site soils.
- Observe and document the placement and compaction of fill materials.

Additionally, the field representative would be present to verify and provide timely responses to the project team in the event that the actual conditions encountered differ from those described herein.

5. Limitations

The conclusions and recommendations presented in this report are based on the assumption that our understanding of the existing site conditions and the scope of the project do not change substantially from what has been described herein, and that soil conditions do not deviate substantially from those represented by the soil borings. It is recommended that communication be maintained with AECOM to ensure that the recommendations made herein are properly interpreted and incorporated into the design and during construction.

The data presented herein represent the conditions encountered at the specific locations and at the specific times at which our exploration took place. It should be noted that variations in soil and rock stratigraphy and characteristics and groundwater conditions between exploration locations, that may become evident during construction, are possible.

Background information and other data furnished to AECOM by third parties have been used to prepare this report. AECOM has relied on this information as furnished and is neither responsible for its content or accuracy.

The design of the berm and noise wall had not been finalized by the time of this report. Final designs should be submitted to the geotechnical engineer of record for review. In the event that changes are made to the nature, design, or location of the proposed improvements, the conclusions and recommendations presented herein should not be considered valid, unless AECOM has reviewed the changes, and incorporated their impact in the recommendations provided herein.

This geotechnical investigation was performed in accordance with the standard of care commonly used as state-of-practice in our profession. Specifically, our services have been performed in accordance with accepted principles and practices of the geological and geotechnical engineering professions. Our services were provided in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is intended.

6. References

ASTM D2488-17e1, “Standard Practice for Description and Identification of Soils (Visual-Manual Procedures).” ASTM International, West Conshohocken, PA, 2017, www.astm.org.

ASTM D6913/ D6913M-17, “Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis”, ASTM International, West Conshohocken, PA, 2017, www.astm.org.

Federal Highway Administration (FHWA), “Drilled Shafts: Construction Procedures and Design Methods,” Publication No. FHWA-NHI-18-024, FHWA, Washington, D.C., 2018.

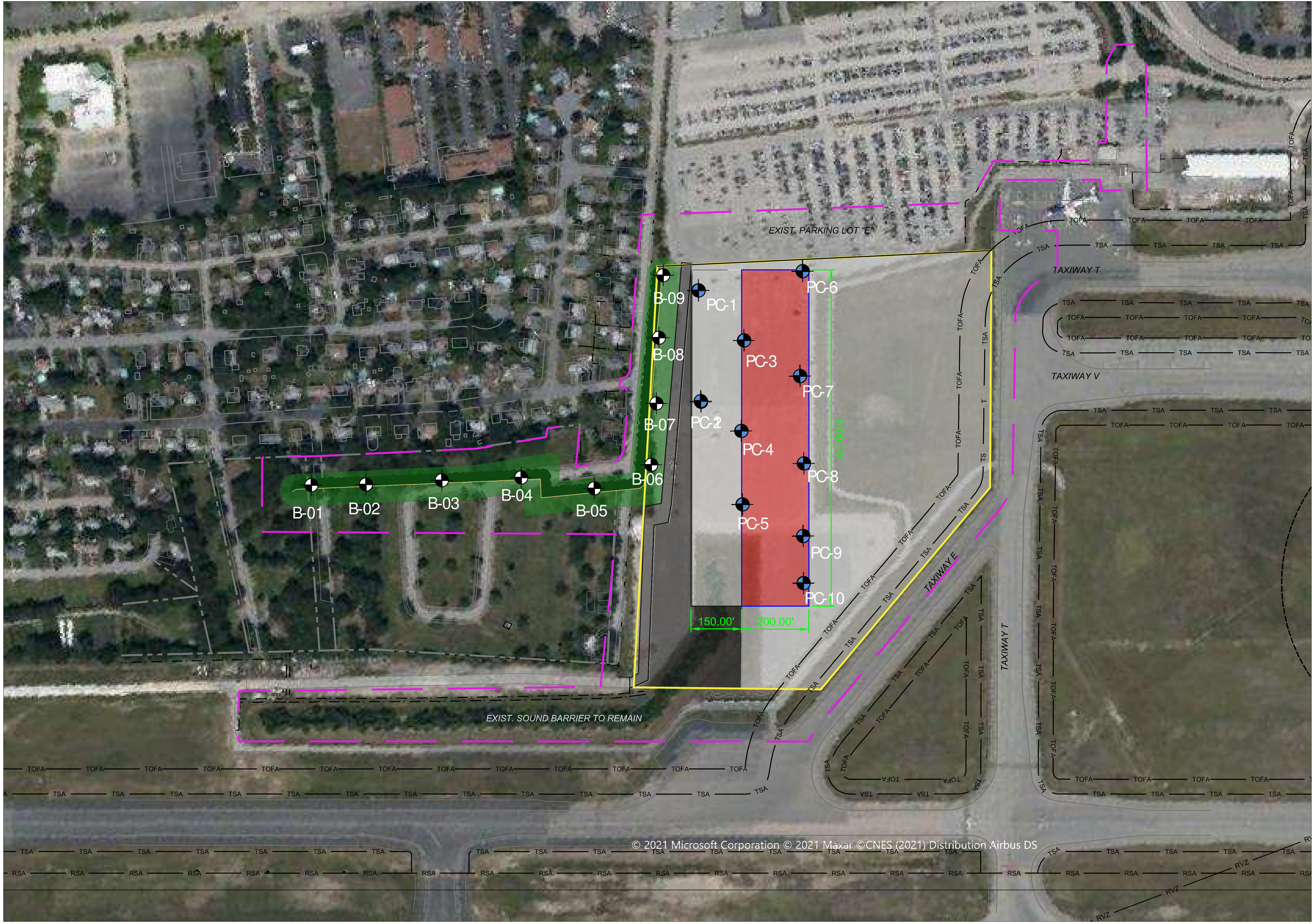
State of Rhode Island Building Code Commission, “Rhode Island Building Code,” 2019.

J. Hiram Smith, “Geologic Map of the East Greenwich Quadrangle, Rhode Island, Surficial Geology,” USGS, 1955.

APPENDIX E

Appendix A Boring Location Plan and Boring Logs

APPENDIX E



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LEGEND	
EXISTING	
— - - — - - —	EXISTING BOUNDARY LINE
— · — · — · —	EXISTING AOA FENCE
—— TSA ——	TAXIWAY SAFETY AREA
—— TOFA ——	TAXIWAY OBJECT FREE AREA
PROPOSED	
🟨	EIS BOUNDARY (26.6 AC.)
— — —	SURVEY LIMITS (49.4 AC.)
🟥	CONCEPT BUILDING LIMITS
⬜	PCC PAVEMENT
⬛	ASPHALT PAVEMENT
▨	GRAVEL OVERFLOW PARKING
🟩	GRASS
▬	SOUND BARRIER WALL WITH VEGETATION

⊕ Location of borings performed by Geologic, Inc. between July 15 and July 25, 2022.

⊕ Location of pavement cores collected by Geologic, Inc. on July 25, 2022.

KEY PLAN

300' 150' 0 300'

GRAPHIC SCALE: FEET

No.	Revision	By	App.	Date

Green Airport

FAITHFUL GOULD
Member of the SNC-Lavalin Group

AECOM

Designed By: RIAC
Drafted By: DAM
Checked By: DO
Date: 08/31/2022
Scale: 1" = 300'

THEODORE FRANCIS GREEN STATE AIRPORT
WARWICK, RHODE ISLAND

EXPLORATION LOCATION PLAN
SOUTHSIDE DEVELOPMENT

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-01

Sheet 1 of 2

Date(s) Drilled	11:45 July 20, 2022 to 15:00 July 20, 2022	Logged By	R. Munschauer	Checked By	T. Dwyer
Drilling Method	Drive and Wash with 4" steel casing	Drill Bit Size/Type	3 7/8" tri-cone roller bit	Total Depth of Borehole	51.0´ bgs
Drill Rig Type	Mobile B-57	Drilling Contractor	Geologic	Surface Elevation	41.0 ft WGS84 EGM96 Geoid
Borehole Backfill	Soil Cuttings and Bagged Sand	Sampling Method(s)	2" split spoon	Hammer Data	140 lb. donut hammer
		Groundwater Level(s)	10.2' bgs [15:05 7/20/22]		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
41.0	0.0								Light brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse subrounded to subangular gravel, occasional tree root	*Vacuumed to 5'*
33.4	7.6		SS1	11 13 19 15	32	10			SS1, Top 7.2"- Brown, Well-graded SAND (SW), fine to coarse grained SS1, Bottom 3.2" - Light brown, Poorly graded SAND (SP), fine grained	
31.5	9.5		SS2	9 18 20 21	38	17			SS2, Top 6" - Similar to SS1 SS2, Bottom 11"- Brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained subrounded to rounded gravel	▼
28.5	12.5									
	15		SS3	11 20 20 23	40	15			Olive brown, Silty SAND (SM), fine grained, some non-plastic fines	*%G=0 %S=51.2 %F=48.8*
	20		SS4	5 6 7 14	13	17			Similar to SS3	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
	25		SS5	17 14 16 14	30	18			Light brown, Poorly graded SAND (SP), fine grained	

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-01

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	11 13 13 12	26	18			Light brown, Poorly graded SAND (SP), fine grained	
10										
	35		SS7	13 15 17 19	32	17			Similar to SS6 At 34.2': 2" light brown lens of Poorly graded SAND with Silt, fine grained, few non-plastic fines, wet	
5										
	40		SS8	15 16 19 23	35	20			Similar to SS7	
0										
-1.5	42.5									
	45		SS9	16 19 21 21	40	24			Olive brown, Silty SAND (SM), fine grained, some non-plastic fines	*%G=0 %S=62.8* *%F=37.2*
-5										
	50		SS10	12 13 12 12	25	20			Similar to SS9	
-10										
-10.0	51.0								Boring Terminated at 51 ft bgs	
-15										

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-02

Sheet 1 of 2

Date(s) Drilled	**8:35 July 19, 2022 to 10:45 July 20, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**41.0 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**9.8' bgs [7:40 7/20/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	 Number	 SPT Blows/6 in.	 SPT N-Value (Uncorrected)	 Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
41.0	0								0.0 Light brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded gravel, trace subrounded cobbles	*Vacuumed to 5'. Original hole discovered an ~4" PVC pipe 2' down. Offset borehole 5' to avoid utility.*
40										
	5									
35										
			SS1	24 30 35 30	65	12			Light brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained subrounded gravel	
	10		SS2	25 32 25 30	57	12			Similar to SS1 ▼	
30										
29.0									12.0	
	15		SS3	15 25 30 22	55	14			Light brown, Poorly graded SAND (SP), fine to medium grained	
25										
	20		SS4	12 17 20 20	37	12			Light brown, Poorly graded SAND (SP), fine grained	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
20										
16.8									24.2 SS5, Top 2.4" - Similar to SS4	
16.3	25		SS5	9 19 24 26	43	14			24.7 SS5, Middle 6" - Light brown, Well-graded SAND (SW), fine to coarse grained	*%G=1.2 %S=97 %F=1.8*
15									SS5, Bottom 6" - Light brown, Poorly graded SAND (SP),	

AECOM

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:12 PM

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-02

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15									fine to medium grained	
	30		SS6	13 18 12 23	30	19			Light brown, Poorly graded SAND (SP), fine to medium grained	
10										
	35		SS7	12 22 31 40	53	16			Light olive brown to light gray, Poorly graded SAND (SP), fine grained, trace non-plastic fines	
5										
	40		SS8	12 12 15 19	27	22			Light greenish gray, Poorly graded SAND, fine grained, trace non-plastic fines	*%G=0 %S=53.8 %F=46.2*
0										
	45		SS9	12 26 39 32	65	23			Similar to SS8	
-5										
-6.5	47.5									
	50		SS10	20 18 18 20	36	23			Olive brown, Silty SAND (SM) fine grained, some non-plastic fines	
-10.0	51.0									
-10									Boring Terminated at 51 ft bgs	
-15										

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:13 PM

APPENDIX E

Project: RIAC Southside Site Work and Grading

Project Location: T.F. Green International Airport Warwick, RI

Project Number: 60682737

Log of Test Boring B-03

Sheet 1 of 2

Date(s) Drilled	**10:45 July 18, 2022 to 14:40 July 18, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**43.0 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**9.4' bgs [7:55 7/19/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
43.0	0								0.0 Brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded to subangular gravel, trace subrounded cobbles, occasional tree root	*Vacuumed to 5'.*
40										
	5									
35			SS1	39 56 52 44	108	12			Light brown, Well-graded SAND (SW), fine to coarse grained, few fine grained subrounded to rounded gravel	
	10		SS2	42 37 44 33	81	11			SS2, Top 9.6" - Similar to SS1 ▼	
33.2									9.8 SS2, Bottom 3" - Light brown, Poorly graded SAND (SP), fine to medium grained, trace fine grained subrounded gravel	
30										
	15		SS3	9 11 30 39	41	14			Light gray, Silty SAND (SM), fine grained, some non-plastic fines At 15.1': sample now light brown	*%G=0 %S=62.7 %F=37.3*
25										
	20		SS4	12 16 22 24	38	13			Similar to SS3	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
20										
	25		SS5	27 22 21 16	43	23			Similar to SS3	

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-03

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	12 13 13 16	26	18			Light gray Poorly graded SAND (SP), fine to medium grained At 30.4': 2" brown color lens	
10										
	35		SS7	14 19 22 26	41	20			Light brown, Poorly graded SAND with Silt (SP-SM), fine grained, few non-plastic fines	*%G=0 %S=87.5* *%F=12.5*
5										
	40		SS8	8 12 15 16	27	19			Similar to SS7 At 39.5: 1/4" light gray silt lens	
0										
	45		SS9	7 14 24 23	38	18			Similar to SS7	
-4.5	47.5									
-5										
	50		SS10	9 6 7 9	13	24			Olive brown to light gray, Silty SAND (SM), fine grained, little to some non-plastic fines	
-8.0	51.0								Boring Terminated at 51 ft bgs	
-10										

AECOM

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:19 PM

APPENDIX E

Project: RIAC Southside Site Work and Grading **Project Location:** **T.F. Green International Airport Warwick, RI** **Project Number:** **60682737**	**Log of Test Boring B-04** Sheet 1 of 2

Date(s) Drilled	**12:30 July 15, 2022 to 10:00 July 18, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**43.1 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**10.75' bgs [7:45 7/18/22]** **10.1' bgs [10:00 7/18/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
43.1	0.0	☝							Brown, Well-graded SAND with Gravel (SW), fine to coarse grained, little fine to coarse grained subrounded gravel, trace subrounded cobbles	*Vacuumed to 5'*
38.1	5.0									
			SS1	24 32 33 20	65	8			Brown, Well-graded SAND (SW), fine to coarse grained, few fine grained subrounded to rounded gravel	
33.5	9.6		SS2	22 17 15 16	32	9			SS2, Top 6" - Similar to SS1 SS2, Bottom 3" - Light brown, Poorly graded SAND (SP), fine to medium grained ▼	
	15		SS3	5 5 8 9	13	7			Light brown, Poorly graded SAND (SP), fine to medium grained	
	20		SS4	5 9 11 13	20	9			Similar to SS3 but gray	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
	25		SS5	6 8 14 15	22	21			Light brown, Poorly graded SAND (SP), fine grained At 25.1': 2" light gray lens of silt	*%G=0 %S=96 %F=4*

Elevation scale: 40, 35, 30, 25, 20
Depth scale: 0, 5, 10, 15, 20, 25

AECOM

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:25 PM

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-04

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	15 24 23 27	47	22			Light brown, Poorly graded SAND (SP), fine to medium grained	
10										
	35		SS7	9 16 18 18	34	16			Light brown, Poorly graded SAND (SP), fine grained	
5										
	40		SS8	9 9 15 13	24	18			Similar to SS7	
0										
								-0.9	44.0	
	45		SS9	11 12 17 22	29	13			Brown, SILT with Sand (ML), non-plastic, little fine grained sand	*%G=0 %S=20.4* *%F=79.6*
-5										
	50		SS10	49 62 62 54	124	18			Light gray, SILT with Sand (ML) , non-plastic, little to some fine grained sand	
								-7.9	51.0	
									Boring Terminated at 51 ft bgs	
-10										

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:25 PM

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-05

Sheet 1 of 2

Date(s) Drilled	8:05 July 15, 2022 to 11:25 July 15, 2022	Logged By	R. Munschauer	Checked By	T. Dwyer
Drilling Method	Drive and Wash with 4" steel casing	Drill Bit Size/Type	3 7/8" tri-cone roller bit	Total Depth of Borehole	51.0´ bgs
Drill Rig Type	Mobile B-57	Drilling Contractor	Geologic	Surface Elevation	42.4 ft WGS84 EGM96 Geoid
Borehole Backfill	Soil Cuttings and Bagged Sand	Sampling Method(s)	2" split spoon	Hammer Data	140 lb. donut hammer
		Groundwater Level(s)	11.5' bgs [12:00 7/15/22]		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
42.4	0 / 0.0	✋							Brown, Well-graded SAND with Gravel (SW), fine to coarse grained, little fine to coarse grained subrounded to subangular gravel, scattered tree root	*Vacuumed to 5'*
40										
37.4	5 / 5.0									
35			SS1	26 34 38 29	72	12			Brown, Well-graded SAND (SW), fine to coarse grained, few fine grained subrounded gravel	
32.9	9.5 / 10		SS2	21 29 24 16	53	11			SS2, Top 6" - Similar to SS1 SS2, Bottom 5" - Brown, Poorly graded SAND (SP), fine to medium grained	
									▼	
30										
	15		SS3	4 4 6 6	10	12			SS3, Top 3.6" - Light brown, Poorly graded SAND (SP), fine grained, trace fine grained rounded to subrounded gravel At 14.1': pocket of gravel SS3, Bottom 8" - Brown, Poorly graded sand(SP), fine to coarse grained, trace fine grained subrounded gravel	*%G=0.8 %S=96.9 %F=2.3*
25										
	20		SS4	11 12 18 18	30	15			Light brown, Poorly graded SAND (SP), fine grained At 20.0': dense, light brown, Poorly graded SAND (SP), fine to medium grained	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
20										
	25		SS5	9 7 14 16	21	14			Light brown, Poorly graded SAND (SP), fine to medium grained	

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APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-05

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	10 15 17 22	32	17			Light brown, Poorly graded SAND (SP), fine to medium grained	
10										
	35		SS7	18 15 17 16	32	16			Light brown, Poorly graded SAND (SP), fine grained, trace non-plastic fines At 34.9': 1/4" gray silt lens	
5										
	40		SS8	10 13 16 18	29	17			Similar to SS7	
0									-0.1 42.5	
	45		SS9	10 12 13 14	25	18			Gray, SILT with Sand (ML), non-plastic, some fine grained sand	*%G=0 %S=33.5 %F=66.5*
-5										
	50		SS10	11 17 22 21	39	19			Similar to SS9	
									-8.6 51.0	
									Boring Terminated at 51 ft bgs	
-10										

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APPENDIX E

Project: RIAC Southside Site Work and Grading	**Log of Test Boring B-06**
Project Location: T.F. Green International Airport Warwick, RI	Sheet 1 of 2
Project Number: 60682737	

Date(s) Drilled	**10:30 July 19, 2022 to 14:00 July 19, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**41.7 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**9.4' bgs [14:05 7/19/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
41.7	0.0								Light brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded gravel	*Vacuumed to 5'*
41.0	0.8								Light brown, Poorly graded SAND (SP), fine to medium grained	
39.6	2.1								Light brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded gravel	
			SS1	25 26 33 28	59	10			Light brown, Poorly graded SAND with Silt (SP-SM), fine to coarse grained, few non-plastic fines, few fine grained subrounded to rounded gravel	*%G=0.3 %S=92.9 %F=6.8*
			SS2	11 18 19 13	37	13			SS2, Top 6" - Similar to SS6 SS2, Bottom 8" - Brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained subrounded to rounded gravel	
27.4	14.3		SS3	14 17 15 36	32	13			SS3, Top 3.6" - Light brown, Well-graded SAND (SW), fine to coarse grained SS3, Bottom 7" - Light brown, Poorly graded SAND (SP), fine grained At 14.3': 3/4" gray lens of silt	*4" casing advanced to 14' bgs. Open hole until completion utilizing a drilling mud additive.*
21.8	19.9		SS4	6 12 13 27	25	17			SS4, Top 12" - Similar to SS3 SS4 Bottom 5" - Brown, Well-graded SAND (SW), fine to coarse grained	
18.2	23.5		SS5	11 12 14 14	26	18			Light brown, Poorly graded SAND (SP), fine to medium grained, trace fine grained rounded gravel	

Elevation scale: 40, 35, 30, 25, 20. Depth scale: 0, 5, 10, 15, 20, 25.

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-06

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	18 18 22 25	40	18			SS6, Top 4.8" - Light brown, Poorly graded SAND (SP), fine to medium grained, trace fine grained rounded gravel SS6, Bottom 13" - Light brown, Poorly graded SAND (SP), fine grained	
10										
	35		SS7	11 14 18 25	32	13			Light brown, Poorly graded SAND (SP), fine grained	
5										
	40		SS8	10 16 15 15	31	14			Similar to SS7	
0										
-0.3	42.0									
	45		SS9	5 9 11 13	20	16			Bue/gray, SILT with Sand (ML), non-plastic, little fine grained sand	*%G=0 %S=24.8* *%F=75.2*
-5										
	50		SS10	7 8 6 6	14	24			Similar to SS9	
-9.3	51.0								Boring Terminated at 51 ft bgs	
-10										

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-07

Sheet 1 of 2

Date(s) Drilled	**9:00 July 21, 2022 to 13:46 July 21, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**42.5 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**9.2' bgs [13:55 7/21/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
42.5	0.0								Brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded to subangular gravel	*Vacuumed to 5'*
41.7	0.8								Brown, Poorly graded SAND (SP), fine to medium grained	
40.4	2.1								Brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded to subangular gravel	
			SS1	12 12 17 17	29	10			Light brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained gravel	
33.5	9.0		SS2	12 18 19 16	37	11			Light brown, Poorly graded SAND with Silt (SP-SM), fine to medium grained, few non-plastic fines	*%G=2.4 %S=91.3 %F=6.3*
30.0	12.5									
28.1	14.4								Dark gray, Silty SAND (SM), fine to medium grained, little non-plastic fines	
			SS3	6 7 10 18	17	11			Light brown, Poorly graded SAND (SP), fine to coarse grained, few non-plastic fines	
25.0	17.5		SS4	10 7 7 10	14	10			Light brown to gray, Well-graded SAND (SW), fine to coarse grained	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
20.5	22.0		SS5	8 10 10 10	20	5			Light brown to gray, Poorly graded SAND (SP), fine to coarse grained	

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Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-07

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES						Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
		Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in				
15										
	30		SS6	10 15 16 12	31	12			Light brown to gray, Poorly graded SAND (SP), fine to medium grained	
10										
	35		SS7	13 14 13 16	27	14			Similar to SS6	
5										
	40		SS8	9 15 15 18	30	17			Light brown and reddish brown, Poorly graded SAND (SP), fine to medium grained	
0									0.0 42.5	
	45		SS9	9 14 18 17	32	18			Gray, SILT with Sand (ML), medium plasticity, little fine grained sand	
-5										
	50		SS10	3 3 4 9	7	24			Similar to SS10	%G=0 %S=21.2 %F=78.8
									-8.5 51.0	
									Boring Terminated at 51 ft bgs	
-10										

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:43 PM

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-08

Sheet 1 of 2

Date(s) Drilled	8:05 July 22, 2022 to 12:20 July 22, 2022	Logged By	R. Munschauer	Checked By	T. Dwyer
Drilling Method	Drive and Wash with 4" steel casing	Drill Bit Size/Type	3 7/8" tri-cone roller bit	Total Depth of Borehole	51.0´ bgs
Drill Rig Type	Mobile B-57	Drilling Contractor	Geologic	Surface Elevation	42.9 ft WGS84 EGM96 Geoid
Borehole Backfill	Soil Cuttings and Bagged Sand	Sampling Method(s)	2" split spoon	Hammer Data	140 lb. donut hammer
		Groundwater Level(s)	11.7' [11:45 7/22/22]		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
42.9	0.0								Brown, Well-graded SAND with Gravel (SW), fine to coarse grained, little fine to coarse grained subrounded to subangular gravel	*Vacuumed to 5'. Original hole discovered an ~6" metal fire water pipe 2.5' down. Offset borehole 5' to avoid utility.*
37.9	5.0									
35			SS1	12 14 18 16	32	11			Light brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained gravel	
	10		SS2	4 14 20 12	34	11			Similar to SS2, no gravel	
30.9	12.0									
	15		SS3	9 12 13 31	25	12			Light brown, Silty SAND (SM), fine with trace medium grained, little non-plastic fines	*%G=0 %S=79.7 %F=20.3*
25.9	17.0									
	20		SS4	9 7 12 8	19	9			Light brown, Well-graded SAND (SW), fine to medium with few coarse grained	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
	25		SS5	4 4 6 7	10	12			Similar to SS4	

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Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-08

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES						Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
		Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in				
									15.9 — 27.0	
15										
	30	◣	SS6	7 8 11 14	19	16			Light brown, Poorly graded SAND (SP), fine to medium with few coarse grained	
10									10.4 — 32.5	
	35	◣	SS7	10 21 24 23	45	14			Brown/red, Well-graded SAND (SW), fine to medium with trace coarse grained	
									5.9 — 37.0	
5										
	40	◣	SS8	11 18 11 14	29	18			Light brown to gray, Silty SAND (SM), fine grained, little non-plastic fines	
0										
	45	◣	SS9	14 13 17 18	30	21			Gray, Silty SAND (SM), fine grained, little to some non-plastic fines	
									-4.6 — 47.5	
-5										
	50	◣	SS10	4 4 6 4	10	23			Gray, SILT (ML), medium plasticity, trace fine sand	*%G=0 %S=2.3* *%M=97.7*
									-8.1 — 51.0	
									Boring Terminated at 51 ft bgs	
-10										

APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-09

Sheet 1 of 2

Date(s) Drilled	**13:00 July 22, 2022 to 10:35 July 25, 2022**	Logged By	**R. Munschauer**	Checked By	**T. Dwyer**
Drilling Method	**Drive and Wash with 4" steel casing**	Drill Bit Size/Type	**3 7/8" tri-cone roller bit**	Total Depth of Borehole	**51.0´ bgs**
Drill Rig Type	**Mobile B-57**	Drilling Contractor	**Geologic**	Surface Elevation	**43.6 ft WGS84 EGM96 Geoid**
Borehole Backfill	**Soil Cuttings and Bagged Sand**	Sampling Method(s)	**2" split spoon**	Hammer Data	**140 lb. donut hammer**
		Groundwater Level(s)	**11.0' bgs [8:20 7/25/22]** **10.5' bgs [10:40 7/25/22]**		

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
43.6	0.0	✋							Light brown to brown, Well-graded SAND (SW), fine to coarse grained, few fine to coarse grained subrounded to subangular gravel	*Vacuumed to 5'*
36.6	7.0		SS1	19 28 28 21	56	10			Grayish brown, Poorly graded SAND with Silt (SP-SM), fine to coarse grained, few non-plastic fines, trace fine gravel	*%G=4.0 %S=89.8* *%F=6.2*
			SS2	18 24 23 27	47	10			Similar to SS1 ▼	
31.6	12.0		SS3	15 11 19 15	30	5			Gray/brown, Poorly graded SAND (SP), fine to medium with trace coarse grained	
			SS4	4 5 7 9	12	8			Light brown, Poorly graded SAND (SP), fine to medium grained	*4" casing advanced to 19' bgs. Open hole until completion utilizing a drilling mud additive.*
21.6	22.0		SS5	7 9 9 9	18	17			Light brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained subrounded gravel	

Elevation scale: 40, 35, 30, 25, 20; Depth scale: 0, 5, 10, 15, 20, 25

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APPENDIX E

Project: RIAC Southside Site Work and Grading
Project Location: T.F. Green International Airport Warwick, RI
Project Number: 60682737

Log of Test Boring B-09

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	SPT Blows/6 in.	SPT N-Value (Uncorrected)	Recovery, in		Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER DETAILS
15										
	30		SS6	6 8 10 12	18	14			Light brown, Well-graded SAND (SW), fine to coarse grained, trace fine grained subrounded gravel	
10										
9.3	34.3								SS7 Top 3.6" - Similar to SS6	
	35		SS7	10 12 13 12	25	17			SS7 Bottom 13"- Light gray/brown, Poorly graded SAND (SP), fine grained	
5										
	40		SS8	10 16 17 13	33	17			Similar to SS7	
0										
	45		SS9	5 6 8 13	14	19			Similar to SS7	
-3.9	47.5									
-5										
	50		SS10	12 9 4 3	13	23			Light greenish gray, SILT with SAND (ML), non-plastic, little fine grained sand	*%G=0 %S=20.3* *%F=79.7*
-7.4	51.0								Boring Terminated at 51 ft bgs	
-10										

Report: GEO_CR_WITH_N_VALUE; File L:\SECURE_DCS\RESOURCES\LEGACY\PRIVATE\AE_DEPTS\GEOT\PROJECT FILES (GEOTECH)\RIAC SOUTHSIDE DEVELOPMENT - 60682737\GINT LOGS\RIAC SOUTHSIDE LOGS.GPJ; 8/31/2022 1:43:55 PM

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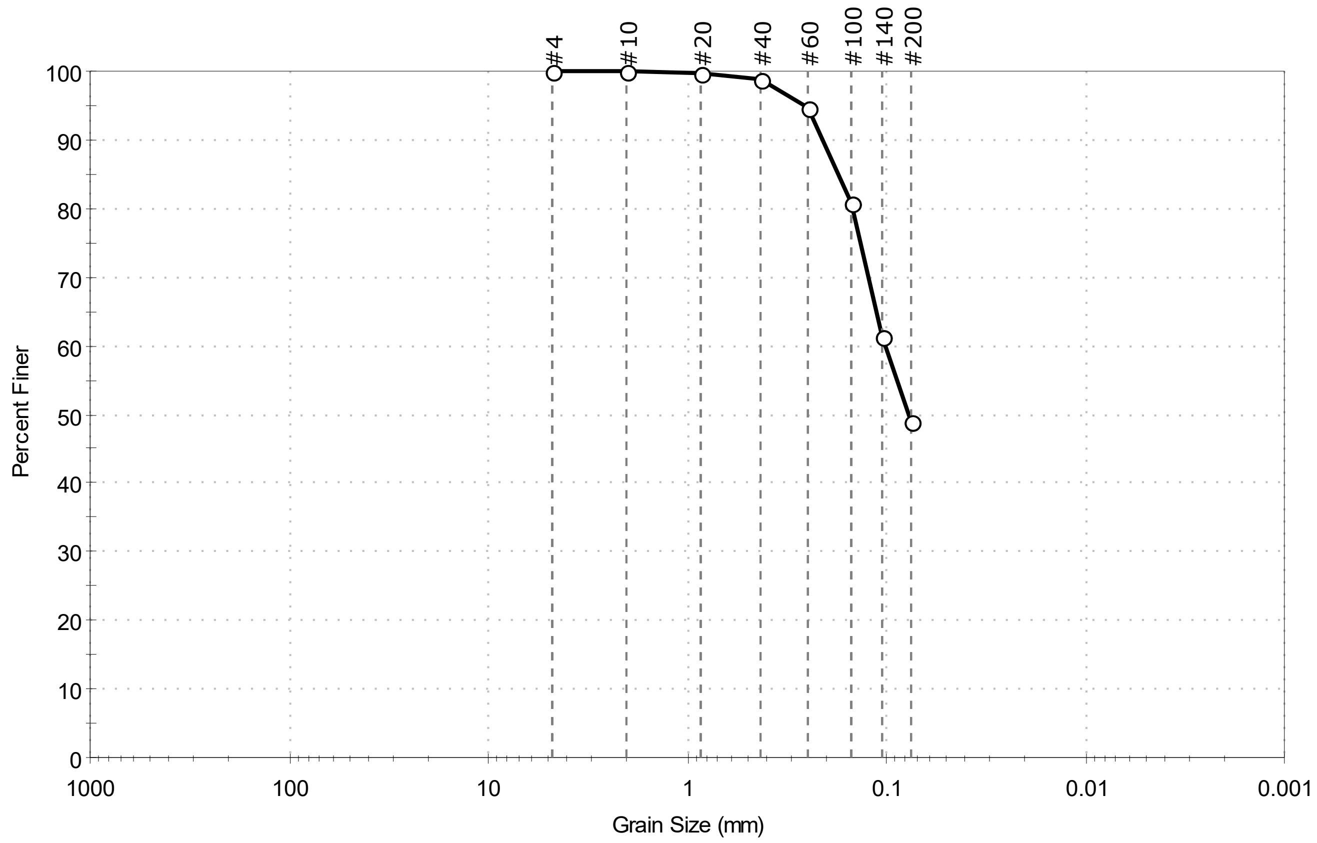
Appendix B Laboratory Testing Results

GeoTesting
EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-1	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-3	Test Date:	08/03/22	Checked By:	bfs
Depth :	14-16	Test Id:	680408		

Test Comment: ---
Visual Description: Moist, olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	51.2	48.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	95		
#100	0.15	81		
#140	0.11	61		
#200	0.075	49		

Coefficients

D_{85} =0.1752 mm	D_{30} =N/A
D_{60} =0.1023 mm	D_{15} =N/A
D_{50} =0.0775 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

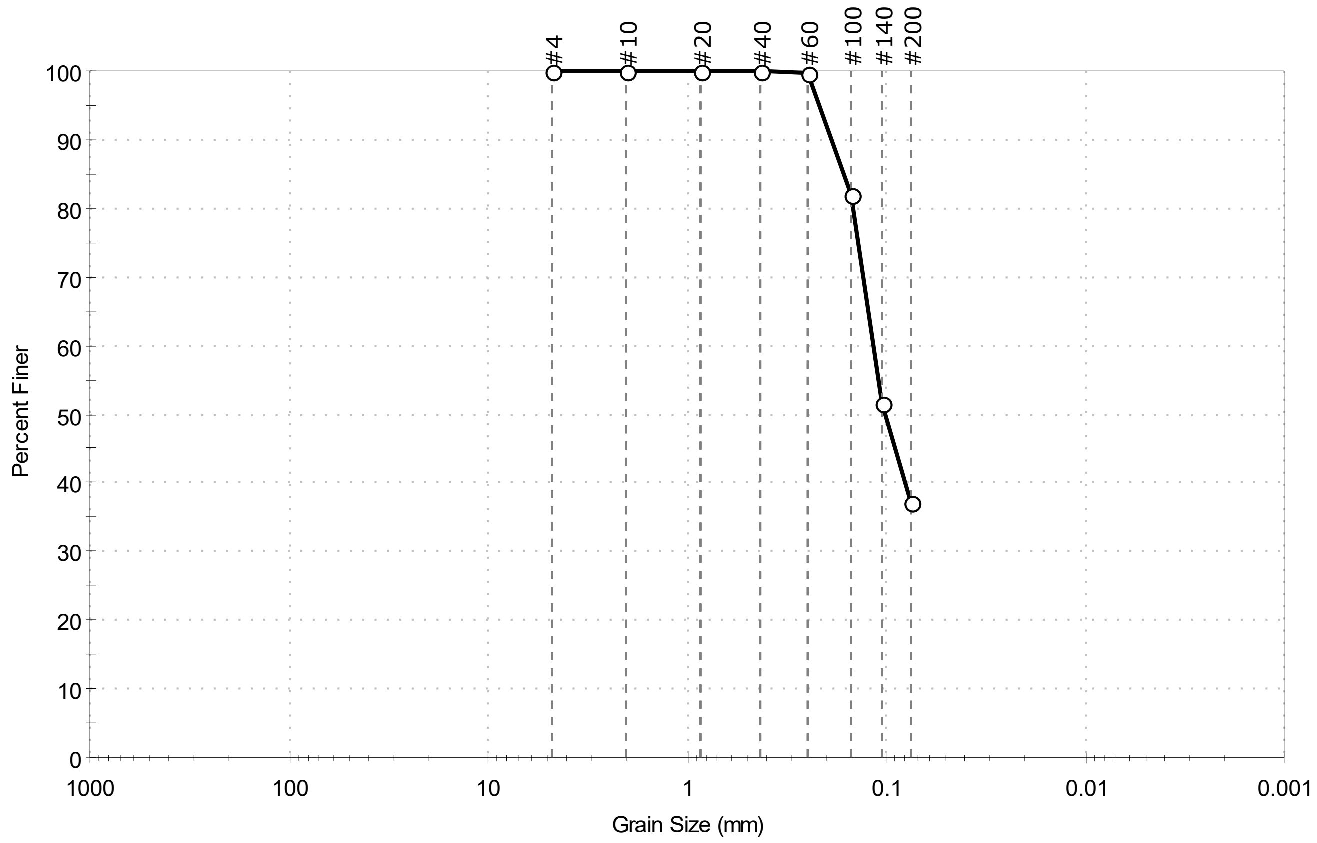
APPENDIX E

GeoTesting EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-1	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-9	Test Date:	08/03/22	Checked By:	bfs
Depth :	44-46	Test Id:	680409		

Test Comment: ---
Visual Description: Moist, olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	62.8	37.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	82		
#140	0.11	52		
#200	0.075	37		

Coefficients

D_{85} =0.1635 mm	D_{30} =N/A
D_{60} =0.1167 mm	D_{15} =N/A
D_{50} =0.1022 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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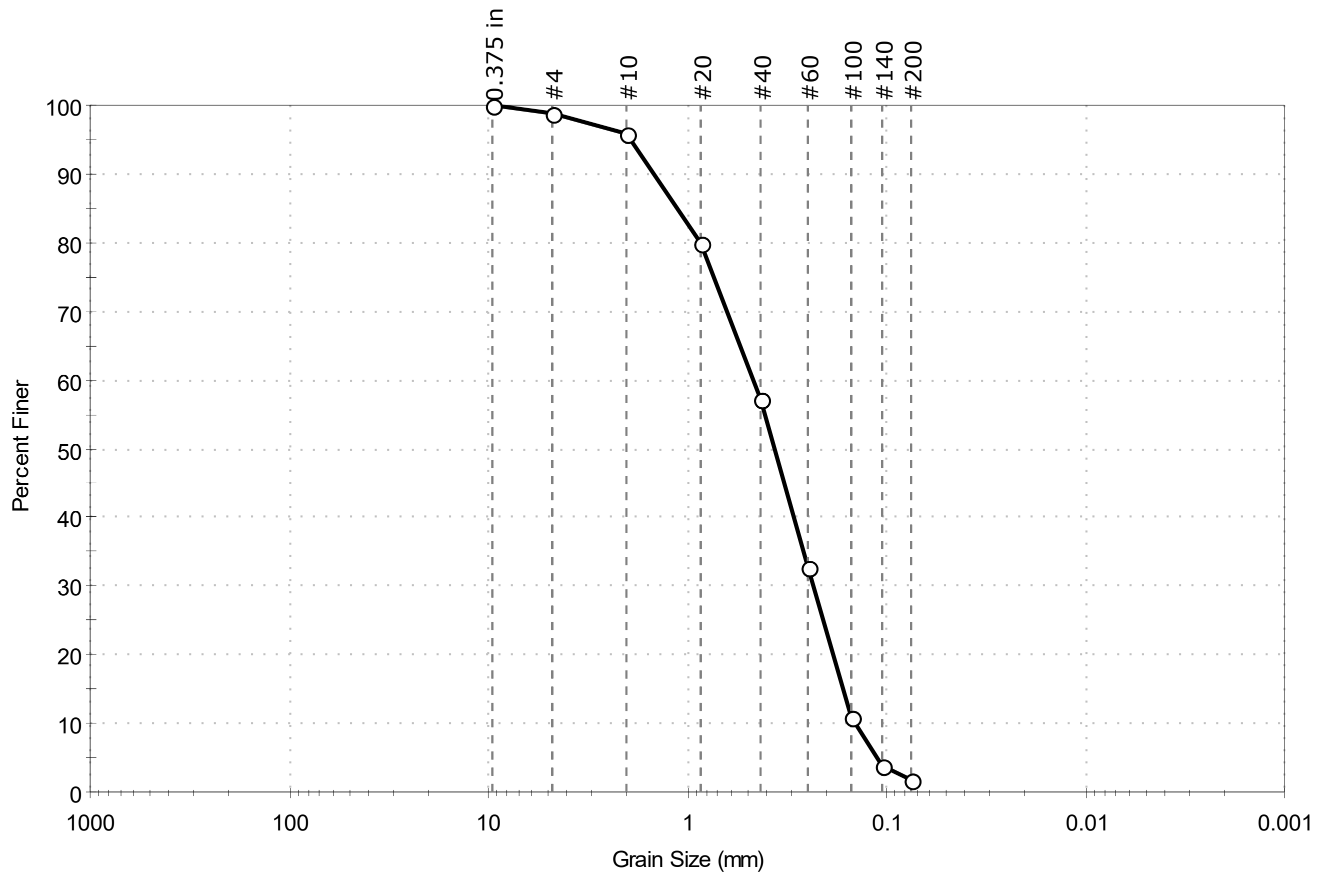
APPENDIX E

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-2	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-5B	Test Date:	08/03/22	Checked By:	bfs
Depth :	24.2-24.7	Test Id:	680410		

Test Comment: ---
Visual Description: Moist, brown sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.2	97.0	1.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	96		
#20	0.85	80		
#40	0.42	57		
#60	0.25	33		
#100	0.15	11		
#140	0.11	4		
#200	0.075	1.8		

Coefficients

D_{85} =1.1106 mm	D_{30} =0.2349 mm
D_{60} =0.4625 mm	D_{15} =0.1653 mm
D_{50} =0.3636 mm	D_{10} =0.1438 mm
C_u =3.216	C_c =0.830

Classification

ASTM	Poorly graded SAND (SP)
AASHTO	Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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APPENDIX E

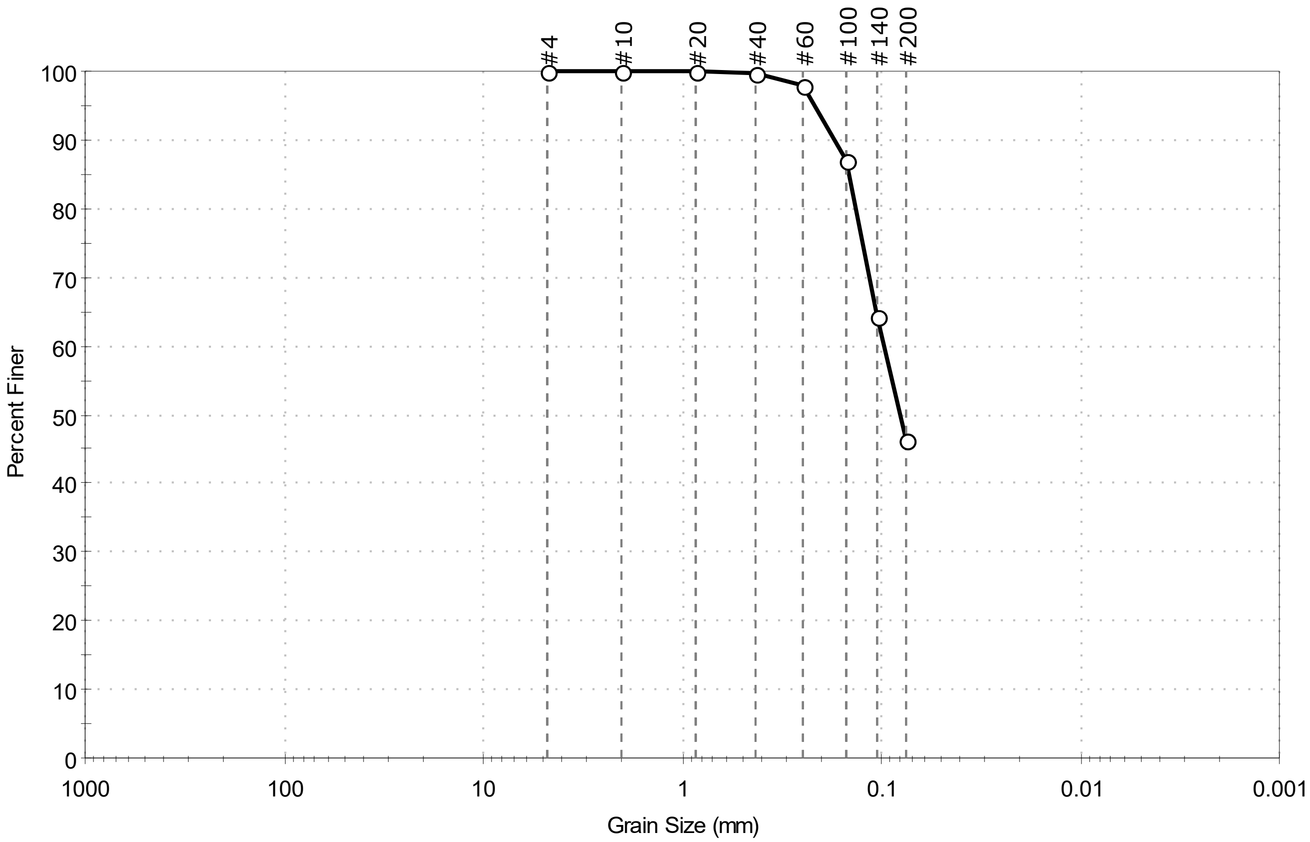
Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-2	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-8	Test Date:	08/03/22	Checked By:	bfs
Depth :	39-41	Test Id:	680411		

Test Comment: ---

Visual Description: Moist, olive brown silty sand

Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	53.8	46.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	87		
#140	0.11	64		
#200	0.075	46		

Coefficients

D_{85} =0.1452 mm	D_{30} =N/A
D_{60} =0.0978 mm	D_{15} =N/A
D_{50} =0.0807 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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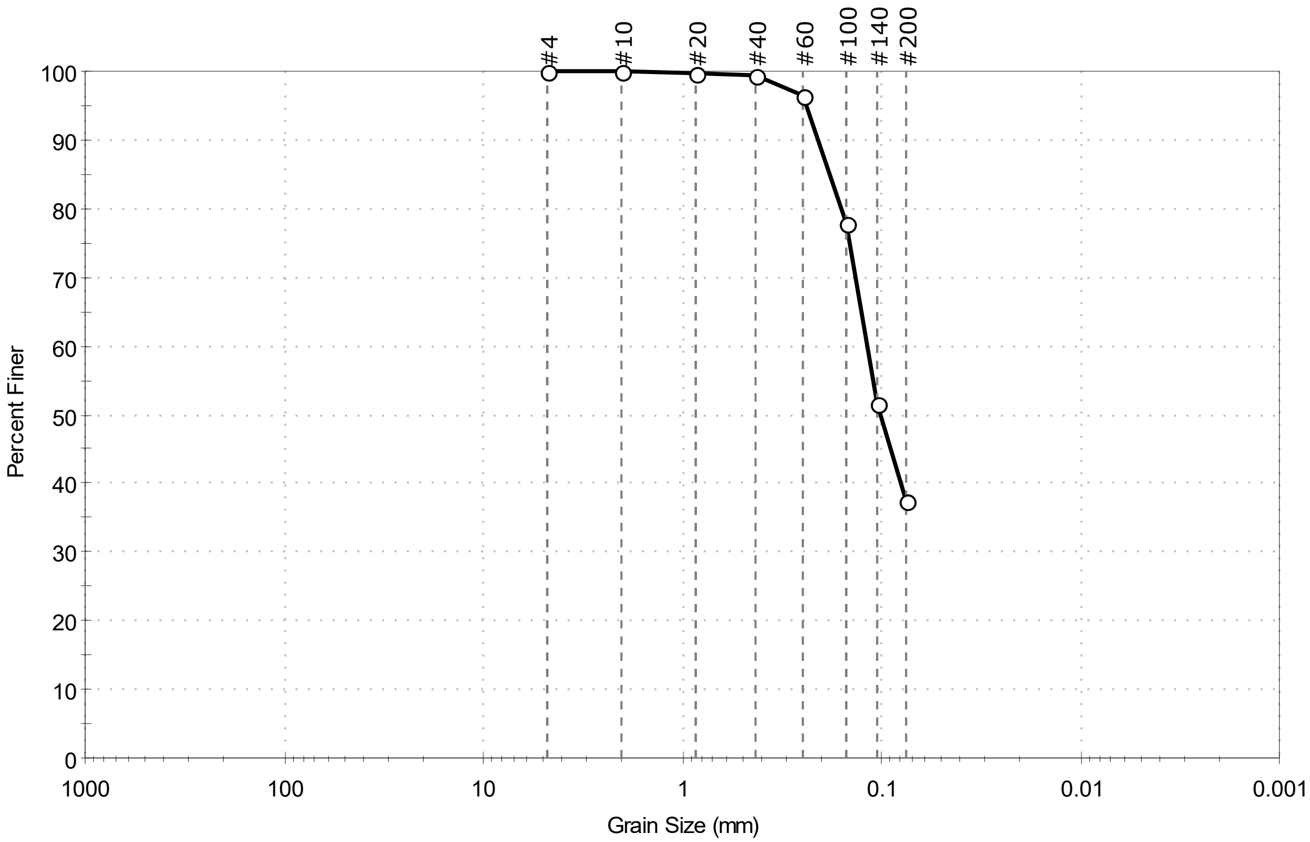
GeoTesting EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-3	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-3	Test Date:	08/03/22	Checked By:	bfs
Depth :	14-16	Test Id:	680416		

Test Comment: ---
Visual Description: Moist, gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	62.7	37.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	96		
#100	0.15	78		
#140	0.11	52		
#200	0.075	37		

Coefficients

D_{85} =0.1820 mm	D_{30} =N/A
D_{60} =0.1184 mm	D_{15} =N/A
D_{50} =0.1019 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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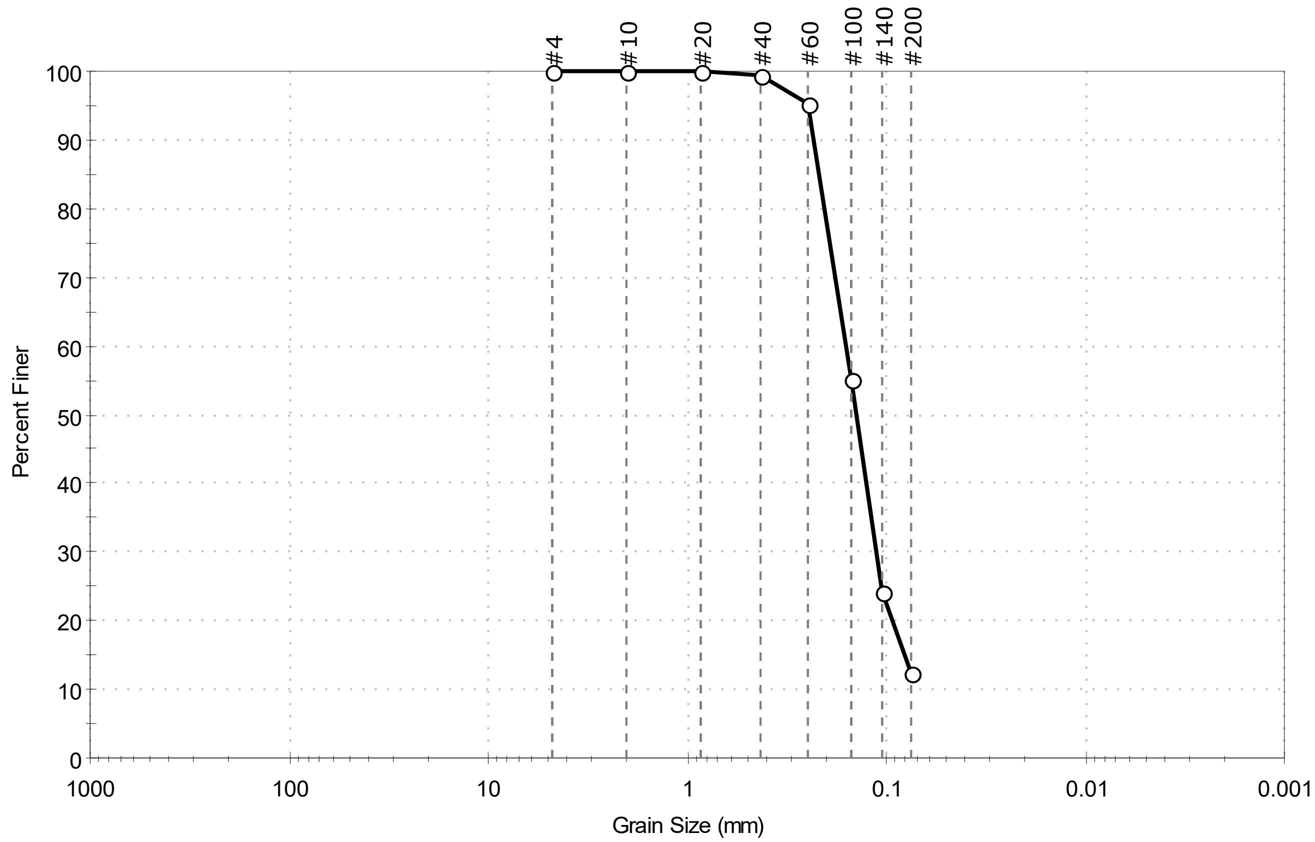
GeoTesting
EXPRESS

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843
Boring ID: B-3
Sample Type: bag
Tested By: ckg
Sample ID: SS-7
Test Date: 08/03/22
Checked By: bfs
Depth : 34-36
Test Id: 680417
Test Comment: ---
Visual Description: Moist, light brownish gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	87.5	12.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	95		
#100	0.15	55		
#140	0.11	24		
#200	0.075	13		

Coefficients

D_{85} =0.2194 mm	D_{30} =0.1132 mm
D_{60} =0.1593 mm	D_{15} =0.0808 mm
D_{50} =0.1414 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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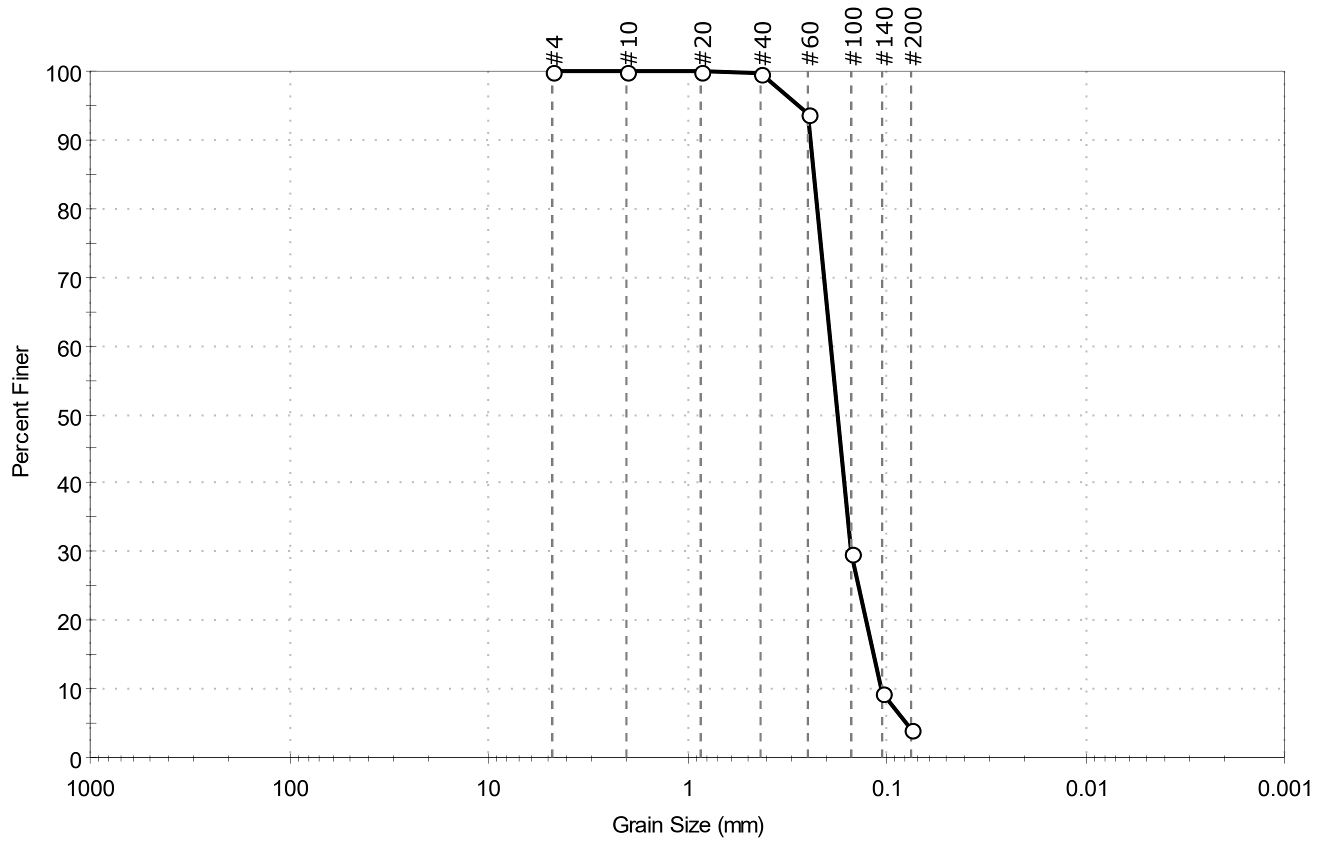
APPENDIX E

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843

Boring ID: B-4
Sample Type: bag
Tested By: ckg
Sample ID: SS-5
Test Date: 08/03/22
Checked By: bfs
Depth : 24-26
Test Id: 680412

Test Comment: ---
Visual Description: Moist, light brownish gray sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	96.0	4.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	94		
#100	0.15	30		
#140	0.11	10		
#200	0.075	4.0		

Coefficients

D_{85} =0.2331 mm	D_{30} =0.1501 mm
D_{60} =0.1908 mm	D_{15} =0.1163 mm
D_{50} =0.1761 mm	D_{10} =0.1068 mm
C_u =1.787	C_c =1.106

Classification

ASTM	Poorly graded SAND (SP)
AASHTO	Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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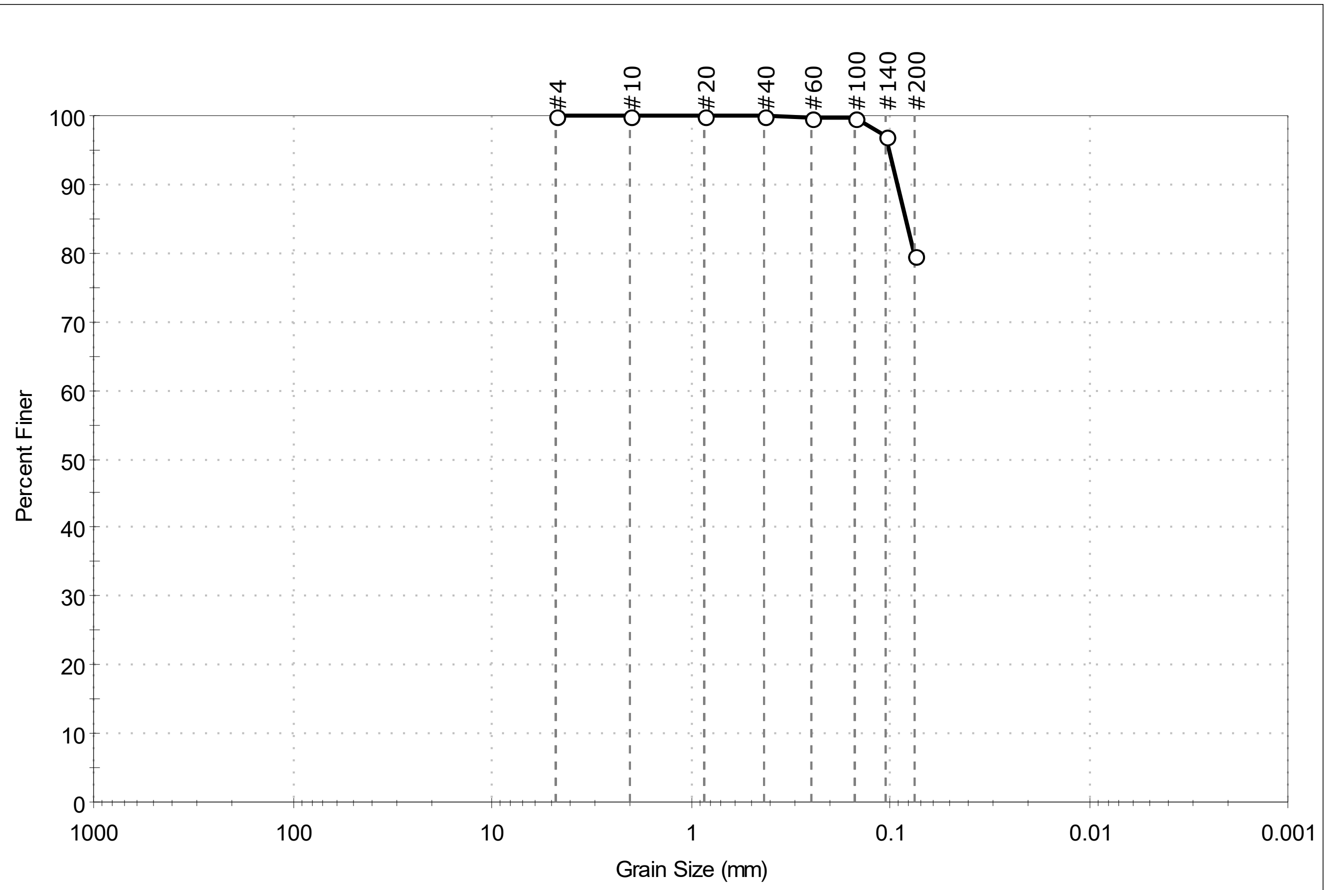
GeoTesting EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-4	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-9	Test Date:	08/03/22	Checked By:	bfs
Depth :	44-46	Test Id:	680413		

Test Comment: ---
Visual Description: Moist, brown silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	20.4	79.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	97		
#200	0.075	80		

Coefficients

D_{85} =0.0835 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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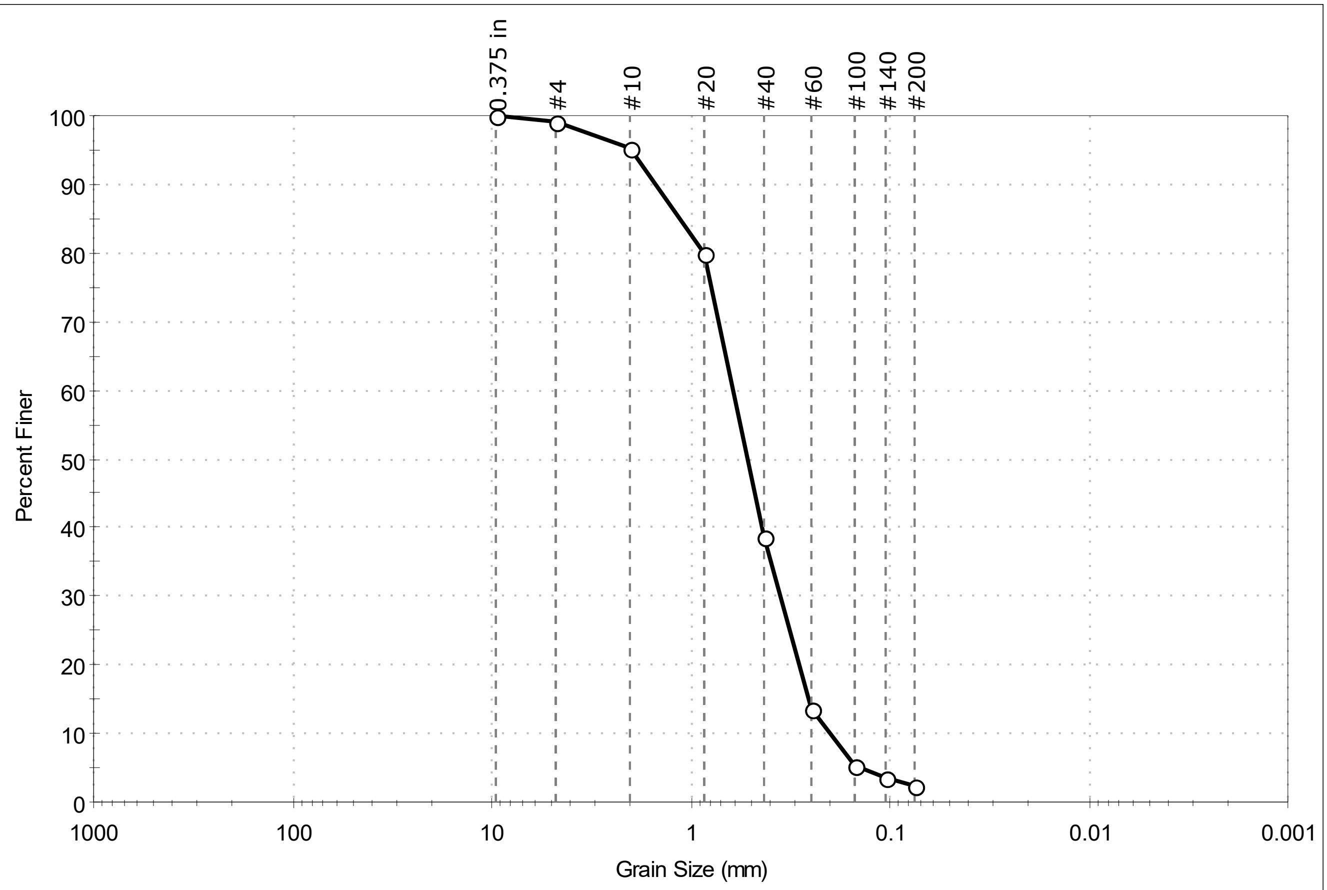
GeoTesting EXPRESS

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843
Boring ID: B-5
Sample Type: bag
Tested By: ckg
Sample ID: SS-3B
Test Date: 08/03/22
Checked By: bfs
Depth : 14.3-16
Test Id: 680414
Test Comment: ---
Visual Description: Moist, brown sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.8	96.9	2.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	95		
#20	0.85	80		
#40	0.42	39		
#60	0.25	14		
#100	0.15	5		
#140	0.11	3		
#200	0.075	2.3		

Coefficients

D_{85} =1.1291 mm	D_{30} =0.3538 mm
D_{60} =0.6080 mm	D_{15} =0.2578 mm
D_{50} =0.5139 mm	D_{10} =0.2001 mm
C_u =3.038	C_c =1.029

Classification

ASTM	Poorly graded SAND (SP)
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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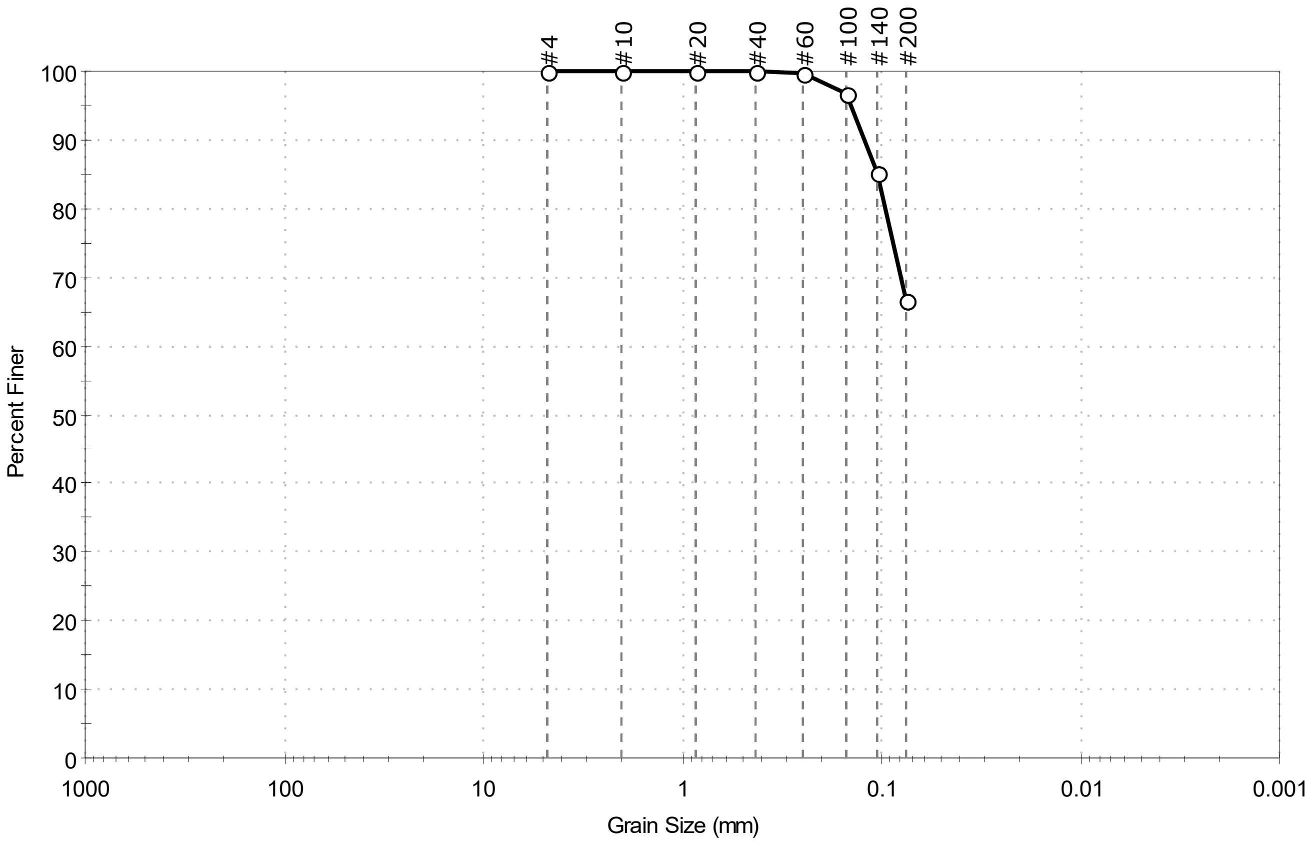
APPENDIX E

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-5	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-9	Test Date:	08/04/22	Checked By:	bfs
Depth :	44-46	Test Id:	680415		

Test Comment: ---
Visual Description: Moist, gray sandy silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	33.5	66.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	97		
#140	0.11	85		
#200	0.075	67		

Coefficients

D_{85} =0.1057 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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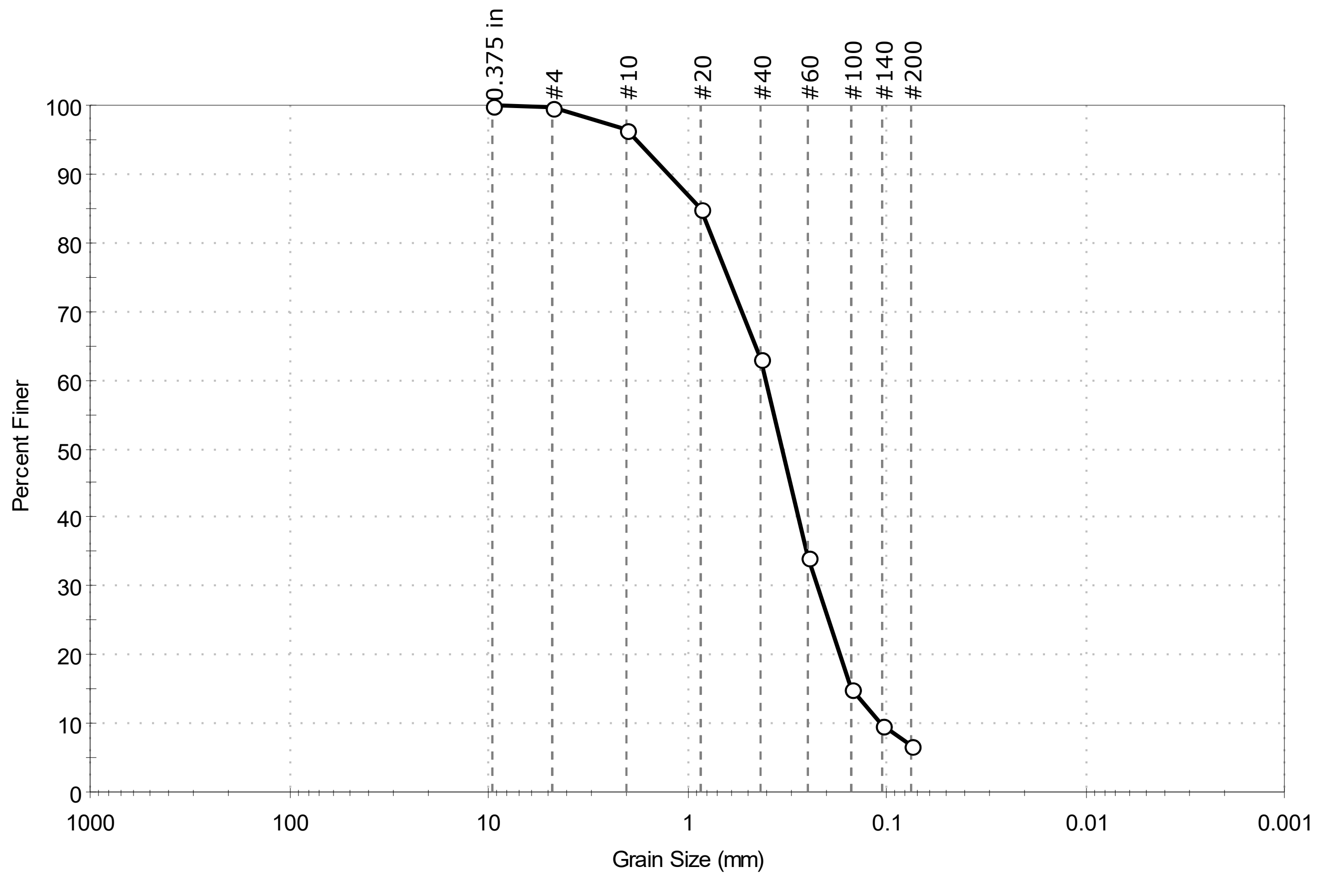
Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-6	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS-1	Test Date:	08/03/22	Checked By:	bfs
Depth :	7-9	Test Id:	680418		

Test Comment: ---

Visual Description: Moist, grayish brown sand with silt

Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.3	92.9	6.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	96		
#20	0.85	85		
#40	0.42	63		
#60	0.25	34		
#100	0.15	15		
#140	0.11	10		
#200	0.075	6.8		

Coefficients

D_{85} =0.8606 mm	D_{30} =0.2235 mm
D_{60} =0.4017 mm	D_{15} =0.1502 mm
D_{50} =0.3342 mm	D_{10} =0.1079 mm
C_u =3.723	C_c =1.152

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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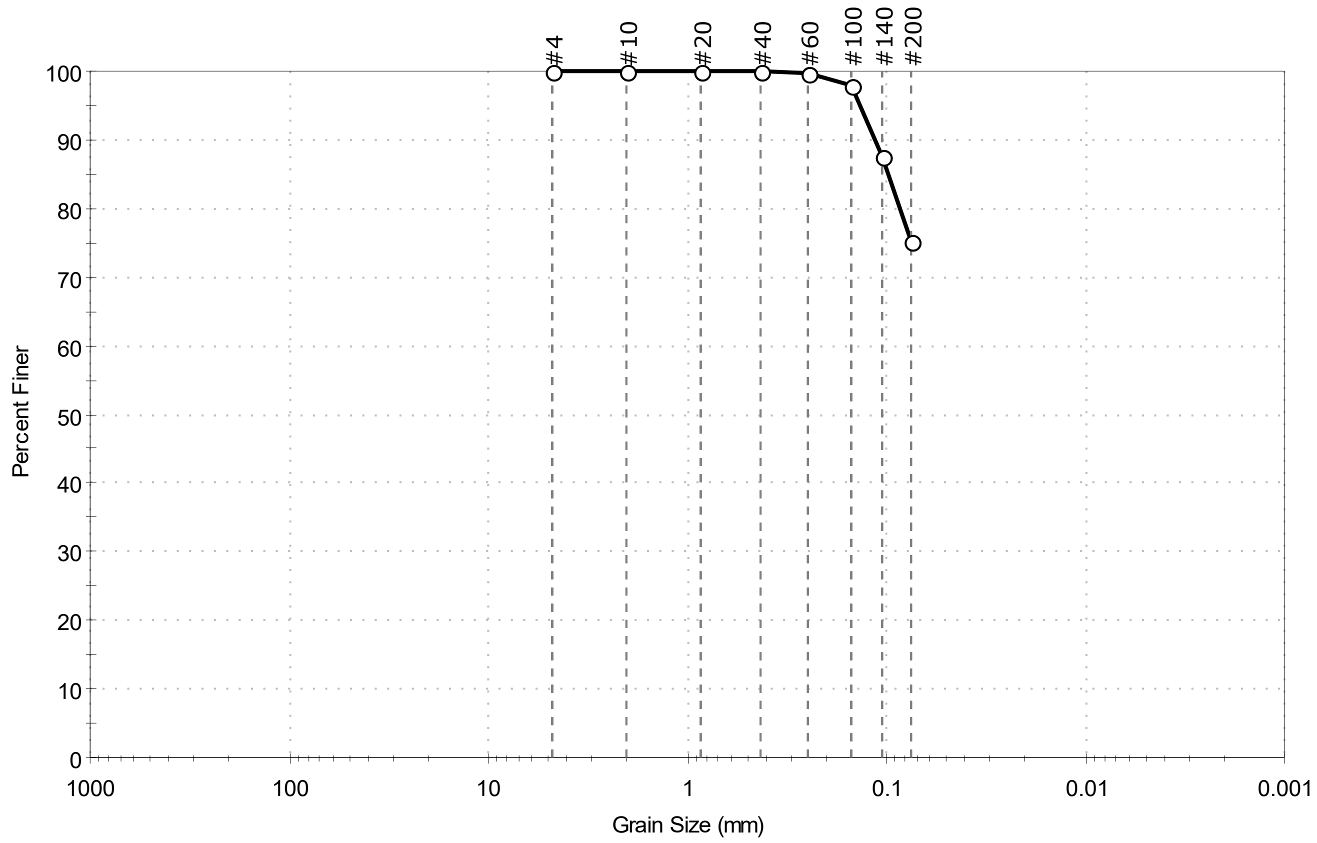
APPENDIX E

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843

Boring ID: B-6
Sample ID: SS-9
Depth : 44-46
Sample Type: bag
Test Date: 08/03/22
Test Id: 680419
Tested By: ckg
Checked By: bfs

Test Comment: ---
Visual Description: Moist, gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	24.8	75.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	98		
#140	0.11	88		
#200	0.075	75		

Coefficients

D_{85} =0.0984 mm
D_{30} =N/A
D_{60} =N/A
D_{15} =N/A
D_{50} =N/A
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

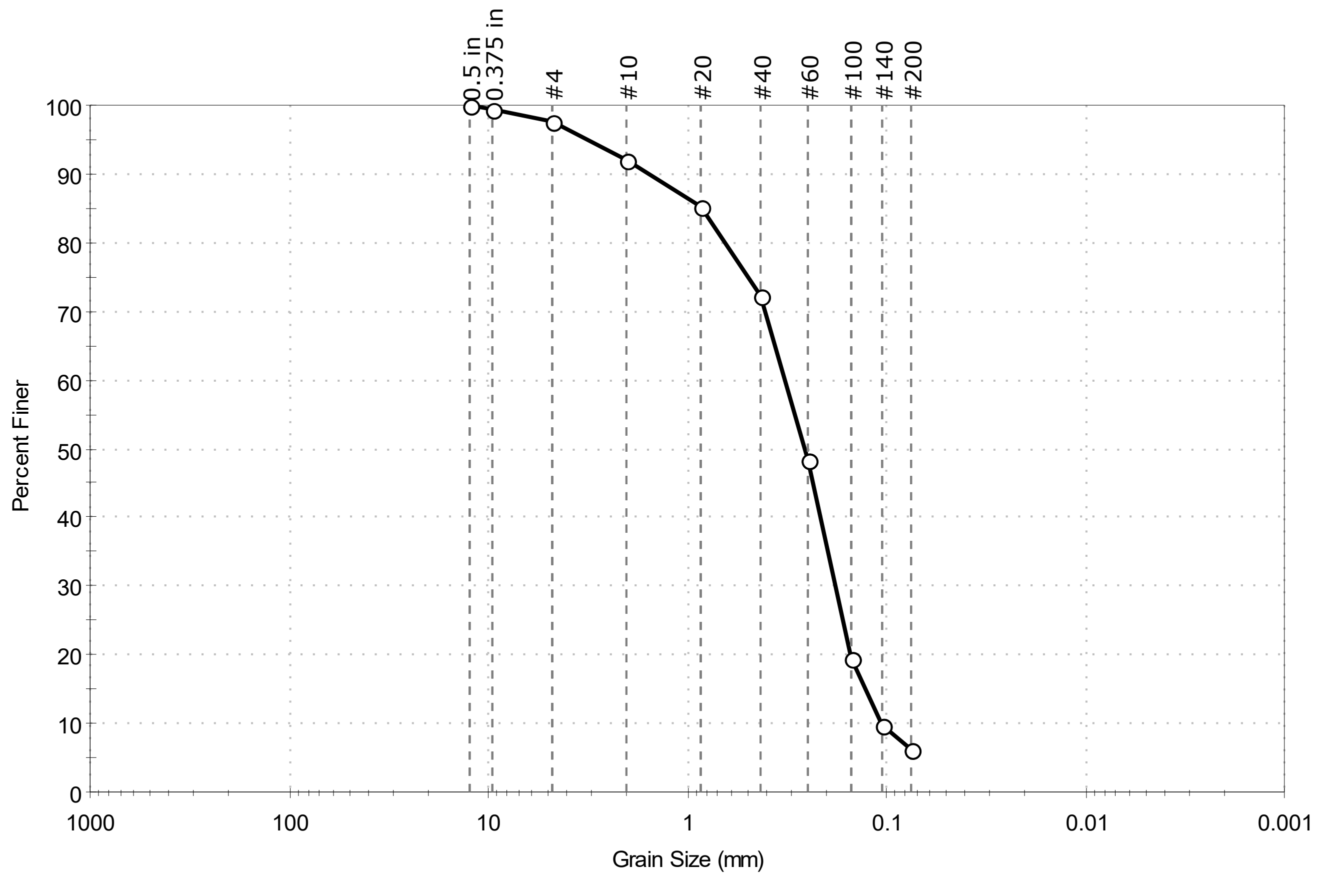
APPENDIX E

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843

Boring ID:	B-7	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS2	Test Date:	08/03/22	Checked By:	bfs
Depth :	9-11	Test Id:	680420		

Test Comment: ---
Visual Description: Moist, grayish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.4	91.3	6.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	98		
#10	2.00	92		
#20	0.85	85		
#40	0.42	72		
#60	0.25	48		
#100	0.15	19		
#140	0.11	10		
#200	0.075	6.3		

Coefficients

D_{85} =0.8398 mm	D_{30} =0.1808 mm
D_{60} =0.3236 mm	D_{15} =0.1277 mm
D_{50} =0.2596 mm	D_{10} =0.1067 mm
C_u =3.033	C_c =0.947

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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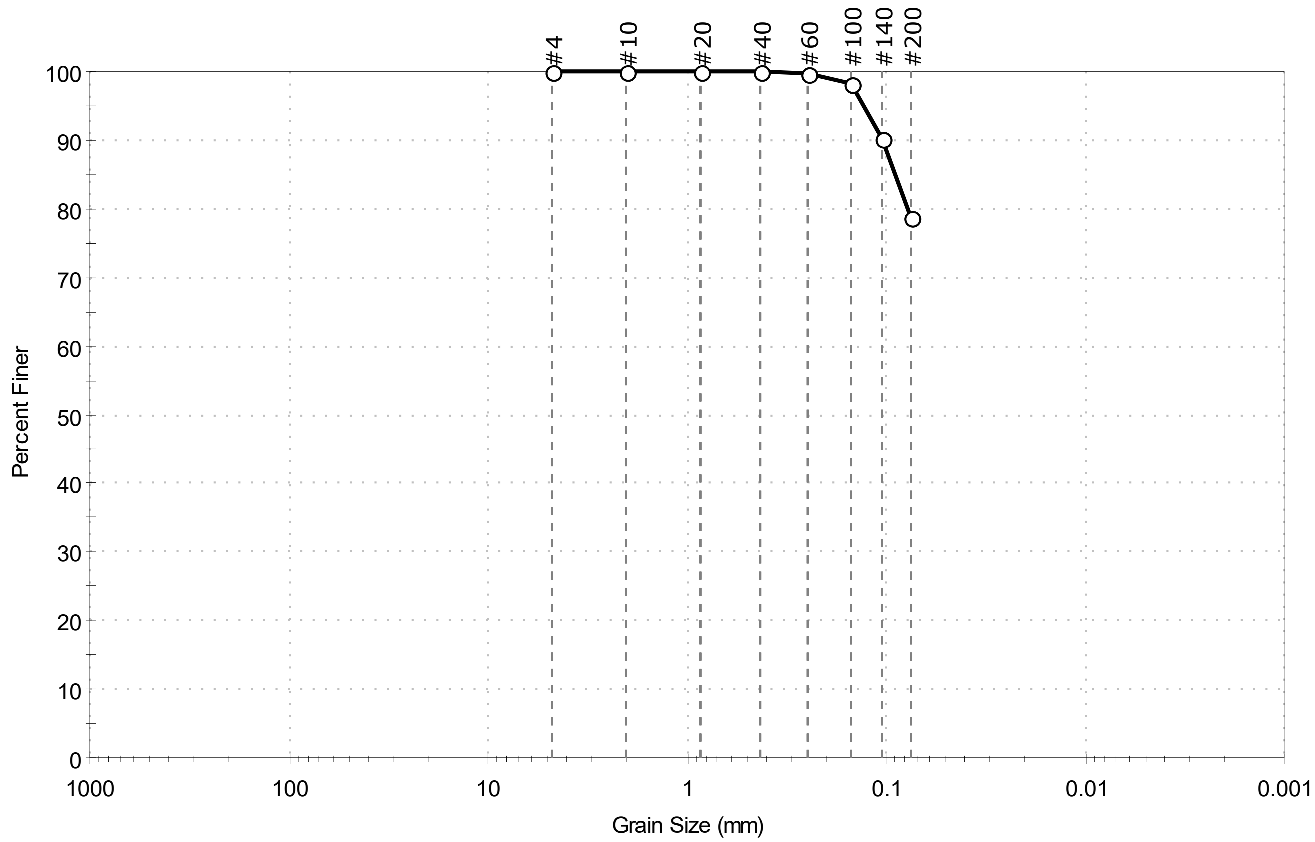
Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-7	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS10	Test Date:	08/04/22	Checked By:	bfs
Depth :	49-51	Test Id:	680421		

Test Comment: ---
Visual Description: Moist, gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	21.2	78.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	98		
#140	0.11	90		
#200	0.075	79		

Coefficients

D_{85} =0.0904 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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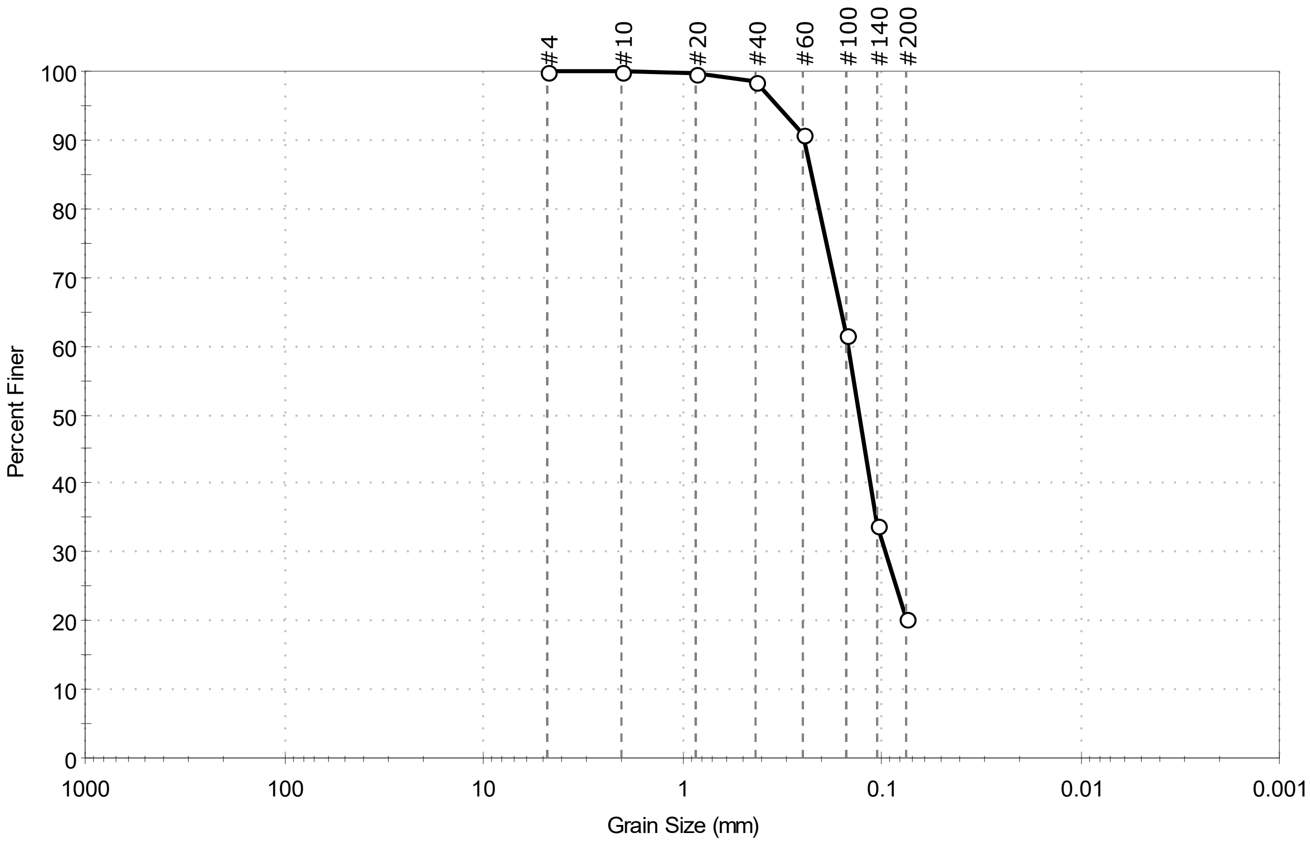
APPENDIX E

Client: AECOM
Project: RIAC Southside Site Work & Grading
Location:
Project No: GTX-315843

Boring ID: B-8
Sample ID: SS3
Depth : 14-16
Sample Type: bag
Test Date: 08/03/22
Test Id: 680422
Tested By: ckg
Checked By: bfs

Test Comment: ---
Visual Description: Moist, pale brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	79.7	20.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	91		
#100	0.15	62		
#140	0.11	34		
#200	0.075	20		

Coefficients

D_{85} =0.2254 mm
D_{30} =0.0960 mm
D_{60} =0.1468 mm
D_{15} =N/A
D_{50} =0.1296 mm
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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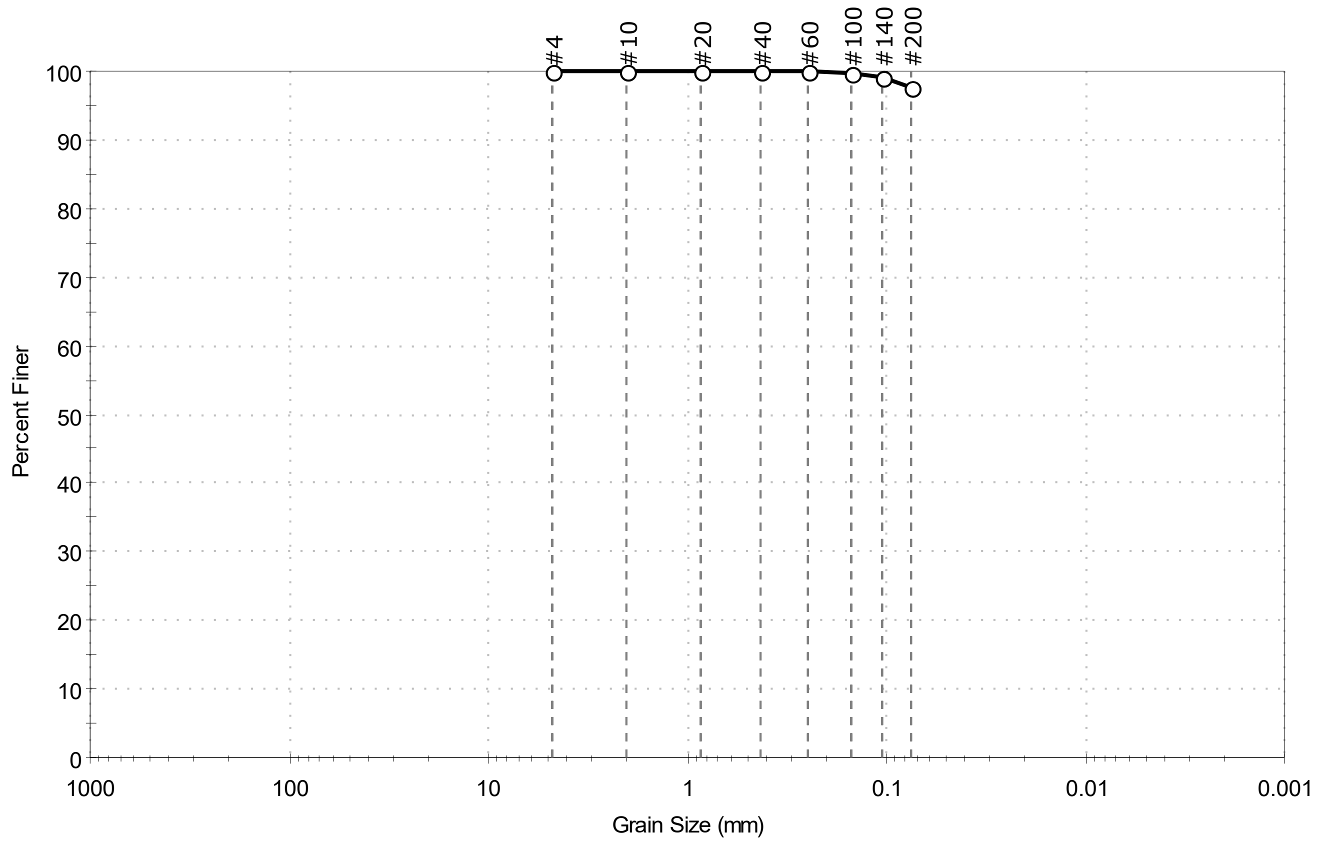
GeoTesting EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-8	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS10	Test Date:	08/03/22	Checked By:	bfs
Depth :	49-51	Test Id:	680423		

Test Comment: ---
Visual Description: Moist, gray silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.3	97.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	99		
#200	0.075	98		

Coefficients

D_{85} =N/A	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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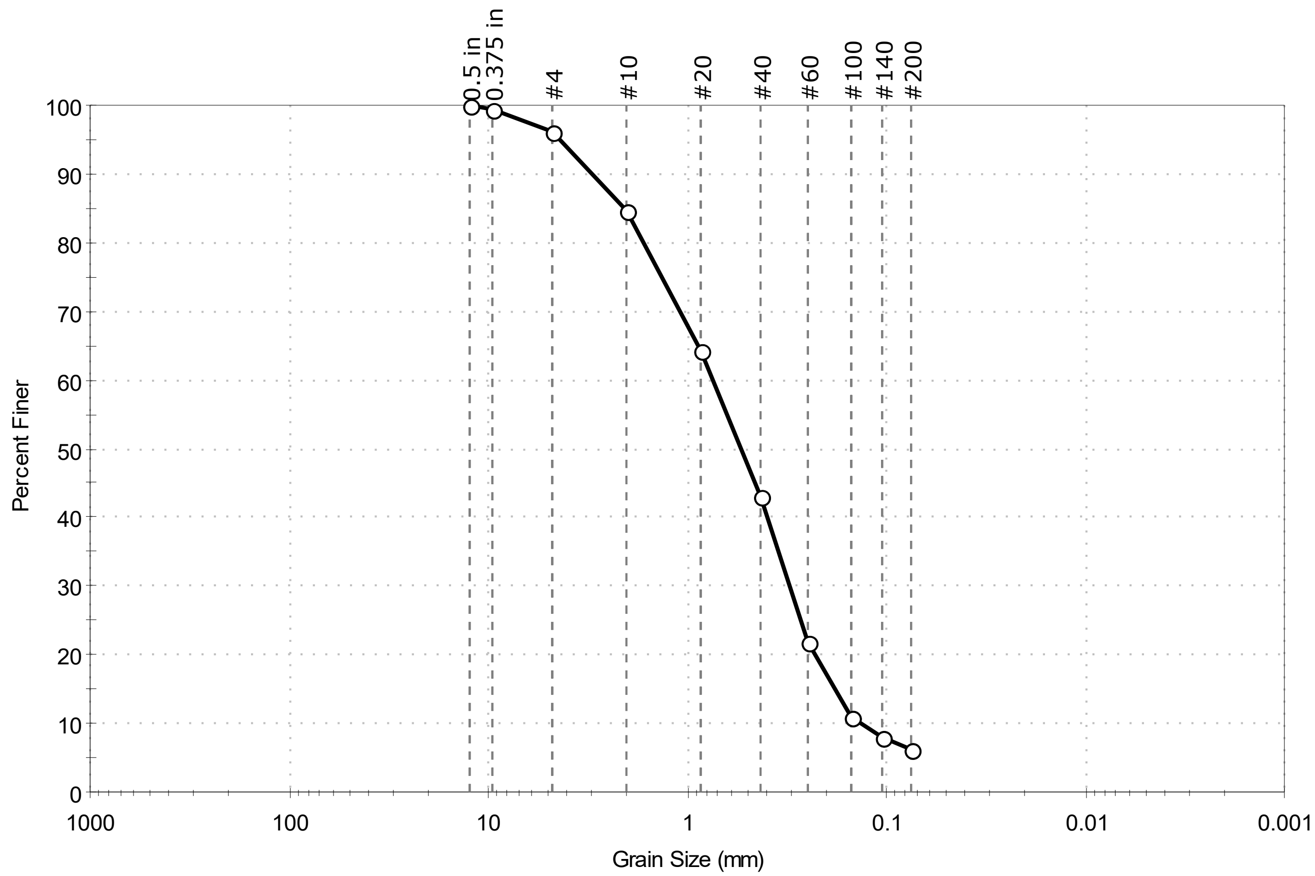
GeoTesting
EXPRESS

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-9	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS1	Test Date:	08/04/22	Checked By:	bfs
Depth :	7-9	Test Id:	680424		

Test Comment: ---
Visual Description: Moist, grayish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.0	89.8	6.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	96		
#10	2.00	85		
#20	0.85	64		
#40	0.42	43		
#60	0.25	22		
#100	0.15	11		
#140	0.11	8		
#200	0.075	6.2		

Coefficients

D_{85} =2.0331 mm	D_{30} =0.3071 mm
D_{60} =0.7406 mm	D_{15} =0.1816 mm
D_{50} =0.5328 mm	D_{10} =0.1333 mm
C_u =5.556	C_c =0.955

Classification

ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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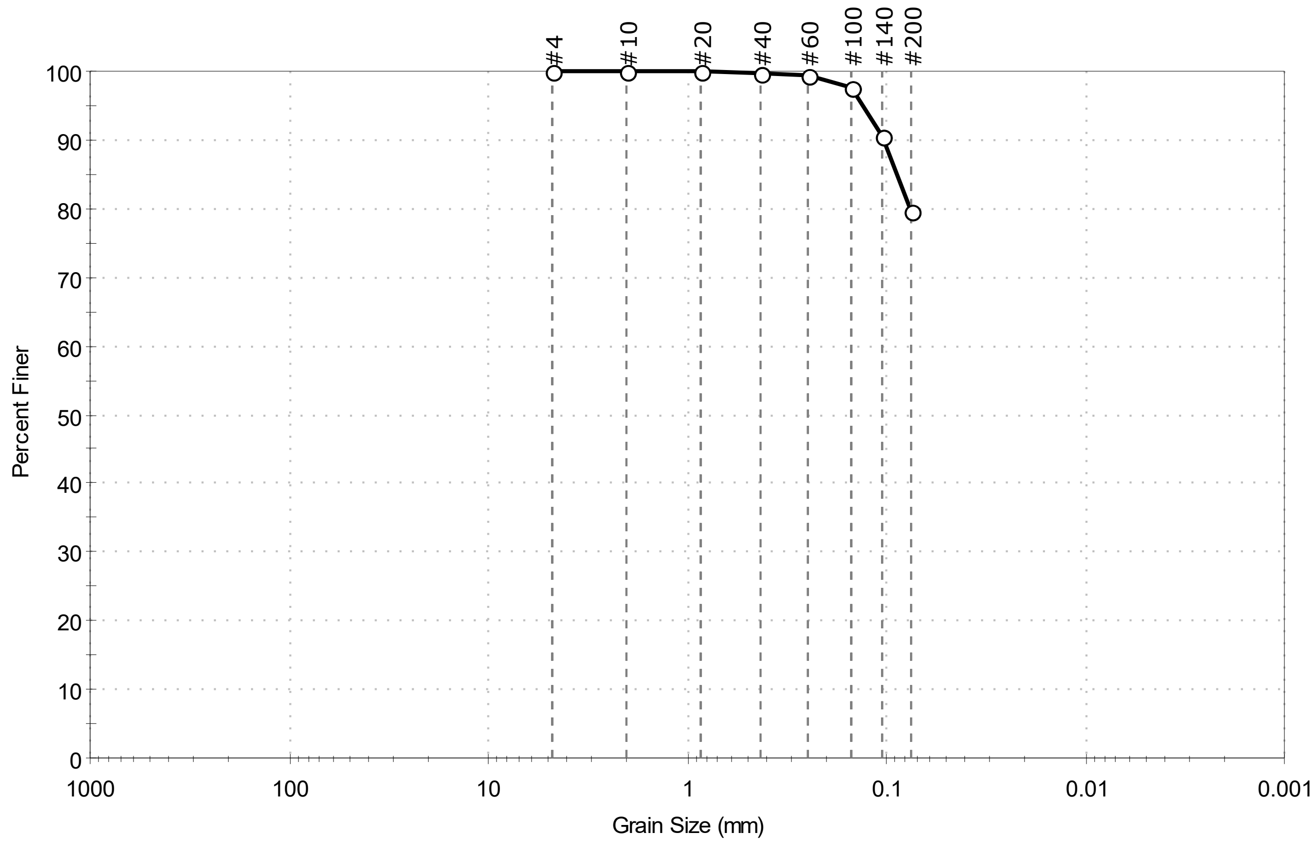
APPENDIX E

Client:	AECOM				
Project:	RIAC Southside Site Work & Grading				
Location:				Project No:	GTX-315843
Boring ID:	B-9	Sample Type:	bag	Tested By:	ckg
Sample ID:	SS10	Test Date:	08/04/22	Checked By:	bfs
Depth :	49-51	Test Id:	680425		

Test Comment: ---
Visual Description: Moist, olive gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	20.3	79.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	98		
#140	0.11	90		
#200	0.075	80		

Coefficients

D_{85} =0.0889 mm	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

printed 8/8/2022 2:39:30 PM

APPENDIX F

Cultural Resources

APPENDIX F

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/22/2022

Project #: 73330.00

From: Quinn R. Stuart, Director of Cultural Resources

Re: Cultural Resources
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Cultural Resources

Regulatory Setting

Section 106 of the *National Historic Preservation Act of 1966* (NHPA), as amended, requires federal agencies to consider the effects of their undertakings on historical properties identified within the area of potential effect (APE). A historical property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior."

FAA Significance Threshold

The FAA, similar to other federal agencies, utilizes the criteria laid out in 36 C.F.R. §60.4 of the NHPA, to determine historic significance of a resource located within an APE. The FAA, in coordination with the Rhode Island Historical Preservation and Heritage Commission (RIHPHC), applies the criteria found in 36 C.F.R. §60.4 of the NHPA to properties that have not yet been listed or subject to a formal determination of eligibility (DOE) in a Project area.

Existing Conditions

The entirety of the Project area is previously disturbed (see attached Cultural Resources figure). The Project area primarily consists of the sections of Lot E, which is a relatively level paved parking lot previously used for long-term parking for the passenger terminal. The Project also includes the areas of grassland to the south of Taxiway T, which were previously cleared and graded. Based on a review of historical imagery (aerials back to 1938; topographic maps back to 1890), this grassland area was not previously developed, but utilities such as underground drainage pipes, wastewater force main, telecommunications, buried electric, and gas mains were installed throughout the area. Additional developed portions of the Project area include the perimeter road, areas that include the Airport's former CNG fueling station and the former U.S. Postal Service building along with surrounding pavements, and formerly residential land south of Strawberry Field Road.

The Hillsgrove State Airport Historic District is immediately north of the Project area. The Historic District is located on the south side of Airport Road (formerly Occupasstuxet Road) and extends south, encompassing 277-acreas within the larger 840-acre airport parcel. At the time the nomination Consensus Determination of Eligibility was prepared in 2009, the District contained a total of seven resource: five contributing historic aviation buildings, one contributing structure (system of runways and taxiways), and one non-contributing building (new hangar at 596 Airport Road). However, since that time Hangar 1 was demolished. The remaining buildings are located along the south side of Airport Road and include the Comfort Station, Terminal Building, and Hangars 2 and 3. The system of runways and taxiways includes the northwest and northeast portions of Runways 16-34 and 23-5, respectively, and Taxiways T and V.

The Historic District is significant as the nation's first state-owned airport and for its role in the development of Rhode Island's aeronautical transportation industry in the first half of the twentieth century. Its construction and infrastructure development were responses to the rapidly evolving requirements of the commercial air travel industry, as well as the US military presence before, during, and after World War II. The terminal building and Hangar 2 are notable examples of the Art Deco and Art Moderne styles in Rhode Island. The terminal, runways, taxiways, and Hangar 2 make up an example of a "unified" or "combined" airport facility, whose design is based on the functional requirements of airports during its period of significance from 1931 to 1959. The Rhode Island State Airport Terminal Building (Terminal Building) at 572 Airport Road, was listed in the National Register in 1983 as part of the Warwick, RI Multiple Resource Area nomination. Hangar 2 were determined eligible for listing in the National Register in 2008. The remaining resources, including the Runway/Taxiway system, Hangar 3, and Comfort Station are not individually significant resources, but contribute to the district's association and setting during its period of significance.[1]

Probable Impacts

The Project proposes to develop the site to accommodate 140,000 square feet of cargo building space and an aircraft parking apron in addition to improvements to the existing perimeter road and a portion of Lot E for truck and employee access. The project also includes the construction of a new noise and visual barrier system to replace the existing barrier wall, or earthen embankment, that will be removed as part of the Project. The new barrier will be longer than the existing barrier and moved closer to the remaining residential properties along Palace Avenue south of Strawberry Field Road.

The Project does not have the potential to cause effects to the NHPA resources. The Project area is outside of the Hillsgrove State Airport Historic District, which includes Taxiways T and V immediately adjacent to the project area. A portion of the new aircraft parking area will integrate Taxiway E, which runs between the south ends of Taxiways T and V, but will not include Taxiways T and V. The Project includes installing an underground stormwater piping connection to the existing glycol treatment system, which requires extending the Project area into the airfield east of Taxiway T. Although the stormwater piping will extend into the historic district boundaries it will be placed within a previously disturbed area and not impact the integrity of the historic district. The project will require the demolition of the former CNG fueling station and the former U.S. Postal Service Building, neither of which are 50 years old or older and therefore not evaluated for eligibility for listing in the National Register of Historic Places.

Mitigation Measures

The FAA consulted with the RIHPHC and the Narragansett Indian Tribal Historic Preservation Office (NITHPO) as part of the Section 106 process during the preparation of the approved 2011 EIS (ROD issued on September 21, 2011). Continued consultation between the FAA, RIHPHC, NITHPO, and the City of Warwick resulted in a Memorandum of Agreement (MOA) executed by the FAA, RIHPHC, and RIAC in May 2011.

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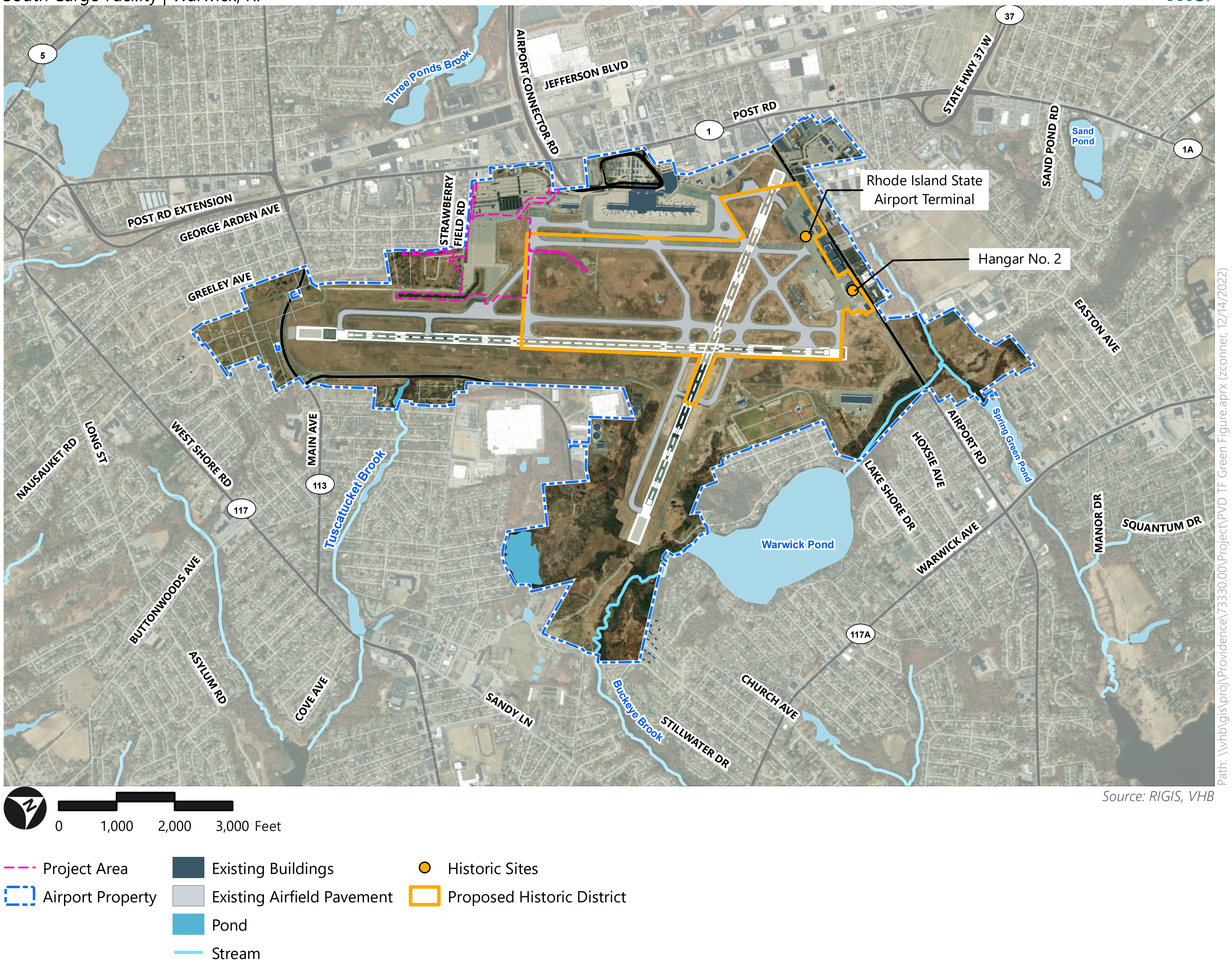
[1] Kierstead, Matthew, Mark G. Rayburn, and Jenny R. Fields. Consensus Determination of Eligibility, Hillsgrove State Airport Historic District. Prepared by PAL for Rhode Island Historical Preservation and Heritage Commission (RIHPHC). On file, RIHPHC, Pawtucket, RI.

As stipulated in the MOA, the FAA, in consultation with RIHPHC and NITHPO, would need to develop appropriate archaeological surveys on a project-by-project basis to identify archaeological sites and evaluate their significance and eligibility to the National Register. If a site is determined eligible, the FAA will further coordinate to review avoidance and/or mitigation options. However, due to the high level of disturbance in the Project area, the need for an archaeological study is not anticipated.

APPENDIX F

Cultural Resources

South Cargo Facility | Warwick, RI



Source: RIGIS, VHB

Path: \\vhb\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (zconner, 12/14/2022)

STATE OF RHODE ISLAND

HISTORICAL PRESERVATION & HERITAGE COMMISSION

Old State House 150 Benefit Street Providence, RI 02903

Telephone 401-222-2678
TTY 401-222-3700

Fax 401-222-2968
www.preservation.ri.gov

February 20, 2023

Via email: nicholas.d.smith@aecom.com

Nicholas Smith
Archaeologist II
AECOM
437 High Street
Burlington, NJ 08016

Re: RIHPHC Project No. 17135
T.F. Green State Airport Improvements
2000 Post Road
Warwick, Rhode Island

Dear Mr. Smith:

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the information that you provided for the above-referenced project. The Rhode Island Airport Corporation is proposing to construct a new cargo building, aircraft parking apron, truck loading docks and employee parking at the T.F. Green State Airport in Warwick, Rhode Island.

Historically known as the Hillsgrove State Airport, part of the T.F. Green Airport, has been determined eligible for listing in the National Register of Historic Places. Additionally, the Terminal Building is individually listed in the National Register. AECOM has identified the Area of Potential Effect for direct effects as limited to the areas of ground disturbing activities, and the APE for visual effects as ¼ mile from the edges of the project area. AECOM identified the Hillsgrove State Airport Historic District as within both the direct and indirect APE. The only physical alterations to occur within the historic district include a buried pipeline. Visual alterations will occur outside of the historic district and include a two-story cargo building. Based on our review of available information, it is the conclusion of the RIHPHC that the project will have no adverse effect on historic properties. We suggest that the new building be overall neutral in color (such as grey, beige, etc.) in order to be more compatible with the surrounding historic district.

These comments are provided in accordance with Section 106 of the National Historic Preservation Act, the Rhode Island Historic Preservation Act and Rhode Island General Laws. If you have any questions, please contact RIHPHC Project Review Coordinator Elizabeth Totten at 401-222-2671 or elizabeth.totten@preservation.ri.gov.

Sincerely,

Elizabeth Totten
FOR

Jeffrey Emidy
Executive Director
Interim State Historic Preservation Officer

230220.02est

APPENDIX F

AECOM
437 High Street
Burlington, NJ 08016
aecom.com

Project name:
Rhode Island T.F. Green International Airport
South Cargo Facility Project

Project ref:

From:
Nicholas Smith, Archaeologist II

Date:
January 26, 2023

To:
Cheryl Quaine
Environmental Program Manager
Federal Aviation Administration
New England Regional Airports Division
1200 District Avenue
Burlington, MA 01803

and

Jeffrey Emidy, Interim Executive Director
Deputy State Historic Preservation Officer
Rhode Island Historical Preservation & Heritage Commission
Old State House
150 Benefit Street
Providence, RI 02903

CC:
Dawn Mineker, RIAC
Jessica Damicis, RIAC
Bryan Oscarson, AECOM

Memo

Subject: Section 106 Project Initiation

The Rhode Island Airport Corporation (RIAC) is proposing the construction of a project located at the Rhode Island T.F. Green International Airport (PVD) in the City of Warwick, Kent County (**Figure 1**). RIAC is proposing to relocate air cargo operations to a new, larger facility to be constructed on the south side of the airport. Pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations (36 Code of Federal Regulations [CFR] Part 800) "Protection of Historic Properties" (Section 106), AECOM has prepared this memo to assist the Federal Aviation Administration (FAA) with the initiation of the Section 106 consultation process for the project and to seek concurrence from the Rhode Island Historical Preservation & Heritage Commission (RIHPHC) with FAA's recommendation. Projects that are funded, permitted, or licensed by the State of Rhode Island require project review under the State Historic Preservation Act. Projects undertaken by any municipality that may have an effect on a historic property also require review by the RIHPHC under the State Historic Preservation Act.

Description of Undertaking

The proposed project consists of the following elements, as depicted on the attached Project Sketch Plan (**Figure 2**):

- Cargo building
- Aircraft parking apron
- Truck loading docks
- Employee parking

Other connected projects include:

- Close Taxiway E between Taxiway T and Taxiway M.
- Trenching and adding a buried pipeline leading from the aircraft parking apron to a pump station east of the new cargo buildings area.
- Provide an access/egress road connecting to Evans Avenue.
- Install perimeter/security gates, fencing, and lighting.
- Provide site improvements including demolition, clearing, grading, drainage, stormwater management, and installation of utilities.

RIAC is proposing to replace the existing sound barrier wall with a new, longer barrier wall:

- Sound Barrier Wall (Removal): Remove the existing ~1,600 L.F. barrier wall.
- Sound Barrier Wall (Installation): Construct a new ~2,100 L.F. barrier wall along Strawberry Field Rd and Fieldview Dr.

Other connected projects or actions required to relocate the sound barrier will include, but may not be limited to, the following:

- Vacate affected roads.
- Remove utilities and associated easements, if necessary.

PVD is proposing a change to the June 2021 FAA-approved Airport Layout Plan (ALP) to incorporate the south cargo facility project (**Figure 3**). The project site is located on existing airport property that has largely been previously identified on the ALP as aeronautical use. Fieldview Drive, Murray Street, Bunker Street, and the affected portion of Strawberry Field Road will be vacated as needed to accommodate the project. The airport property line will be revised accordingly. Land designations for aeronautical or non-aeronautical use in this area will require appropriate reviews and updates.

Area of Potential Effects

The Area of Potential Effects (APE), as defined in 36 CFR 800.16(d), is “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. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

The proposed archaeological APE is limited to the area immediately surrounding the location of the proposed undertaking that will be directly effected and consists of mostly vacant open parking space, previously acquired residential housing lots that have been removed, and open space within the airport property reserved for aeronautical development (**Attachment B, Photos 1-12**). The proposed APE for archaeology is within the boundary shown in **Figure 4** and encompasses the limits of disturbance for new footings and utility trenching related to the new structure and truck loading docks, removal/replacement/expansion of the sound barrier wall, as well as the limits of disturbance for the proposed aircraft parking apron and taxiway, automobile parking, access road and parking surface modifications and relocations, landscaping, and stormwater management. The two arm extensions running southwest from the main APE body as well as the extension running northwest from the northwest corner encompass sound barriers. The arm running generally north from the main body covers the new access/egress road that connects to Evans Avenue. Running northeast from the main body is a thinner extension that covers the trench and buried pipeline that will connect the cargo buildings to the pump station.

The proposed cargo and multi-purpose buildings will be the tallest structures included in this project. Taking these structure heights into account a Visual APE (Architectural Resource APE) of 1/4 mile from the edges of the project area, or archaeological APE was utilized. Anything within this distance from the project area was considered regarding whether or not it would be visually indirectly effected. This Visual APE is illustrated in **Figure 5**.

Identification of Historic Properties

The Rhode Island T.F. Green International Airport (PVD) was previously surveyed, and a proposed Eligible Airport Historic District was found; this district consists of a roughly rectangular-shaped area located in the centrally located, main area of the airport. This Hillsgrove State Airport Historic District is directly adjacent to the proposed project area but does not overlap the district (**Figure 6**). The district is located to the northeast of the proposed project area, on the opposite side of Taxiway T.

AECOM Architectural Historian Kaitlin Pluskota conducted a desktop survey of the project site and Visual APE in October of 2022. Ms. Pluskota examined Rhode Island Historic Preservation & Heritage

Commission (RIHPHC) online records, in addition to historic and current aerial images and photographs of the built environment taken by the project team of the surrounding project area. Primarily, this consists of a neighborhood to the southwest of the proposed project. The building stock in this neighborhood mostly consists of one-story, dwellings, with little to no ornamentation and varying degrees of retained integrity, constructed between 1938-1955. Ms. Pluskota meets the Secretary of the Interior (SOI) Professional Qualifications Standards (36 CFR Part 61) in Architectural History. AECOM did not identify any additional historic architectural resources within the archaeological APE. While the historic district overlaps with the Visual APE there are no standing structures, only taxiways and a runway. These roadways have not only been heavily modified but have already seen a lot of further development within its viewshed. The closest structures included in this historic district lie on the opposite end of the airport roughly 0.9 miles north of the project area. Therefore, this proposed project will have no adverse effect on the historic district.

On September 28, 2022, SOI-qualified (36 CFR 61) AECOM Archaeologist Nicholas Smith examined Rhode Island Historic Preservation & Heritage Commission (RIHPHC) files to identify previously documented areas of archaeological sensitivity and/or archaeological sites near the project location. Review of RIHPHC files indicated that no known archaeological sites are mapped within or adjacent to the proposed cargo facility project location.

One prior archaeological survey has been reported within the proposed project area. This prior archaeological survey was undertaken throughout portions of the airport. Area E of that survey covered a block east of Post Road and north of Strawberry Field Road. This survey was completed by the Public Archaeology Laboratory (PAL) in 2007 (PAL Report No. 1751.01) as one part of the larger Environmental Impact Statement for the T.F. Green Airport Improvement Project. This survey area (Area E) was considered have a low to moderate degree of archaeological sensitivity. The area was described as mostly a level and paved parking lot with a portion serving as a stockpile for previously excavated soils. PAL placed 16 shovel tests along a single transect within this survey area and returned no cultural material (Leveillee 2007).

Review of historical aerial imagery suggest substantial ground disturbance occurred within the proposed project area related to airport construction and development during the 1950s through the 1990s. This included widespread clearing and levelling of the topography initially for farming and homestead practices, and eventually for the airport’s runways, taxiways, parking lots, and sound barriers. The area north of Strawberry Field Road showed a single farmstead surrounded by what appeared to be an orchard/cropland. By the1955 historic imagery showed the land as leveled and cleared airport land. The land within the current project APE remained a manicured grass lawn until the 1995 aerial showed it being converted into the current parking lots and sound barriers. The portion of the current APE lying south of Strawberry Field Road also showed a single farmstead surrounded by cropland in the 1938 aerial. By 1955 roads and residential housing began to appear in the area, and by 1985 Fieldview Drive appears as residential lots cover the entire footprint. This same configuration remains through the 2006 aerials. By 2008 the residences had been all removed and the terrain looks similar to what is still seen today.

Based on these considerations, AECOM believes that the proposed project location (including the proposed cargo building, aircraft parking apron, truck loading docks, employee parking, rebuilding, and expanding sound barriers, stormwater management and utility modifications, vehicle service road modifications, and construction laydown and staging areas) has a very low potential for intact archaeological sites. This project will also not impact tribal land or land of interest to tribes.

Assessment of Effects

Based on the preceding documentation of the airport property, which was previously found to be ineligible for the NRHP, as well as the low potential for archaeological sites within the APE, AECOM recommends that the Project will have No Effect on Historic Properties in accordance with 36 CFR Part 800.4(d)(1).

If you have questions or wish to discuss this project, please do not hesitate to contact me at 1-847-924-0087 or via e-mail at nicholas.d.smith@aecom.com.

Bibliography

Kierstead, Matt
2009 *Hillsgrove State Airport Historic District*. National Register of Historic Places Nomination Form. United States Department of the Interior, National Park Service.

Leveillee, Alan, and A. Peter Mair
2007 Phase I(c) Archaeological Survey, T.F. Green Airport Improvement Program, Environmental Impact Statement, Warwick, Rhode Island. On file, Rhode Island Historic Preservation & Heritage Commission, Providence, RI.

Nationwide Environmental Title Research, LLC (NETR)
1938 Historic Aerials. Electronic resource accessed September 2022. https://www.historicaerials.com/
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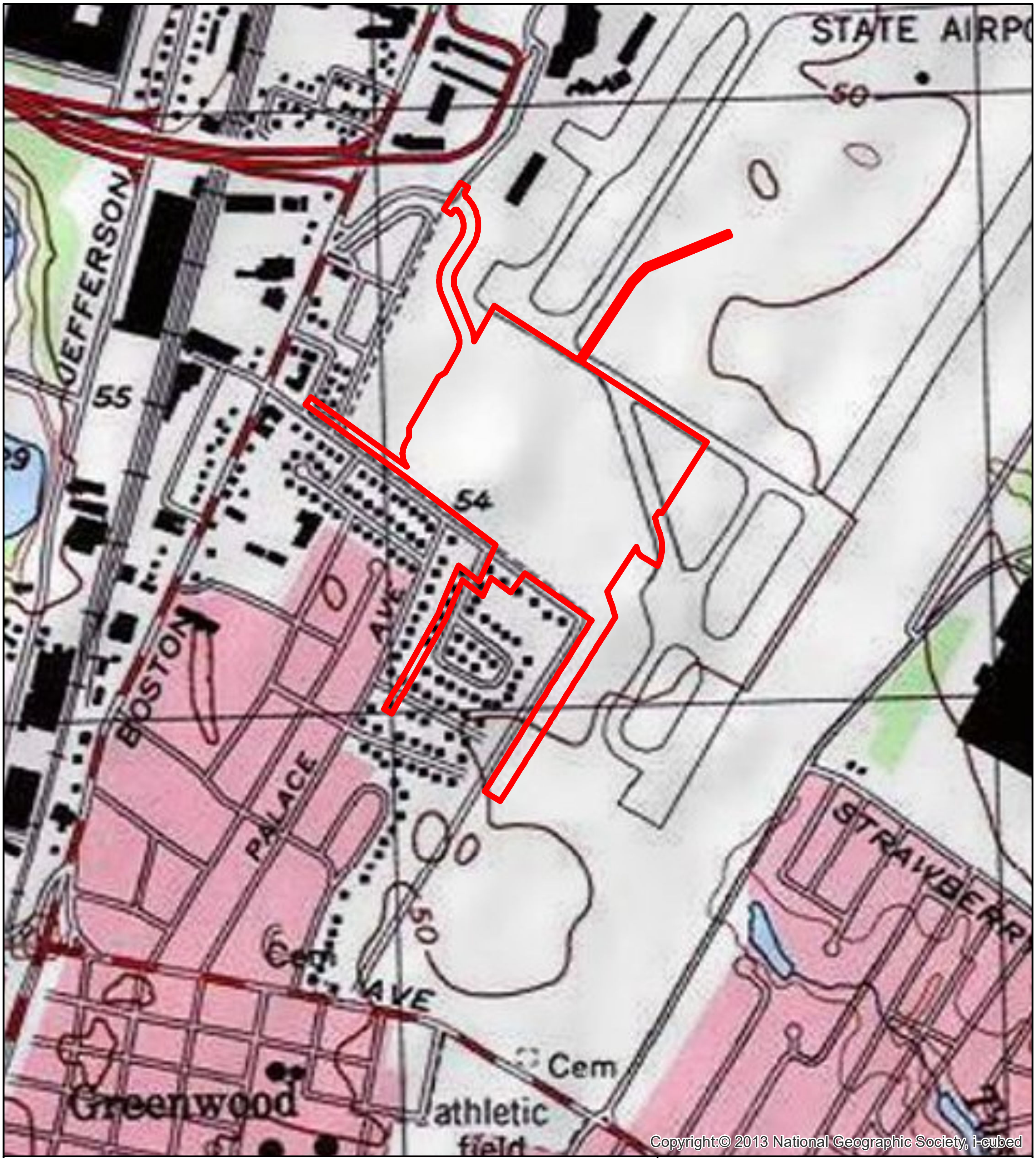
Vanasse Hangen Brustlin, Inc.
2011 *T.F. Green Airport Improvement Program: Final Environmental Impact Statement*. Prepared for: Federal Aviation Administration, New England Regional Office, Burlington, MA.

Attachment A – Figures

APPENDIX F



🟥 Archaeology Area of Potential Effect

N

0 500 1,000 1,500 Feet

0 250 500 Meters

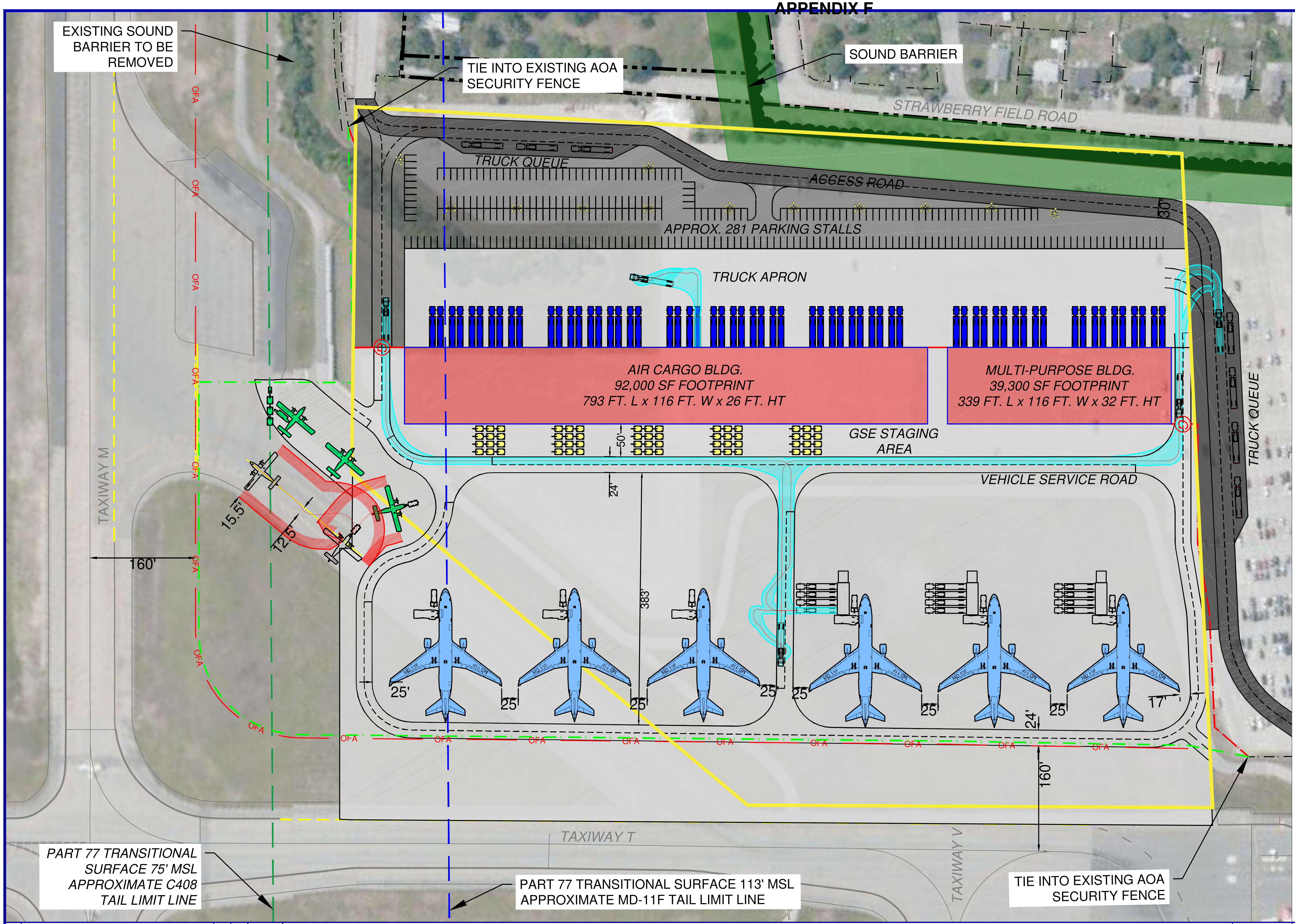
AECOM

437 High Street
Burlington, NJ 08016

South Cargo Facility Project
T. F. Green International Airport
Warwick, Kent County, RI

Figure 1

APPENDIX F



EXISTING SOUND BARRIER TO BE REMOVED

TIE INTO EXISTING AOA SECURITY FENCE

SOUND BARRIER

PART 77 TRANSITIONAL SURFACE 75' MSL APPROXIMATE C408 TAIL LIMIT LINE

PART 77 TRANSITIONAL SURFACE 113' MSL APPROXIMATE MD-11F TAIL LIMIT LINE

TIE INTO EXISTING AOA SECURITY FENCE

LEGEND	
EXISTING	
— · · —	AIRPORT PROPERTY LINE
- · - · -	EXISTING AOA FENCE
— OFA —	TAXIWAY OBJECT FREE AREA
PROPOSED	
☐	EIS BOUNDARY (26.6 AC.)
🟥	CONCEPT BUILDING LIMITS
☐	PCC APRON PAVEMENT
▨	ASPHALT PAVEMENT
🟩	GRASS
▨	SOUND BARRIER WALL WITH VEGETATION
- · - · -Ⓖ	AOA FENCE WITH AIRSIDE ACCESS GATE
*	HIGH MAST LIGHT

DESIGN AIRCRAFT
MD 11F (ADG-IV)
CESSNA 408 (ADG-II)

NOTES:

1. ALL ELEVATIONS ARE STATED IN NAVD 88.
2. CONCEPTUAL DESIGN LAYOUT MAY ACCOMMODATE FUTURE USE OF ADG-V AIRCRAFT.

150' 75' 0 150'
GRAPHIC SCALE: FEET

FINAL

No.	Revision	By	App.	Date

Rhode Island
T. F. Green International Airport

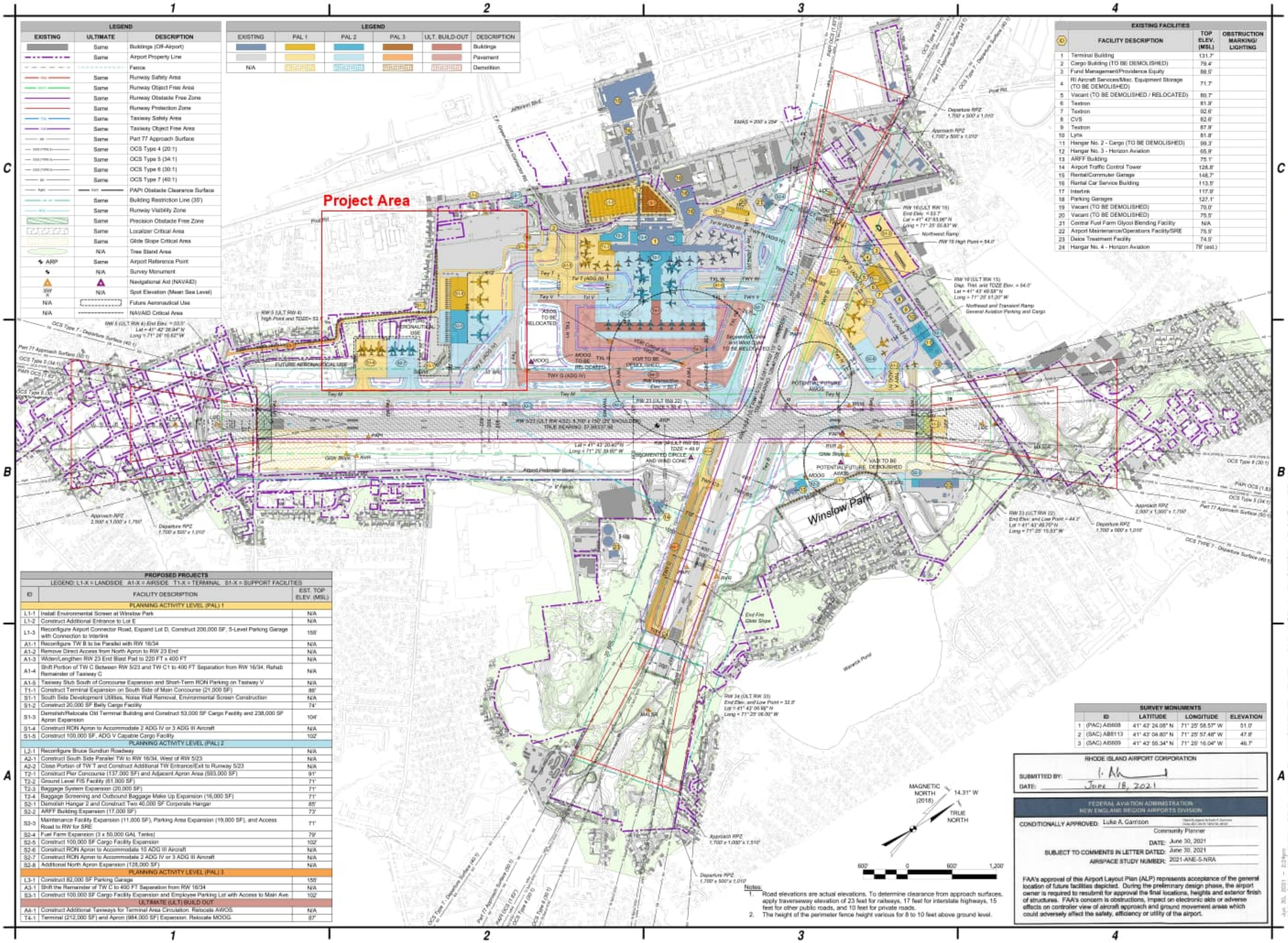
AECOM

Designed By: RIAC
Drafted By: DAM
Checked By: GG/DO
Date: 08/30/2022
Scale: see graphic

THEODORE FRANCIS GREEN STATE AIRPORT
WARWICK, RHODE ISLAND

SK-2A: CONCEPTUAL AIR CARGO AND MULTI-PURPOSE FACILITIES SITE PLAN

APPENDIX F



LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
▬	Same	Buildings (Off-Airport)
— · · —	Same	Airport Property Line
- - -	- - -	Fence
———	Same	Runway Safety Area
———	Same	Runway Object Free Area
———	Same	Runway Obstacle Free Zone
———	Same	Runway Protection Zone
———	Same	Taxiway Safety Area
———	Same	Taxiway Object Free Area
———	Same	Part 77 Approach Surface
———	Same	OCS Type 4 (20:1)
———	Same	OCS Type 5 (34:1)
———	Same	OCS Type 6 (30:1)
———	Same	OCS Type 7 (40:1)
———	———	PAPI Obstacle Clearance Surface
— - - —	Same	Building Restriction Line (35')
———	Same	Runway Visibility Zone
▨	Same	Precision Obstacle Free Zone
▨	Same	Localizer Critical Area
▨	Same	Glide Slope Critical Area
⬭	N/A	Tree Stand Area
✦ ARP	Same	Airport Reference Point
✦	N/A	Survey Monument
▲	▲	Navigational Aid (NAVAID)
×	N/A	Spot Elevation (Mean Sea Level)
N/A	⬚	Future Aeronautical Use
N/A	- - - - -	NAVAID Critical Area

LEGEND					
EXISTING	PAL 1	PAL 2	PAL 3	ULT. BUILD-OUT	DESCRIPTION
🟦	🟨	🟦	🟧	🟥	Buildings
⬜	🟨	🟦	🟧	🟥	Pavement
N/A	▨	▨	▨	▨	Demolition

EXISTING FACILITIES			
⬡	FACILITY DESCRIPTION	TOP ELEV. (MSL)	OBSTRUCTION MARKING/ LIGHTING
1	Terminal Building	131.7'	
2	Cargo Building (TO BE DEMOLISHED)	79.4'	
3	Fund Management/Providence Equity	88.5'	
4	RI Aircraft Services/Misc. Equipment Storage (TO BE DEMOLISHED)	71.7'	
5	Vacant (TO BE DEMOLISHED / RELOCATED)	80.7'	
6	Textron	81.9'	
7	Textron	92.6'	
8	CVS	82.6'	
9	Textron	87.9'	
10	Lynx	81.8'	
11	Hangar No. 2 - Cargo (TO BE DEMOLISHED)	99.3'	
12	Hangar No. 3 - Horizon Aviation	65.9'	
13	ARFF Building	75.1'	
14	Airport Traffic Control Tower	128.8'	
15	Rental/Commuter Garage	148.7'	
16	Rental Car Service Building	113.5'	
17	Interlink	117.9'	
18	Parking Garages	127.1'	
19	Vacant (TO BE DEMOLISHED)	70.0'	
20	Vacant (TO BE DEMOLISHED)	75.5'	
21	Central Fuel Farm Glycol Blending Facility	N/A	
22	Airport Maintenance/Operations Facility/SRE	75.5'	
23	Deice Treatment Facility	74.5'	
24	Hangar No. 4 - Horizon Aviation	78' (est.)	

PROPOSED PROJECTS

LEGEND: L1-X = LANDSIDE A1-X = AIRSIDE T1-X = TERMINAL S1-X = SUPPORT FACILITIES

ID	FACILITY DESCRIPTION	EST. TOP ELEV. (MSL)
	PLANNING ACTIVITY LEVEL (PAL) 1	
L1-1	Install Environmental Screen at Winslow Park	N/A
L1-2	Construct Additional Entrance to Lot E	N/A
L1-3	Reconfigure Airport Connector Road, Expand Lot D, Construct 200,000 SF, 5-Level Parking Garage with Connection to Interlink	155'
A1-1	Reconfigure TW B to be Parallel with RW 16/34	N/A
A1-2	Remove Direct Access from North Apron to RW 23 End	N/A
A1-3	Widen/Lengthen RW 23 End Blast Pad to 220 FT x 400 FT	N/A
A1-4	Shift Portion of TW C Between RW 5/23 and TW C1 to 400 FT Separation from RW 16/34, Rehab Remainder of Taxiway C	N/A
A1-5	Taxiway Stub South of Concourse Expansion and Short-Term RON Parking on Taxiway V	N/A
T1-1	Construct Terminal Expansion on South Side of Main Concourse (21,000 SF)	88'
S1-1	South Side Development Utilities, Noise Wall Removal, Environmental Screen Construction	N/A
S1-2	Construct 20,000 SF Belly Cargo Facility	74'
S1-3	Demolish/Relocate Old Terminal Building and Construct 53,000 SF Cargo Facility and 238,000 SF Apron Expansion	104'
S1-4	Construct RON Apron to Accommodate 2 ADG IV or 3 ADG III Aircraft	N/A
S1-5	Construct 100,000 SF, ADG V Capable Cargo Facility	102'
	PLANNING ACTIVITY LEVEL (PAL) 2	
L2-1	Reconfigure Bruce Sundlun Roadway	N/A
A2-1	Construct South Side Parallel TW to RW 16/34, West of RW 5/23	N/A
A2-2	Close Portion of TW T and Construct Additional TW Entrance/Exit to Runway 5/23	N/A
T2-1	Construct Pier Concourse (137,000 SF) and Adjacent Apron Area (593,000 SF)	91'
T2-2	Ground Level FIS Facility (61,000 SF)	71'
T2-3	Baggage System Expansion (20,000 SF)	71'
T2-4	Baggage Screening and Outbound Baggage Make Up Expansion (16,000 SF)	71'
S2-1	Demolish Hangar 2 and Construct Two 40,000 SF Corporate Hangar	85'
S2-2	ARFF Building Expansion (17,000 SF)	73'
S2-3	Maintenance Facility Expansion (11,000 SF), Parking Area Expansion (19,000 SF), and Access Road to RW for SRE	71'
S2-4	Fuel Farm Expansion (3 x 50,000 GAL Tanks)	79'
S2-5	Construct 100,000 SF Cargo Facility Expansion	102'
S2-6	Construct RON Apron to Accommodate 10 ADG III Aircraft	N/A
S2-7	Construct RON Apron to Accommodate 2 ADG IV or 3 ADG III Aircraft	N/A
S2-8	Additional North Apron Expansion (128,000 SF)	N/A
	PLANNING ACTIVITY LEVEL (PAL) 3	
L3-1	Construct 82,000 SF Parking Garage	158'
A3-1	Shift the Remainder of TW C to 400 FT Separation from RW 16/34	N/A
S3-1	Construct 100,000 SF Cargo Facility Expansion and Employee Parking Lot with Access to Main Ave.	102'
	ULTIMATE (ULT) BUILD OUT	
A4-1	Construct Additional Taxiways for Terminal Area Circulation. Relocate AWOS.	N/A
T4-1	Terminal (212,000 SF) and Apron (984,000 SF) Expansion. Relocate MOOG.	87'

SURVEY MONUMENTS				
	ID	LATITUDE	LONGITUDE	ELEVATION
1	(PAC) AI6608	41° 43' 24.08" N	71° 25' 58.57" W	51.0'
2	(SAC) AB8113	41° 43' 04.80" N	71° 25' 57.48" W	47.8'
3	(SAC) AI6609	41° 43' 55.34" N	71° 25' 16.04" W	46.7'

Notes:
1. Road elevations are actual elevations. To determine clearance from approach surfaces, apply traverseway elevation of 23 feet for railways, 17 feet for interstate highways, 15 feet for other public roads, and 10 feet for private roads.
2. The height of the perimeter fence height various for 8 to 10 feet above ground level.

RHODE ISLAND AIRPORT CORPORATION

SUBMITTED BY: I. Ah

DATE: June 18, 2021

FEDERAL AVIATION ADMINISTRATION
NEW ENGLAND REGION AIRPORTS DIVISION

CONDITIONALLY APPROVED: Luke A. Garrison
Community Planner

DATE: June 30, 2021
SUBJECT TO COMMENTS IN LETTER DATED: June 30, 2021
AIRSPACE STUDY NUMBER: 2021-ANE-5-NRA

FAA's approval of this Airport Layout Plan (ALP) represents acceptance of the general location of future facilities depicted. During the preliminary design phase, the airport owner is required to resubmit for approval the final locations, heights and exterior finish of structures. FAA's concern is obstructions, impact on electronic aids or adverse effects on controller view of aircraft approach and ground movement areas which could adversely affect the safety, efficiency or utility of the airport.

C&S COMPANIES®
C&S Engineers, Inc.
41 State Street,
Suite 600
Albany, New York 12207
Phone: (518) 915-7349
www.cscos.com

Green Airport

AIRPORT LAYOUT PLAN UPDATE
THEODORE FRANCIS GREEN STATE AIRPORT
RHODE ISLAND AIRPORT CORPORATION

MARK	DATE	DESCRIPTION
	REVISIONS	

PROJECT NO: 108.004.002
DATE: MAY 2021
DRAWN BY: J.J. SHUFER
DESIGNED BY: J.J. SHUFER
CHECKED BY: S. TUMOLO

AIRPORT
LAYOUT
PLAN

4 of 9

APPENDIX F

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

— Archaeology Area of Potential Effect

N

0 500 1,000 1,500 Feet

0 250 500 Meters

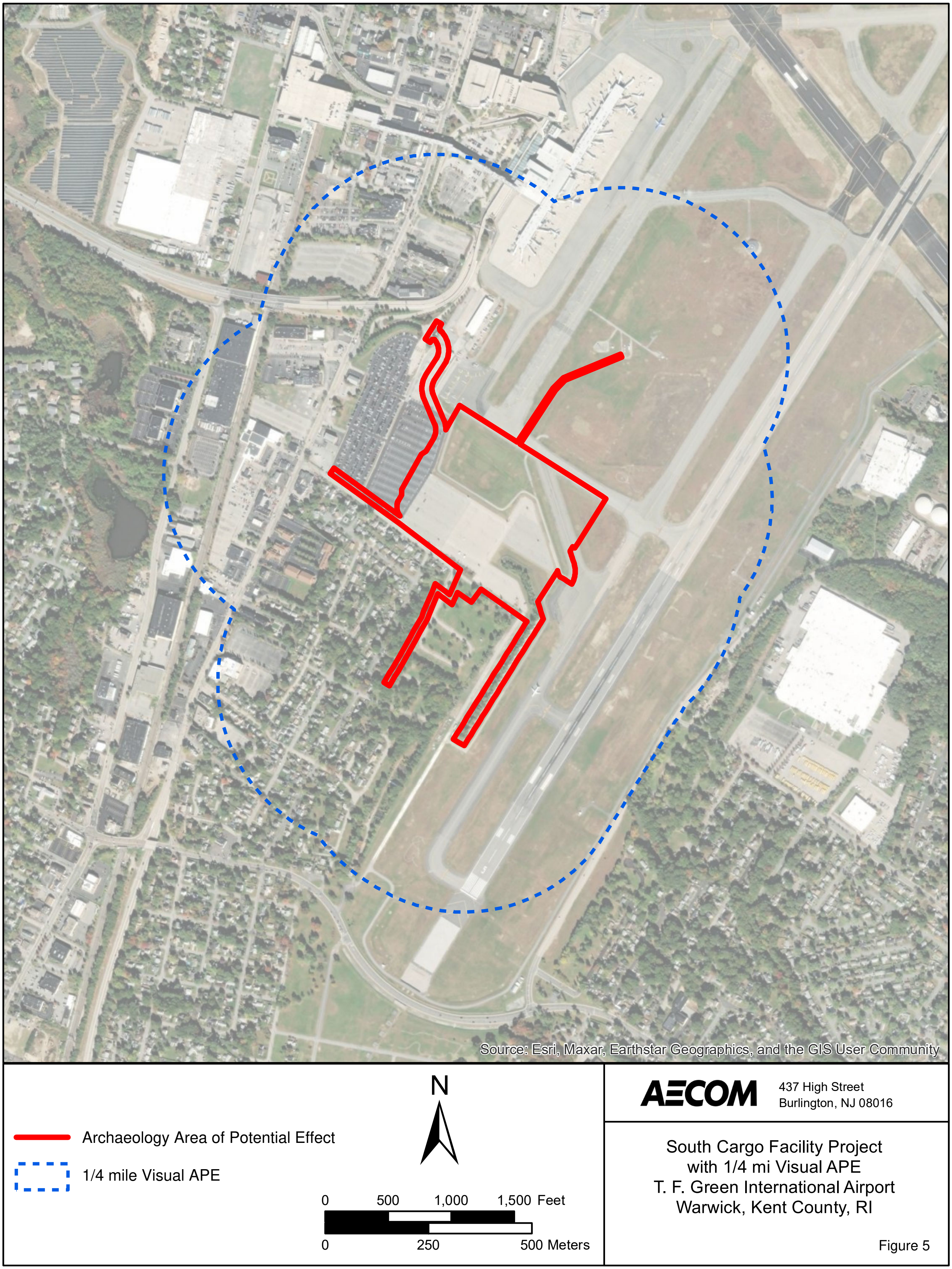
AECOM

437 High Street
Burlington, NJ 08016

South Cargo Facility Project
T. F. Green International Airport
Warwick, Kent County, RI

Figure 4

APPENDIX F

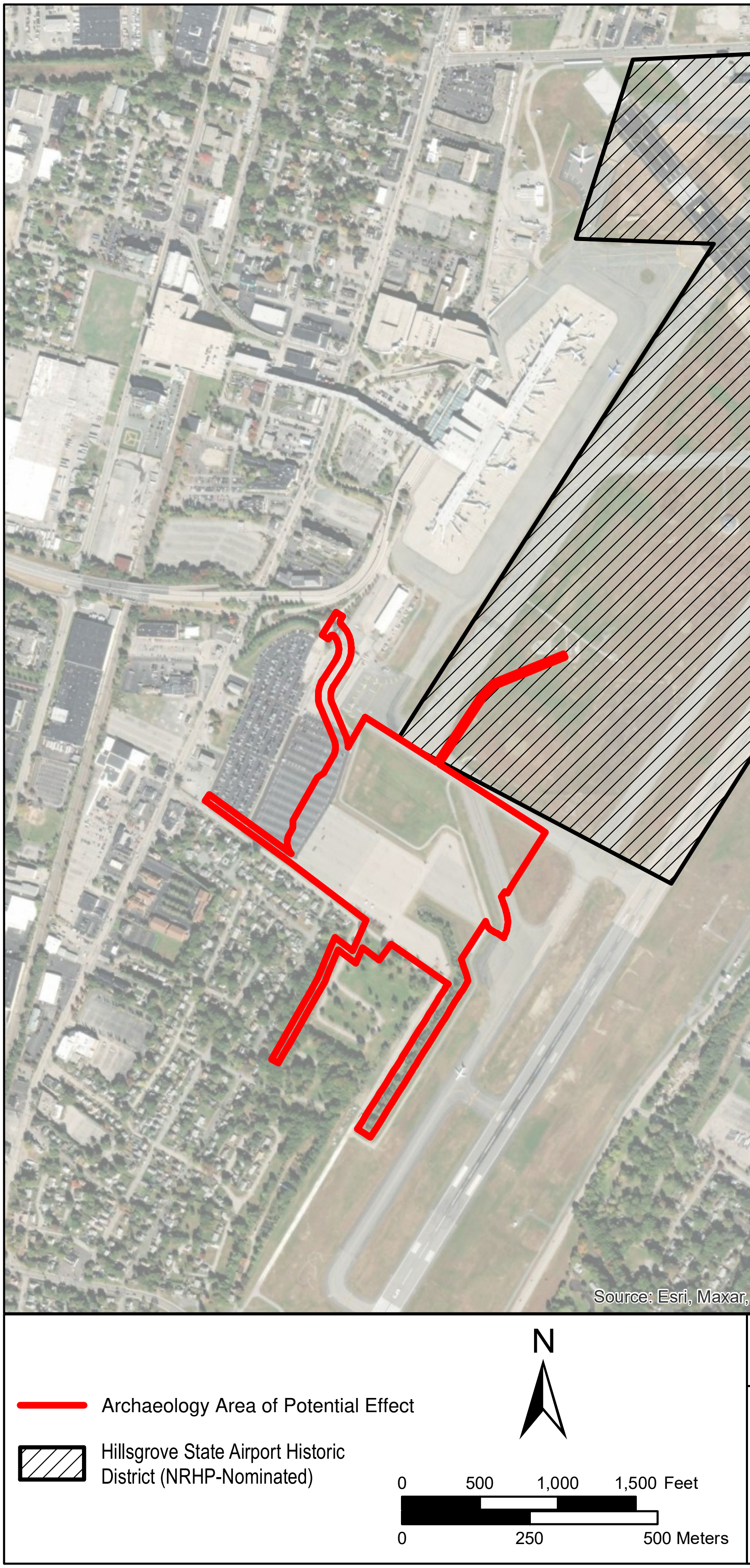


AECOM
437 High Street
Burlington, NJ 08016

South Cargo Facility Project
with 1/4 mi Visual APE
T. F. Green International Airport
Warwick, Kent County, RI

Figure 5

APPENDIX F



AECOM

437 High Street
Burlington, NJ 08016

South Cargo Facility Project
with CDOE District
T. F. Green International Airport
Warwick, Kent County, RI

Figure 6

Attachment B - Photos

APPENDIX F

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

🟥 Area of Potential Effect

● Photo Locations

AECOM

437 High Street
Burlington, NJ 08016

South Cargo Facility Project
T. F. Green International Airport
Warwick, Kent County, RI

Figure 5

APPENDIX F

PHOTOGRAPHS

Photo No. 1

Date: 5/19/2022

Direction Photo Taken:

Southwest

Description:

View of airport property from Fieldview Drive. Residential housing lots until mid-2000s.

Photo No. 2

Date: 5/19/2022

Direction Photo Taken:

Southwest

Description:

View of airport property from Strawberry Field Drive. Residential housing lots until mid-2000s. Looking at area of proposed sound barrier.

PHOTOGRAPHS

Photo No. 3	**Date:** 5/19/2022
Direction Photo Taken: North	
Description: View of airport property from Fieldview Drive. Residential housing lots until mid-2000s.	

Photo No. 4	**Date:** 5/19/2022
Direction Photo Taken: North	
Description: View of airport property from far South parking lot. Sound barrier seen on right. Looking at area of proposed parking for cargo facility.	

PHOTOGRAPHS

Photo No. 5

Date: 5/19/2022

Direction Photo Taken:

Southeast

Description:

View of airport property from far South parking lot. Sound barrier seen in background. Looking at area of proposed cargo facility and parking.

Photo No. 6

Date: 5/19/2022

Direction Photo Taken:

Northeast

Description:

View of airport property from Strawberry Field Drive and Palace Avenue. Terminal can be seen on far right. Looking at area of proposed cargo facility.

PHOTOGRAPHS

Photo No. 7 **Date:** 5/19/2022

Direction Photo Taken:

North

Description:

View of airport property from Strawberry Field Drive and Palace Avenue. Long term parking area.

Photo No. 8 **Date:** 5/19/2022

Direction Photo Taken:

Southeast

Description:

View of airport property south parking lot edge. Fence facing Strawberry Field Road on right. Looking at area of proposed sound barrier.

PHOTOGRAPHS

Photo No. 9

Date: 5/19/2022

Direction Photo Taken:

Southeast

Description:

View of airport property from edge of parking lot. Runway yard on left. Parking lot on right. Looking at area of proposed cargo facility on right and aircraft parking for facility on left.

Photo No. 10

Date: 5/19/2022

Direction Photo Taken:

South

Description:

View of airport property parking lot. Current sound barrier can be seen on right. Looking at area of proposed cargo facility.

APPENDIX F

PHOTOGRAPHS

Photo No. 11 **Date:** 5/19/2022

Direction Photo Taken:

Northwest

Description:

View of airport property from edge of southern parking lot. Current sound barrier can be seen on far left. Looking at area of proposed cargo facility.

Photo No. 12 **Date:** 5/19/2022

Direction Photo Taken:

South

Description:

View of airport property from edge of southern parking lot. Current sound barrier can be seen on right. Looking at area that will be southern tip of proposed cargo facility.

U.S. Department
of Transportation
**Federal Aviation
Administration**

New England Region
Office of the Regional Administrator

1200 District Avenue
Burlington, MA 01803

December 21, 2022

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

John Brown, Tribal Historic Preservation Officer
Narragansett Indian Tribe
4425 S. County Trail
Charlestown, RI 02813

Dear Mr. Brown:

Government-to-Government Consultation Invitation Airport Project at T.F. Green International Airport (PVD), Warwick, Kent County, Rhode Island

The Federal Aviation Administration (FAA), in cooperation with the airport owner and operator, is proposing a project at T.F. Green International Airport (PVD) in Rhode Island as outlined herein.

Purpose of Government-to-Government Consultation

The purpose of Government-to-Government consultation as described in the National Historic Preservation Act, Section 106, Federal Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," and FAA's Order 1210.20, "American Indian and Alaska Native Tribal Consultation Policy and Procedures," is to ensure that Federally Recognized Tribes are given the opportunity to provide meaningful and timely input regarding proposed FAA undertakings that uniquely or significantly affect Tribes.

Consultation Initiation

With this letter, the FAA is inviting the Narragansett Tribe to consult on concerns that may significantly affect your Tribe related to the proposed airport improvements. Early identification of Tribal concerns will allow the FAA and the airport owner and operator to consider ways to avoid, mitigate, or minimize potential impact to Tribal resources and practices as project alternatives are developed and refined.

Project Information

The proposed project consists of the following elements, as depicted on the attached Project Sketch Plan (Figure 2):

- Cargo building
- Aircraft parking apron

- Truck loading docks
- Employee parking

Other connected projects include:

- Close Taxiway E between Taxiway T and Taxiway M.
- Trenching and adding a buried pipeline leading from the aircraft parking apron to a pump station east of the new cargo buildings area.
- Provide an access/egress road connecting to Evans Avenue.
- Install perimeter/security gates, fencing, and lighting.
- Provide site improvements including demolition, clearing, grading, drainage, storm water management, and installation of utilities.

Rhode Island Airport Corporation is proposing to replace the existing sound barrier wall with a new, longer barrier wall:

- Sound Barrier Wall (Removal): Remove the existing ~1,600 L.F. barrier wall.
- Sound Barrier Wall (Installation): Construct a new ~2,100 L.F. barrier wall along Strawberry Field Rd and Fieldview Dr.

Other connected projects or actions required to relocate the sound barrier will include, but may not be limited to, the following:

- Vacate affected roads.
- Remove utilities and associated easements, if necessary.

PVD is proposing a change to the June 2021 FAA-approved Airport Layout Plan (ALP) to incorporate the south cargo facility project (Figure 3). The project site is located on existing airport property that has largely been previously identified on the ALP as aeronautical use. Fieldview Drive, Murray Street, Bunker Street, and the affected portion of Strawberry Field Road will be vacated as needed to accommodate the project. The airport property line will be revised accordingly. Land designations for aeronautical or non-aeronautical use in this area will require appropriate reviews and updates.

FAA Contact Information

Your timely response will assist us in incorporating your concerns into project planning. For that reason, we respectfully request that you contact FAA within thirty days of your receipt of this correspondence as to your interest in Government-to-Government Consultation regarding these projects.

You may contact FAA's Regional Tribal Consultation Official, Elisabeth Smeda, by telephone at 781-238-7020 or by email at elisabeth.smeda@faa.gov. At that time, the consultation request will be provided to the FAA, Airports Division.

Sincerely,

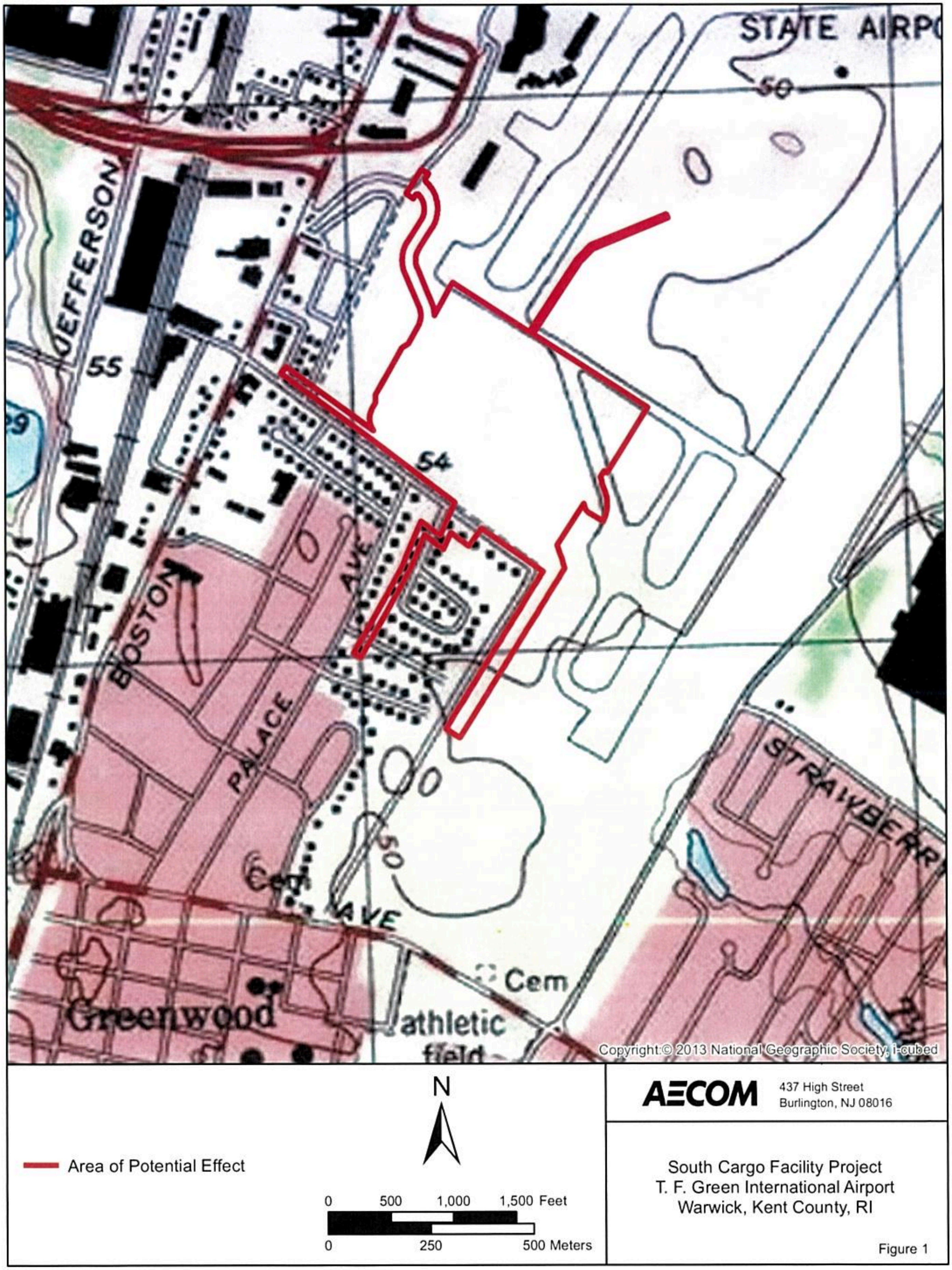
Colleen M D'Alessandro

Colleen M. D'Alessandro
New England Regional Administrator

Attachments:
A: Figures
B: Photos

Attachment A – Figures

APPENDIX F



AECOM
437 High Street
Burlington, NJ 08016

South Cargo Facility Project
T. F. Green International Airport
Warwick, Kent County, RI

Figure 1

APPENDIX F

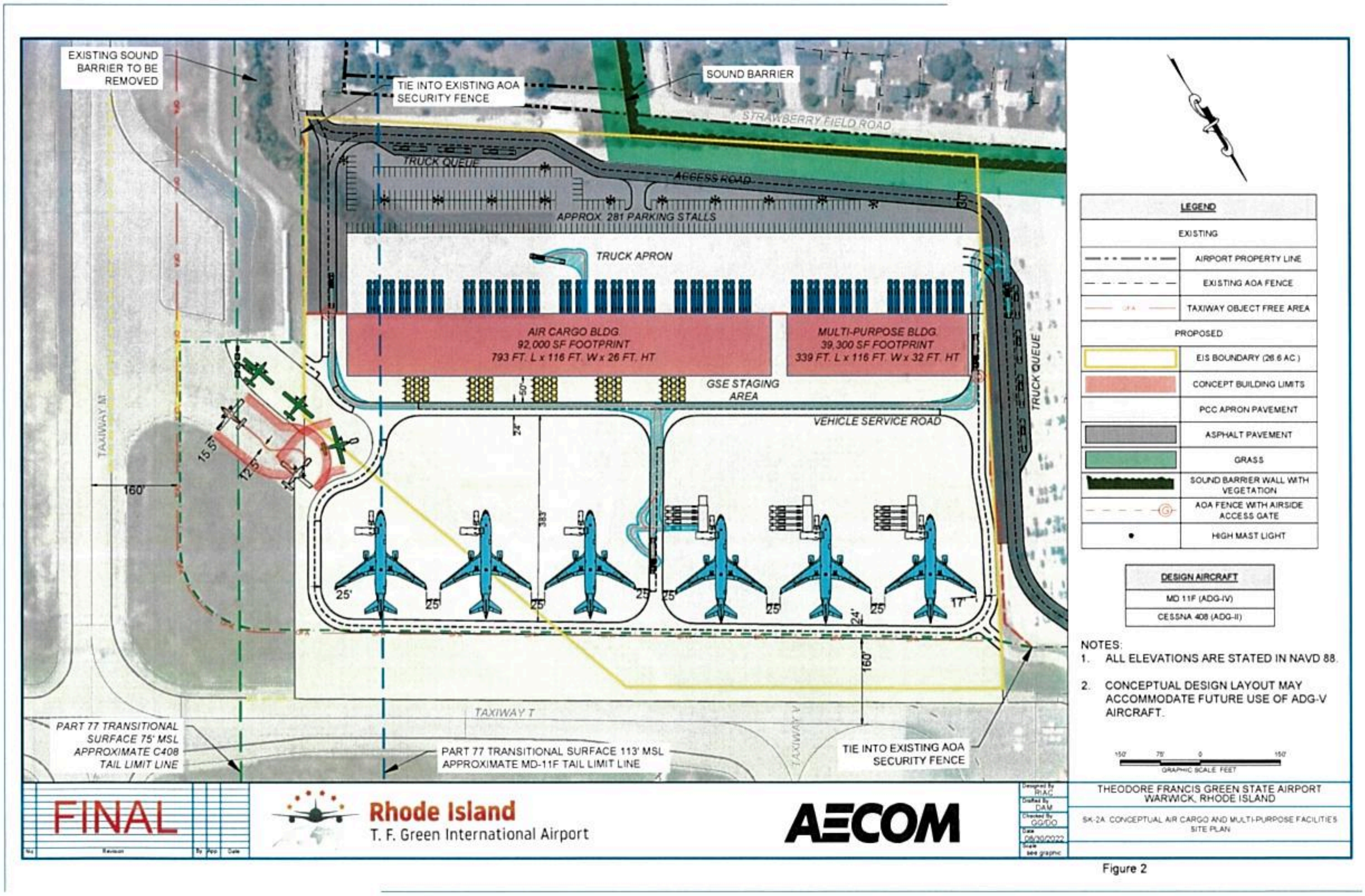


Figure 2

APPENDIX F

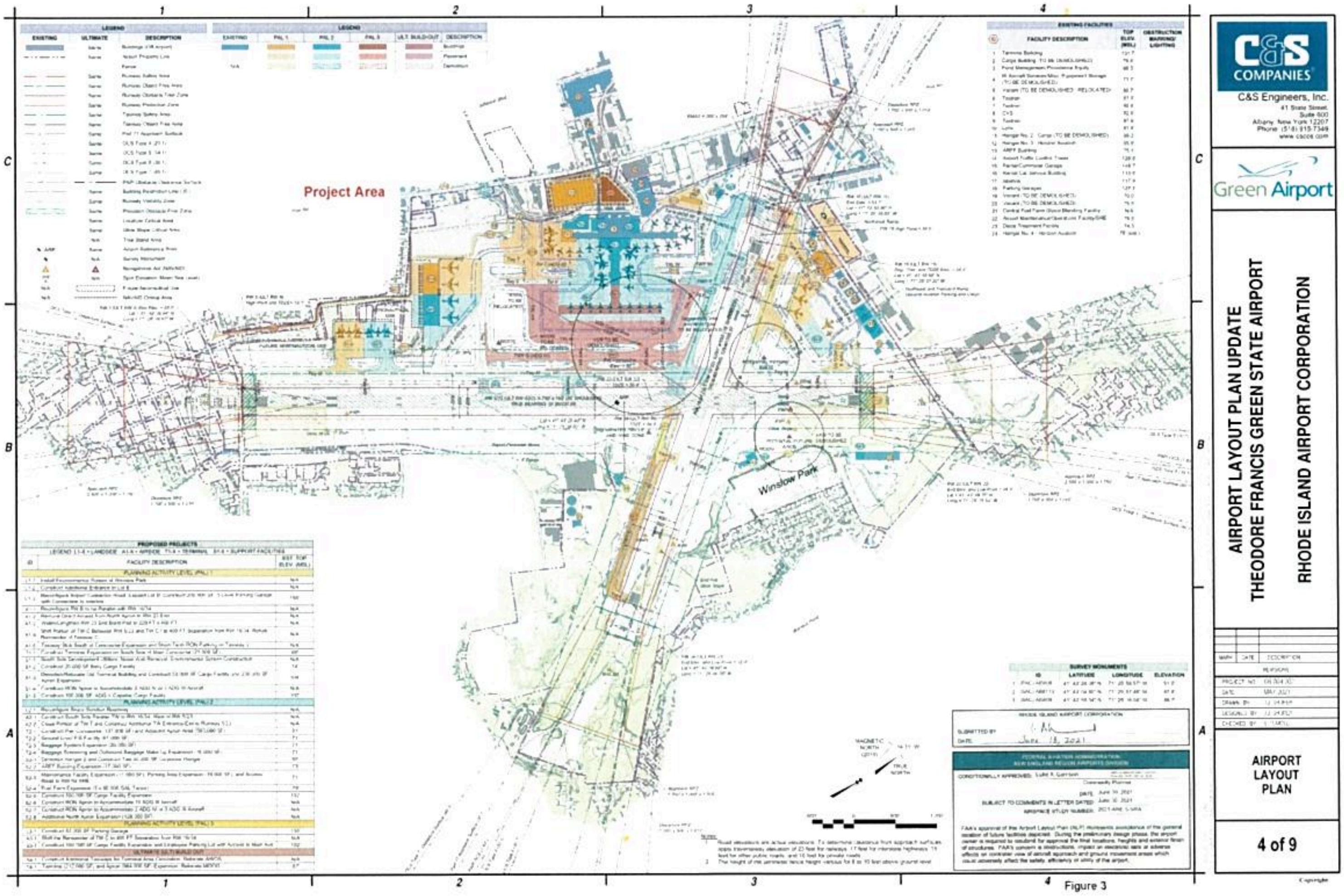


Figure 3

Attachment B - Photos

APPENDIX F

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

AECOM

437 High Street
Burlington, NJ 08016

South Cargo Facility Project
T. F. Green International Airport
Warwick, Kent County, RI

Figure 4

APPENDIX F

PHOTOGRAPHS

Photo No. 1 **Date:** 5/19/2022

Direction Photo Taken:

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Description:

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Photo No. 2 **Date:** 5/19/2022

Direction Photo Taken:

Southwest

Description:

View of airport property from Strawberry Field Drive. Residential housing lots until mid-2000s. Looking at area of proposed sound barrier.

APPENDIX F

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

PHOTOGRAPHS

Photo No. 5 **Date:** 5/19/2022

Direction Photo Taken:

Southeast

Description:

View of airport property from far South parking lot. Sound barrier seen in background. Looking at area of proposed cargo facility and parking.

Photo No. 6 **Date:** 5/19/2022

Direction Photo Taken:

Northeast

Description:

View of airport property from Strawberry Field Drive and Palace Avenue. Terminal can be seen on far right. Looking at area of proposed cargo facility.

PHOTOGRAPHS

Photo No. 3	**Date:** 5/19/2022	
Direction Photo Taken: North		
Description: View of airport property from Fieldview Drive. Residential housing lots until mid-2000s.		

Photo No. 4	**Date:** 5/19/2022	
Direction Photo Taken: North		
Description: View of airport property from far South parking lot. Sound barrier seen on right. Looking at area of proposed parking for cargo facility.		

PHOTOGRAPHS

Photo No. 9 **Date:** 5/19/2022

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Description:

View of airport property from edge of parking lot. Runway yard on left. Parking lot on right. Looking at area of proposed cargo facility on right and aircraft parking for facility on left.

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View of airport property parking lot. Current sound barrier can be seen on right. Looking at area of proposed cargo facility.

PHOTOGRAPHS

Photo No. 7

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Photo No. 8

Date: 5/19/2022

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View of airport property south parking lot edge. Fence facing Strawberry Field Road on right. Looking at area of proposed sound barrier.

PHOTOGRAPHS

Photo No. 11 **Date:** 5/19/2022

Direction Photo Taken:

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Description:

View of airport property from edge of southern parking lot. Current sound barrier can be seen on far left. Looking at area of proposed cargo facility.

Photo No. 12 **Date:** 5/19/2022

Direction Photo Taken:

South

Description:

View of airport property from edge of southern parking lot. Current sound barrier can be seen on right. Looking at area that will be southern tip of proposed cargo facility.

APPENDIX G

Land Use

APPENDIX G

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/22/2022

Project #: 73330.00

From: Donny Goris-Kolb, AICP, Senior Sustainability Planner

Re: Land Use
South Cargo Facility
T. F. Green International Airport
Rhode Island Airport Corporation

Land Use

As noted in Federal Aviation Administration (FAA) Order 1050.1F *Desk Reference*, this environmental impact category relates to existing and planned land uses and the compatibility of airport developments with such uses. The following sections describe the applicable regulatory setting as well as the applicable FAA significance thresholds under the National Environmental Policy Act (NEPA). Specific to the project, this technical memorandum details existing conditions, environmental consequences, and proposed mitigation measures, as appropriate.

Note that land use compatibility with respect to noise is covered under the Noise and Noise-Compatible Land Use environmental impact category.

Regulatory Setting

Applicable regulations include the Airport and Airway Improvement Act of 1982 and its subsequent amendments (49 U.S.C. § 47107[a][10]), which requires assurance to the Secretary of Transportation that appropriate land use controls exist or will be applied to restrict the use of land to activities and purposes compatible with normal airport operations. Also relevant is the Airport Improvement Program (49 U.S.C § 47106[a][1]), which requires consistency with development plans of public agencies in the area in which the airport is located. Additionally, states and local municipalities adopt and implement planning and land use regulations, including zoning ordinances.

FAA Significance Threshold

The FAA has not established a significance threshold for land use. Further, the FAA has not provided specific factors to consider in making a significance determination.

Existing Conditions

The Project will be entirely within the Airport's property boundary. The Project area consists mostly of a portion of parking lot E (Lot E) that was used for long-term parking for the passenger terminal building and also includes vacant land to the south across Strawberry Field Road. Vacant lands across Strawberry Field Road, but still on Airport property, were acquired as part of the Rhode Island Airport Corporation (RIAC's) noise program. As documented on the Airport Layout Plan (ALP), approved by the FAA in 2020, parcels along Strawberry Field Road are anticipated to be used for aviation purposes. The project site includes existing pavement and associated utilities as well as roadway pavements to be crossed for the installation of a proposed noise/visual barrier system.

The attached Land Use figure illustrates off-Airport land uses proximate to the Airport. High density residential (i.e., between two and five dwelling units per acre) is extant to the south across Strawberry Field Road. Post Road is a major commercial transportation corridor that runs in a general north-south direction to the west. Post Road is predominantly characterized by Airport-supporting or related commercial uses, such as parking, car rental agencies, courier services, ground transportation services, fast food and sit-down restaurants, and hotels.

Based on the City of Warwick's Web GIS Maps and Online Property Information, the following base zoning districts are proximate to the project site:

- Areas south across Strawberry Field Road: Residence A-7 District
- Areas west bisected by Post Road: Residence A-7 District, Office District, and General Business District (GB)

As described in the City's Zoning Ordinances:

- The Residence A-7 District generally provides for "properties…used for high density residential use, comprising not more than one single-family dwelling unit per lot area measuring a minimum of 7,000 square feet."
- The Office District generally provides for "properties…used primarily for professional and personal service offices, and low intensity businesses, which generally serve as a transition between residential and other nonresidential districts.
- The General Business District generally provides for "properties… generally used for a wide diversity of commercial establishments including retail, service, office, and automotive related uses."

The *City of Warwick Comprehensive Plan 2033* lays out a vision for future land use in the City, and several aspects of this vision relate to the area in which the Airport is located. Planned future land uses around the project site are largely consistent with existing land uses.

A key concept of the *City of Warwick Comprehensive Plan 2033* involves the City working with RIAC to "Monitor Airport Impacts and Agreements" to mitigate the environmental and other impacts of the Airport and to monitor the implementation of previous agreements. Further, the comprehensive plan outlines an approach to Airport-related land uses:

"The City recognizes the opportunities that T.F. Green Airport brings to Warwick, but also wishes to see the Airport contain its operations 'inside the fence' and confine non-noise related property acquisitions to properties adjacent to properties inside the fence and for uses that are related to Airport operations."

The *Warwick Station Development District Master Plan, A Transit-Oriented Development*[1] details a framework for 1.5 million square feet of new mix uses centered around the InterLink (with an additional 1 to 2 million square feet west of the InterLink along Jefferson Boulevard possible) that include offices, hotels/business conference centers, retail/entertainment, and housing. To the north of the project site is the Gateway District South, which the District Master Plan sees as a transitional area between the Intermodal District and surrounding portions of the City, and in the long-term as having the "potential to support expansion of the dense redevelopment in the Intermodal Core Area." The Intermodal District is seen as "the most suitable area for mixed-use development within walking distance of the rail station and Interlink."

---

[1] https://www.citycentrewarwick.com/sites/default/files/Master%20Plan.pdf

Probable Impacts

Although the project requires a change from a less intensive use (primarily long-term parking) to a more intensive use with cargo operations, the project area is entirely within the Airport's property and will be used for aviation purposes. Further, the project will not result in any on-Airport aviation to non-aviation land use conversions or vice versa. Accordingly, the project will be fundamentally compatible with surrounding land uses and consistent with local land use plans and land use controls. Additionally, the project is not expected to add any homes to the DNL 65 dB contour – in other words, the project would not result in the addition of noncompatible residential land use.[2] No off-site land use conversions are anticipated to occur as a result of the project.

Mitigation Measures

As there are no significant land use impacts under NEPA, mitigation measures are not necessary. However, the project is expected to include the construction of a new noise/visual barrier system to replace the existing barrier wall that would be removed to accommodate the project's footprint. The proposed barrier system (a 6 foot berm with a 9 foot wall on top of the berm) would be lengthened and moved closer to the residential area, but the structure would remain on Airport property. The new noise/visual barrier system is estimated to provide noise reduction between 1 and 7 dB DNL to adjacent homes.

---

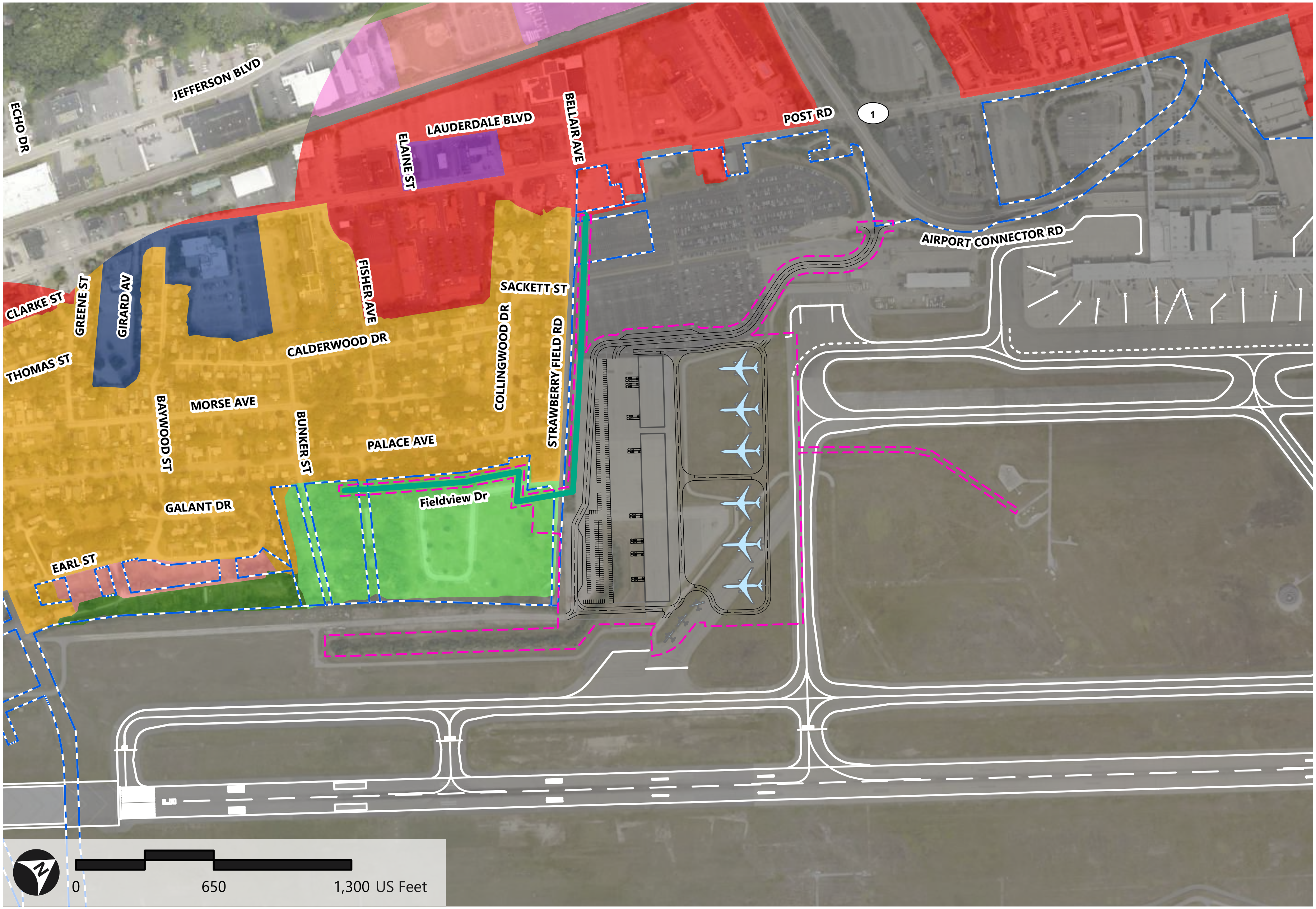
[2] Residential land use exposed to DNL 65 dB or higher are considered noncompatible with aircraft noise unless mitigation has been provided.

APPENDIX G

Path: \\vhb.com\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (SPelletier, 12/5/2022)

Land Use

South Cargo Facility | Warwick, RI



- - - Project Area
- - - Property Line
━ Proposed Sound Barrier Wall

Land Use

- Agricultural Land
- Commercial and Services
- Forest Land
- Industrial
- Industrial and Commercial
- Institutional
- Mixed Urban Land
- Residential
- Transitional Areas
- Transportation, Communication and Utilities

Source: RIDEM ERM, AECOM, VHB

APPENDIX H

Noise and Compatible Land Use

APPENDIX H

HMMH
700 District Avenue, Suite 800
Burlington, MA 01803
781.229.0707

TECHNICAL MEMORANDUM

To: Bryan Oscarson

From: Robert Mentzer
Mariano Sarrate

Date: January 4, 2023

Subject: AEDT Modeling for South Cargo Facility Environmental Assessment, T.F. Green Airport

Reference: HMMH Project Number 309620.010

This memo presents and discusses the potential noise impacts from the construction of a new cargo building and associated airside and landside facilities (hereinafter referred to as “the Proposed Action”) on the southside of T.F. Green International Airport (the Airport) in Providence, Rhode Island.

1.0 Noise and Noise-Compatible Land Use

This section describes the regulations, affected environment, significance threshold(s) pertaining to noise and noise-compatible land use, the methodologies used to determine potential noise effects, and identifies potential noise impacts of the No Action Alternative and the Proposed Action, as well as mitigation measures, if needed.

1.1 Regulatory Setting

1.1.1 Federal Aviation Regulations, Part 36

Federal Aviation Regulations (FAR), Part 36, “Noise Standards: Aircraft Type and Airworthiness Certification,” sets noise standards for issuance of new aircraft type certificates. Aircraft are certified as Stage 1 through Stage 5 depending on their noise level, weight, and number of engines. Stage 1 and Stage 2 aircraft, which are the noisiest aircraft, are no longer permitted to operate in the continental U.S. Although aircraft meeting Part 36 standards are noticeably quieter than many of the older aircraft, the regulations make no determination that such aircraft are acceptably quiet for operations at any given airport. Stage 5 aircraft are the newest and quietest aircraft. All aircraft certificated after January 1, 2018, must meet Stage 5 limits, which are a cumulative 7 decibels (dB) below Stage 4 aircraft and 17 dB below Stage 3 aircraft.

1.1.2 Federal Aviation Noise Abatement Policy

The Federal Aviation Noise Abatement Policy establishes the noise abatement authority and responsibilities of the federal government, airport proprietors, state and local governments, air carriers, air travelers, shippers, and airport area residents and prospective residents. It emphasizes that the FAA’s role is primarily one of regulating noise and its source (the aircraft), plus supporting local efforts to develop airport noise abatement plans. The FAA gives high priority in the allocation of Airport Development Aid Program (ADAP) funds to projects designated to ensure compatible use of land near airports, but it is the role of state and local governments and airport proprietors to undertake the land use and operational actions necessary to promote compatibility.

1.1.3 Aviation Safety and Noise Abatement Act of 1979

The Aviation Safety and Noise Abatement Act of 1979 establishes funding for noise compatibility planning and sets the requirements by which airport operators can apply for funding. This is also the law by which Congress mandated that the FAA develop and airport community noise metric to be used by all federal agencies assessing or regulating aircraft noise. The result was DNL. Because California already had a well-established airport community noise metric in CNEL, and because CNEL and DNL are so similar, FAA expressly allows CNEL to be used in lieu of DNL in noise assessments performed for California airports. The ACT does not require an airport to develop a noise compatibility program, rather, that is accomplished through the Code of Federal Regulations (CFR) Part 150. CFR Part 150 sets forth standards for airport operators to use when documenting noise exposure around airports and for establishing programs, subject to FAA approval, to reduce noise-related noncompatible land use.

1.1.4 Airport Noise and Capacity Act of 1990

The Airport Noise and Capacity Act of 1990 (ANCA) sets forth several provisions related to the regulation of aircraft activities at airports. One of the most notable aspects of ANCA is that it precludes the local imposition of noise and access restrictions that are not otherwise in accordance with the national noise polity unless the restrictions are “grandfathered” under ANCA, in which case the restrictions are free from the restrictions that ANCA otherwise would impose. ANCA established two broad directives to the FAA: 1) establish a method to review aircraft noise, airport use, or airport access restrictions proposed by airport proprietors; and 2) institute a program to phase-out Stage 2 aircraft over 75,000 pounds by December 21, 1999. ANCA applies to all new local noise restrictions and amendments to existing restrictions proposed after October 1990.

1.1.5 FAA Order 1050.1F, Environmental Impacts: Policies and Procedures

This Order serves as the Federal Aviation Administration’s (FAA) policy and procedures for compliance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. Order 1050.1F and the 1050.1F 2020 Desk Reference provides the specific requirements for this EA.

1.1.6 FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions

The Federal Aviation Administration’s Office of Airports (ARP) is responsible for identifying major Federal actions involving the Nation’s public-use airports. After determining that an airport sponsor is proposing a major Federal action such as this EA, ARP is responsible for analyzing the environmental effects of that action and its alternatives. Order 5050.4B provides instruction on evaluating those environmental effects. Order 5050.4B supplements FAA Order 1050.1F, “Environmental Impacts: Policies and Procedures.”

These laws and guidance documents specify the use of DNL—the Day-Night Average Sound Level—as the noise metric used in all FAA aviation noise studies in airport communities. DNL, a cumulative sound level, provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. A 10-decibel (dB) penalty is added to all sounds occurring during nighttime hours (between 10:00 p.m. and 6:59 a.m.). The 10 dB increase for nighttime events accounts for the added intrusiveness of noise during typical sleeping hours as ambient sound levels during nighttime hours are typically about 10 dB lower than during daytime hours.

For a NEPA noise analysis, the FAA requires that the 24-hour analysis period represent the average annual day (AAD). The AAD reflects the daily aircraft operations averaged over a 365-day period. Further details on noise metrics, including DNL, can be found in **Chapter 5.0**.

Estimates of noise effects resulting from aircraft operations can be interpreted in terms of the probable effects on human activities that typically occur within specific land uses. The FAA has adopted guidelines for evaluating land-use compatibility with noise exposure. In general, most land uses are considered compatible with DNL less than 65 dB, but only certain uses are compatible with DNL greater than or equal to 65 dB. **Chapter 4** contains further details on land use compatibility.

The noise analysis compares the No Action and Proposed Action Alternative for the future year using the FAA's thresholds of significance. Table 1 defines the significance threshold for changes in noise in accordance with FAA Order 1050.1F. When an action (compared to the No Action Alternative for the same timeframe) would cause noise-sensitive areas to have a DNL greater than or equal to 65 dB and experience a change in noise of at least 1.5 dB, the impact is considered significant. For example, an increase from No Action 65.5 DNL to Proposed Action 67 DNL is considered a significant impact, as is an increase from No Action 63.5 DNL to Proposed Action 65 DNL. **Table 1** also lists FAA-defined reportable changes of noise levels.

Table 1. Aircraft DNL Thresholds and Impact Categories

	DNL 65 dB or Greater	**Greater than or equal to DNL 60 dB but less than DNL 65 dB**	**Greater than or equal to DNL 45 dB but less than DNL 60 dB**
Minimum Change in DNL when compared to the higher of the Proposed Action or No Action Alternative DNL	1.5 dB	3.0 dB	5.0 dB
Level of Change	Significant	Reportable	Reportable

Source: FAA Order 1050.1F and the 1050.1F 2020 Desk Reference

In addition to defining significant impacts, FAA Order 1050.1F includes additional reporting requirements, including:

- The location and number of noise-sensitive uses at or above DNL 65 dB
- The disclosure of potentially newly noncompatible land use regardless of whether there is a significant noise impact
- Maps reporting the number of residences or people residing at or above DNL 65 dB for at least the 65 dB, 70 dB, and 75 dB exposure levels

FAA Order 1050.1F states, "Special consideration needs to be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties (including, but not limited to, noise-sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question." For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute. Levels of changes for noise-sensitive locations include:

- Significant noise impact: DNL increase of 1.5 dB or more in areas of 65 dB DNL and higher
- Reportable changes:
  - DNL increase of 3 dB or more in areas between 60 and 65 dB DNL
  - DNL increase of 5 dB or more in areas between 45 and 60 dB DNL

1.1.7 *City of Warwick Noise Ordinance*

The City of Warwick has a Noise Ordinance[1] (**Attachment 3**) designed to limit loud single events or excessive noise above ambient noise. The Ordinance seeks to limit loud noise events above Lmax 60 dB during the day

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[1] https://library.municode.com/ri/warwick/codes/code_of_ordinances?nodeId=PTIICOOR_CH40MIPROF_ARTIINGE_S40-13NO

and Lmax 50 dB at night. Where noise events occur in areas of higher ambient noise, a 10 dB degradation of noise levels applies. FAA regulations on noise apply to aircraft operations therefore they are exempt, however other activities at the proposed facility may need to comply with the Ordinance

1.2 Noise-Compatible Land Use

NEPA requires the review of land uses located in the airport environs to understand the relationship between those land uses and the noise exposure associated with arriving and departing aircraft. This includes delineation of land uses within the 65 DNL and higher aircraft noise exposure contours on the noise contour exhibits and identification of noise-sensitive uses that may be noncompatible with that level of noise exposure. Identification of a noise-sensitive use within the 65 DNL contour does not necessarily mean that the use is either considered noncompatible or that it is eligible for mitigation. Rather, identification merely indicates that the use is generally considered noncompatible but requires further investigation. Factors that influence compatibility and/or eligibility may include but are not limited to previous sound reduction treatments, current interior noise levels, structure condition, ambient and self-generated noise levels, whether a given use is considered temporary or permanent, and the timeframe within which a given structure was constructed.

This chapter provides a description of recommended land uses that are deemed generally compatible under Appendix A of Part 150.

1.2.1 Land Use Compatibility Guidelines

The objective of airport noise compatibility planning is to promote compatible land use in communities surrounding airports. NEPA requires the review of land uses surrounding an airport to determine land use compatibility associated with aircraft activity at the airport.

The FAA has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1[2] (reproduced here as **Table 2**). As the table indicates, the FAA generally considers all land uses to be compatible with aircraft-related DNL below 65 dB, including residential, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. These categories are referenced throughout the EA. Institutional or Public land use land use consists of schools, hospitals, nursing homes, churches, auditoriums, concert halls, governmental services, transportation, and parking. While all these uses are compatible with aircraft-related DNL below 65 dB, schools are not compatible above 65 DNL without mitigation and are listed separately in the EA.

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[2] Appendix A, Part 150 Table 1 can be found in 14 CFR Part 150, Airport Noise Compatibility Planning https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150/appendix-Appendix%20A%20to%20Part%20150?msclkid=cba3d6bfa60d11ec83ea1e9ed3e3b966

Table 2. Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels

Land Use	Yearly Day-Night Average Sound Level [DNL] in Decibels (Key and notes on following page)				
Residential Use					
Residential other than mobile homes and transient lodgings	Y	N(a)	N(a)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(a)	N(a)	N(a)	N	N
Public Use						
Schools	Y	N(a)	N(a)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(b)	Y(c)	Y(d)	Y(d)
Parking	Y	Y	Y(b)	Y(c)	Y(d)	N
Commercial Use						
Retail trade–general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(b)	Y(c)	Y(d)	N
Communication	Y	Y	25	30	N	N
Land Use	**Yearly Day-Night Average Sound Level [DNL] in Decibels**					
Manufacturing and Production						
Manufacturing general	Y	Y	Y(b)	Y(c)	Y(d)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(f)	Y(g)	Y(h)	Y(h)	Y(h)
Livestock farming and breeding	Y	Y(f)	Y(g)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(e)	Y(e)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key:

SLUCM = Standard Land Use Coding Manual

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25 dBA, 30 dBA, or 35 dBA must be incorporated into design and construction of structure.

Notes:

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

(a) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often stated as 5 dBA, 10 dBA, or 15 dBA over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(b) Measures to achieve NLR of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(c) Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

(d) Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(e) Land use compatible provided special sound reinforcement systems are installed.

(f) Residential buildings require an NLR of 25 dBA

(g) Residential buildings require an NLR of 30 dBA

(h) Residential buildings not permitted

Source: FAA Part 150, Appendix A, Table 1, 2007

1.2.2 Study Area

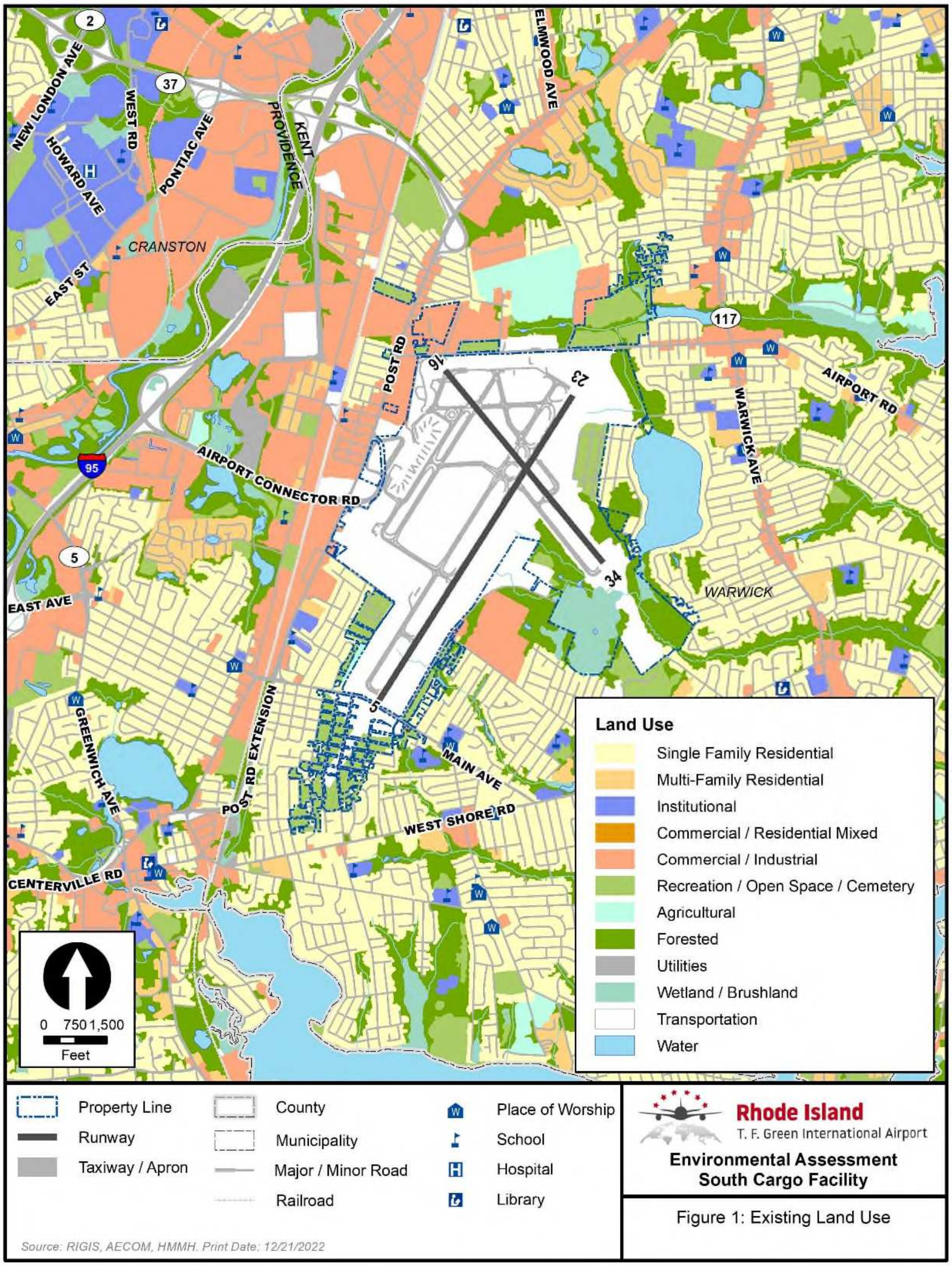
To adequately capture the effects of aircraft noise, the noise study area (NSA) must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors that join the surrounding airspace. The NSA was developed to encompass an area that would contain at least the lateral extent of the estimated 60 DNL contour resulting from aircraft flight and ground operations contemplated under the Proposed Action, with an adequate buffer to accommodate potential changes in the contour between the No Action and Proposed Action Alternatives. **Figure 1** displays the general extent of the NSA on the land use map. The NSA is approximately 6 Nautical Miles (nmi) to the east and west and 6 nmi to the north and south.

1.2.3 Existing Land Use

PVD is located on over 1,100 acres Warwick, Rhode Island (RI) approximately 5.2 nmi south of Providence, RI.

Existing land use in the study area consists of the PVD property, residential uses, commercial, and industrial land uses, as shown on **Figure 1**. PVD is surrounded to the north and south by residential areas consisting of single-family and multi-family residences. The area to the west is primarily industrial and commercial facilities with areas of residential land use to the east of the airport.

All noise-sensitive sites such as schools, nursing homes, hospitals and places of worship have been identified and are shown on **Figure 1**. Any potential noncompatible land use and the noise-sensitive sites within the study area are evaluated in the EA.



Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

Environmental Assessment
South Cargo Facility

Figure 1: Existing Land Use

2.0 Modeling Methodology

The following sections present the modeling methodology for the noise analysis for the existing, future no action, and future proposed action alternatives.

2.1 Aviation Environmental Design Tool (AEDT)

For an action occurring on, or in the vicinity of a single airport, or as part of an air traffic action, FAA directs the use of the latest version of the Aviation Environmental Design Tool (AEDT) for detailed noise modeling or another model, as approved by FAA. The model must be used to produce DNL 65 dB, DNL 70 dB, and DNL 75 dB contours, and others as needed.

The aircraft noise analysis for the EA uses AEDT Version 3e (released May 9, 2022). All AEDT modeling conducted for this study adheres to "*Guidance on Using the AEDT to Conduct Environmental modeling for FAA Actions Subject to NEPA*" (FAA 2017). AEDT is a combined noise and emission model that uses a database of aircraft noise and performance characteristics. The AEDT predicts ground based DNL values from user input for aircraft types, AAD aircraft operations, airport operating conditions, aircraft performance, and flight patterns. AEDT also calculates air pollutant emissions from aircraft engines for air quality analyses, enables noise and air quality calculations on a regional basis (as opposed to in the immediate airport environment only), and includes updated databases for newer aircraft models.

The noise pattern calculated by the AEDT for an airport is a function of several factors, including: the number of aircraft operations during the period evaluated, the types of aircraft flown, the time of day when they are flown, the way they are flown, how frequently each runway is used for landing and takeoff, and the routes of flight used to and from the runways. Substantial variations in any one of these factors may, when extended over a long period of time, cause marked changes to the noise pattern.

The primary data input categories for the AEDT are:

- Airfield layout, which includes the coordinates of each runway centerline endpoint, runway widths, approach threshold crossing heights, and runway end elevations.
- Meteorological data, which refers to weather conditions affecting sound propagation and aircraft performance. AEDT's database of airports was accessed to obtain annual average daily PVD weather conditions. AEDT's airport database contains 10-year average meteorological data (from 2011 to 2020), which AEDT uses to adjust aircraft performance and sound propagation parameters from standard day conditions.
  - Temperature: 52.68° F
  - Station Pressure: 1013.71 mbar
  - Sea Level Pressure: 1016.61 mbar
  - Dew point: 43.02° F
  - Relative humidity: 69.64%
- Terrain data, which refers to ground elevations. AEDT uses terrain data to adjust the aircraft-to-ground path length, which is the distance between the modeled location on the ground and the

aircraft in flight, making the ground closer to or farther from the aircraft relative to flat-earth conditions. AEDT does not use terrain data to account for shielding or reflective effects of terrain.

- Specific aircraft types in PVD's fleet mix, defined by airframe and engine type combinations. All aircraft types evaluated for the PVD modeling are either in the AEDT database or have approved substitutions within the model.
- Aircraft flight operations, which are numbers of AAD aircraft operations by DNL time periods and by aircraft type. Daytime is defined as 7:00 a.m. to 9:59 p.m. and nighttime is defined as 10:00 p.m. to 6:59 a.m. Departures and arrivals were the two types of flight operations modeled for the EA. Touch-and-go or circuit operations were modeled on the main runway.
- Aircraft noise and performance characteristics. The AEDT database contains noise and performance data for more than 300 different aircraft types. AEDT accesses the noise and performance data for takeoff, landing, and pattern operations by those aircraft. The database provides single-event noise levels for slant distances from 200 feet to 25,000 feet for several thrust or power settings for each aircraft type. Performance data includes thrust, speed, and altitude profiles for takeoffs and landings. For those aircraft types operating at PVD which are not directly represented in the AEDT database, the AEDT contains FAA-approved substitutions for noise modeling.
- Stage length, which is a surrogate for an aircraft's weight that varies according to its fuel load. Stage length is assigned according to each departure's trip distance to its destination, using city-pair information provided in the operations forecast. The assigned stage length then determines the appropriate flight performance profile from the AEDT database.
- Flight profiles, which are based on standard flight procedures for each aircraft type contained in the AEDT database. Information in the flight profiles describe the sequence of altitudes, thrust/power settings, and airspeeds for departure and arrival operations.
- Runway use, which is the allocation of flight operations to each runway, on an AAD basis, by DNL time periods, operation type, and aircraft type.
- Flight tracks and their usage. A flight track is the two-dimensional projection of the aircraft's three-dimensional flight path onto the ground. A modeled flight track represents one or more actual flight tracks. Modeled flight tracks for a given flight corridor typically consist of a backbone track and sub-tracks which represent the average location and dispersion of the actual flights in the corridor. Each backbone flight track typically represents a general heading for departures or originating point for arrivals. As each runway usually has multiple headings and originating points, the distribution of operations, or track use, on an AAD basis, must be specified. Operations are further spread on backbone tracks and sub-tracks via distribution percentages on an AAD basis.

2.2 Noise Exposure Contours

Noise contours (i.e., lines of equal noise exposure, usually expressed in terms of DNL) are typically used to illustrate average daily noise exposure around an airport. Noise contours are conceptually similar to topographic contour maps. A set of concentric contours, representing successively lower DNL, usually extends away from the airport's runways. DNL contours are typically presented in 5 dB increments on a base map, with each successive contour representing a 5 dB decrease in noise exposure on an AAD basis. Contours developed for the EA represent 65 DNL, 70 DNL, and 75 DNL.

For purposes of the EA, the noise contours (see **Section 3.5** for the Existing Condition contours) show areas exposed to each DNL level. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not the other. For further information on noise and its effects on people, please refer to **Section 5.0**.

2.3 Grid Point Noise Calculations

Besides noise contours, the AEDT provides another way to show noise levels in the airport environs. DNL (or other metrics supported by the AEDT) can be calculated for specific locations, defined as grid points, and can be presented in a number of formats. Grid point analyses can show the change in noise levels over specific locations and are helpful in determining where significant or reportable noise changes may occur.

For the EA, noise levels are developed for one area-wide grid set. The NSA grid points are defined to cover the complete NSA area. The NSA grid consists of a rectangle with points spaced 0.05 nmi (303 feet) apart, extending approximately 6 nmi to the east and west and 6 nmi to the north and south from the Airport Reference Point (which is near the geographic center of PVD's runways).

3.0 Existing Condition

This section provides the description of current noise conditions within the study area from aircraft noise. Typically, a recent calendar year data set is utilized to develop the existing condition information, and for this EA calendar year (CY) 2021 was used.

3.1 Aircraft Activity Levels and Fleet Mix

The existing aircraft noise environment around PVD was evaluated based upon the existing condition aircraft operations and the associated airport operational characteristics. Radar data from PVD Casper Flight Tracking System and the FAA's Operational Network (OPSNET) operational data for CY2021 were used to determine the existing noise conditions. CY2021 operations at PVD are below historical averages (approximately 20 percent) due to the pandemic but reflect a return to flight operations at the airport from 2020. The radar data provided the aircraft fleet mix and runway use. The fleet mix developed from the Casper data was grouped into FAA operational categories (Air Carrier, Air Taxi, and General Aviation).

The Air Traffic Control Tower at PVD is closed from midnight to 5:30 a.m. therefore, using the radar data we estimated the operational counts during the overnight period while the tower is closed. These totals were added to the FAA OPSNET data to get the total operations for the year as shown in **Table 3**. The fleet mix was then scaled to match the final count for CY2021. During the existing conditions period 57,391 annual operations occurred at PVD. RIAC provided counts for mainline cargo operations which were accounted for in the existing conditions fleet mix, and accounted for in the air carrier category throughout this analysis. **Table 3.** presents the annual operations modeled for the Existing Condition along with the average annual day counts.

Table 3. Existing Condition Operations

Modeling Scenario	Air Carrier	Air Taxi	General Aviation		Military		Total
			Itinerant	Local	Itinerant	Local	
FAA OPSNET (CY 2021)	23,963	8,652	14,229	9.165	477	132	56,618
Operations while Tower is closed	378	214	181	0	0	0	800
Total CY2021	24,341	8,866	14,410	9,165	477	132	57,391
Average Annual Day	66.7	24.3	39.5	25.1	1.3	0.4	157.2

Note: Totals may not match exactly due to rounding

Source: FAA OPSNET, 12/16/2022

Table 4 provides the average daily operations, by aircraft type, that were used in AEDT for the existing conditions. The average daily number of aircraft arrivals and departures for the CY2021 Noise Contour are calculated by determining the total annual operations and dividing by 365 (days in a year). The existing conditions annual average day included 157.2 total operations, 11 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 4. PVD Modeled Average Daily Operations for Existing Conditions (CY 2021)

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departure		Circuit		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	757PW	0.7	0.5	1.1	0.1	0.0	0.0	2.4
		757RR	0.7	0.5	1.1	0.1	0.0	0.0	2.4
		EMB190	1.3	<0.1	1.4	<0.1	0.0	0.0	2.7
		A319-131	0.7	0.2	0.6	0.2	0.0	0.0	1.7
		A320-211	1.6	1.0	1.6	0.9	0.0	0.0	5.1
		A320-232	2.4	0.4	2.4	0.4	0.0	0.0	5.6
		717200	0.3	0.1	0.2	0.2	0.0	0.0	0.8
		A320-271N	1.5	<0.1	1.5	<0.1	0.0	0.0	3.0
		CRJ9-ER	6.4	0.8	6.2	1.0	0.0	0.0	14.4
		EMB170	0.5	0.2	0.5	0.2	0.0	0.0	1.4
		EMB175	2.8	1.0	2.8	1.1	0.0	0.0	7.7
		7378MAX	0.3	0.2	0.3	0.2	0.0	0.0	1.0
		737700	4.9	0.9	4.8	1.0	0.0	0.0	11.6
		737800	2.6	0.9	2.4	1.1	0.0	0.0	7.0
Air Carrier Subtotal			**26.7**	**6.7**	**26.9**	**6.5**	**0.0**	**0.0**	**66.8**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
		CNA680	2.0	0.1	2.1	0.1	0.0	0.0	4.3
		CL600	2.5	0.3	2.6	0.2	0.0	0.0	5.6
		CNA55B	1.5	0.1	1.5	0.1	0.0	0.0	3.2
		EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
		EMB145	0.4	0.0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.2	<0.1	0.2	<0.1	0.0	0.0	0.4
		CNA208	3.6	0.6	3.4	0.8	0.0	0.0	8.4
		BEC58P	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
Air Taxi Subtotal			**10.9**	**1.2**	**10.8**	**1.5**	**0.0**	**0.0**	**24.4**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
		CNA560XL	0.8	0.0	0.8	<0.1	0.0	0.0	1.6
		CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6
		CNA750	2.6	0.1	2.5	0.2	0.0	0.0	5.4
		CL601	0.5	<0.1	0.5	<0.1	0.0	0.0	1.0
		GIV	0.7	<0.1	0.7	0.1	0.0	0.0	1.5
		LEAR35	0.5	0.1	0.5	<0.1	0.0	0.0	1.1
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
		GASEPF	2.4	<0.1	2.4	<0.1	0.0	0.0	4.8
		CNA172	7.4	0.1	7.4	0.1	24.8	0.3	40.1
		PA28	1.5	0.1	1.4	0.1	0.0	0.0	3.1

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departure		Circuit		Total
			Day	Night	Day	Night	Day	Night	
		COMSEP	0.5	<0.1	0.5	0.0	0.0	0.0	1.0
		CNA208	1.0	<0.1	0.8	0.3	0.0	0.0	2.1
General Aviation Subtotal			**19.3**	**0.4**	**18.9**	**0.8**	**24.8**	**0.3**	**64.5**
Military	Non-Jet	S70	0.7	0.0	0.7	0.0	0.4	0.0	1.8
Military Subtotal			**0.7**	**0.0**	**0.7**	**0.0**	**0.4**	**0.0**	**1.8**
Grand Total			**57.6**	**8.3**	**57.3**	**8.8**	**25.2**	**0.3**	**157.5**

Note: Totals may not match exactly due to rounding

Source: Casper, FAA OPSNET, HMMH 2022

3.2 Airfield Layout

PVD is located in Warwick, RI within Kent County, approximately six nautical miles southeast of downtown Providence, RI. As shown in **Figure 2**, the airport includes two 150-foot-wide runways, one of which is oriented in a northeast-southwest direction (Runway 5-23), and one “crosswind” runway (Runway 16-34) that intersects the northeast-southwest runway in a northwest-southeast direction. Runway 5-23 is the primary runway and provides PVD with the greatest capacity to accommodate larger aircraft. Runway 16-34 is primarily used by small aircraft.

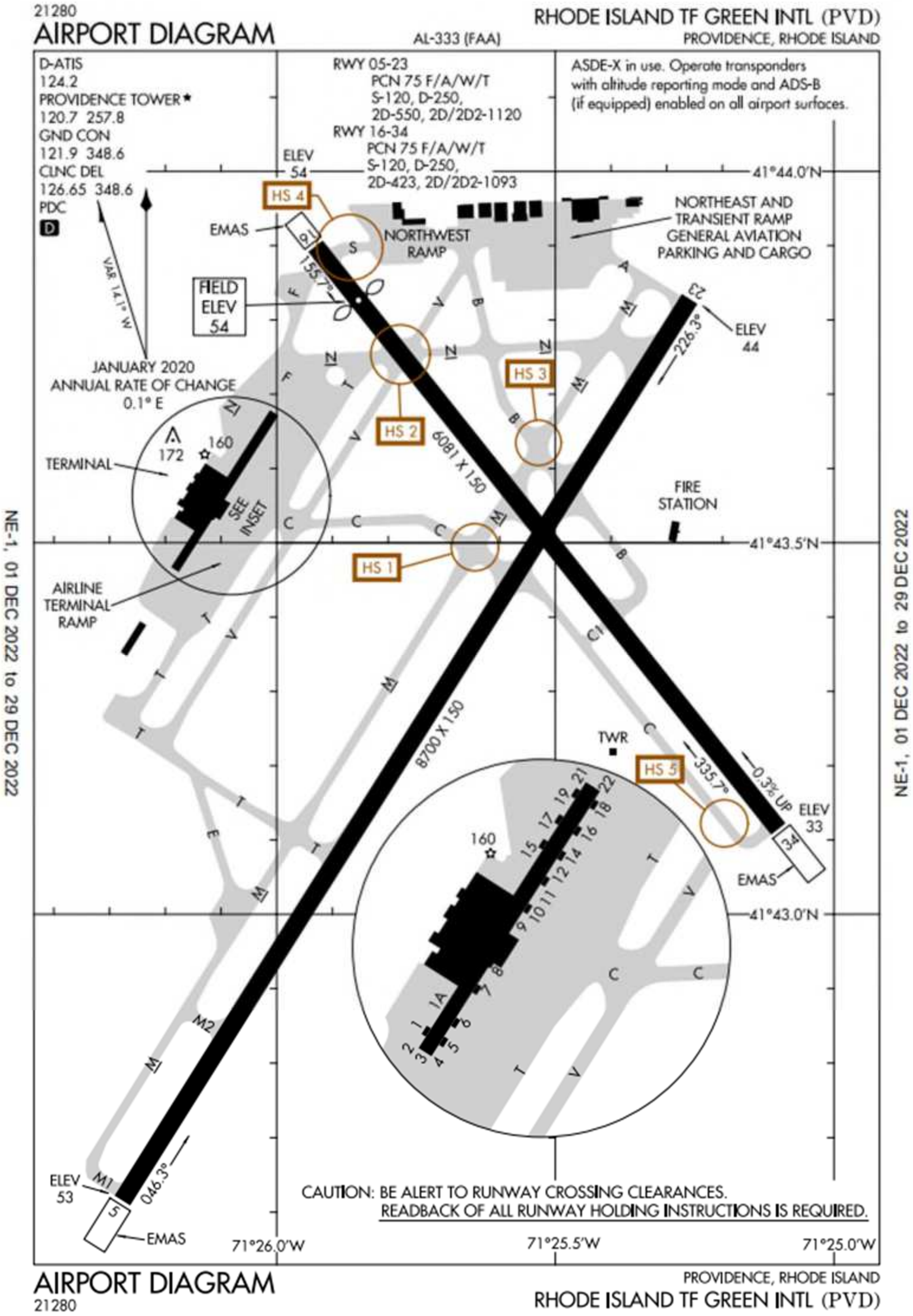


Figure 2. PVD Airfield Layout

Runway length, runway width, instrumentation, and declared distances do not directly affect noise calculations. However, these parameters may affect which aircraft might use a particular runway and under what conditions and therefore how often a runway would be used relative to the other runways at the Airport. **Table 5** provides the detailed parameters for each runway end.

Table 5. Runway Details

Runway End	Latitude (dd-mm)	Longitude (dd-mm)	Elevation (feet, MSL)	Displaced Landing Threshold (feet)	Glide Slope (degrees)	Threshold Crossing (feet, AGL)	Magnetic Orientation (degrees)	Length (feet)
Existing and No-Action Runways								
5	41-42.615697N	071-26.276960W	52.9	0	3.00	69	19.7	8,700
23	41-43.828312N	071-25.258860W	44.3	0	3.00	41	199.7	
16	41-43.899263N	071-25.930487W	53.7	565	3.00	49	79.7	6,081
34	41-43.114760N	071-25.099945W	32.8	0	3.00	60	259.7	

Sources: FAA Form 5010, October 2022

3.2 Runway Utilization

Weather, particularly wind direction and wind speed, is the primary factor affecting runway use at airports. Additional factors that may affect runway use include the position of a facility (such as a passenger terminal) relative to the runways and temporary runway closures, generally for airfield maintenance and construction.

In the development of the PVD noise exposure maps, runway usage rates were calculated for two aircraft groups sharing common runway use characteristics, using actual operations data from the Casper system. Jet and non-jet activity was calculated separately. Non-jet aircraft are the piston and turboprop groups. With no anticipation of significant difference in runway use for the five-year forecast, the same runway usage was modeled for the no action and the proposed action alternatives as for the existing conditions.

Table 6 provides the modeled jet and non-jet runway use percentages for departures and arrivals for the day and nighttime periods used in the calculation of DNL. Based on historical conditions, the Airport is operated in one of two main operating configurations – south flow (approximately 59 percent of the time) or north flow (approximately 41 percent of the time).

Table 6. Modeled Average Daily Jet and Non-Jet Runway Use for Existing and Future Alternatives

PVD Runway Use Arrivals				
Runway	**Jet Day**	**Jet Night**	**Non-Jet Day**	**Non-Jet Night**
05	40.2%	44.3%	40.1%	69.5%
16	0.0%	0.0%	0.0%	0.0%
23	59.2%	55.3%	59.2%	30.5%
34	0.6%	0.3%	0.7%	0.0%
H	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%
PVD Runway Use Departures				
Runway	**Jet Day**	**Jet Night**	**Non-Jet Day**	**Non-Jet Night**
05	40.1%	44.0%	48.1%	22.0%
16	0.0%	0.0%	0.0%	0.0%
23	59.7%	55.9%	51.3%	78.0%
34	0.2%	0.1%	0.5%	0.0%
H	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%

Source: Casper, HMMH 2022

3.3 Aircraft Stage Length and Operational Profiles

Within the AEDT database, aircraft departure profiles are defined by a range of trip distances identified as "stage lengths." Higher stage lengths (longer trip distances) are associated with heavier aircraft due to the increase in fuel requirements for the flight. For example, a departure aircraft with a trip distance less than 500 nmi would be assigned a stage length value of one, where a departure aircraft with a trip distance of 3,000 nmi would be assigned a stage length value of five. **Table 7** provides the stage length classifications by their associated trip distances.

Table 7. AEDT Stage Length Categories

Category	Stage Length (nmi)
1	0-500
2	500-1000
3	1000-1500
4	1500-2500
5	2500-3500
6	3500-4500
7	4500-5500
8	5500-6500
9	6500+
Note: Stage Length is defined as the distance an aircraft travels from takeoff to landing	

Source: AEDT 3e User Guide, May 2022

The stage lengths flown from PVD are based on the city pair information provided by the radar data operations. Typically, widebody aircraft which operate on long haul routes have the higher stage lengths.

AEDT includes standard flight procedure data for each aircraft that represents each phase of flight to or from the airport. Information related to aircraft speed, altitude, thrust settings, flap settings, and distance are available and used by AEDT to calculate noise levels on the ground. Standard aircraft departure profiles are supplied from the runway (field elevation) up to 10,000 feet above ground level (AGL). Aircraft arrival profiles are supplied from 6,000 feet AGL down to the runway including the application of reverse thrust and rollout. The FAA requires that these standard arrival and departure profiles be used unless there is evidence that they are not applicable. The noise calculations presented in this document used the standard AEDT departure profiles.

3.4 Flight Tracks

The FAA has established routes for aircraft arriving and departing from PVD. For the noise analysis, model flight tracks were developed representing the path along the ground over which aircraft generally fly. For the existing conditions analysis, radar data for the existing conditions period (CY 2021) was used to develop AEDT model tracks to ensure they are representative of where aircraft fly at PVD. Radar data gathered was analyzed to verify the location, density, and width of existing flight corridors. Departure corridors are defined by a series of individual flight tracks located across the width of the corridor. Generally, aircraft on approach to a runway end are located within a smaller corridor due to the use of navigational instruments. To model the flight corridors in AEDT, consolidated flight tracks were developed from the radar data and given a track ID. Flight tracks modeled for the existing conditions are shown in **Figure 3** (North Flow Model Tracks) and **Figure 4** (South Flow Model Tracks).

A total of 86 AEDT model tracks bundles were developed through this process, consisting of 40 arrival track bundles, two circuit tracks and 44 departure track bundles. Each track bundle may include a collection of three (backbone and two sub-tracks) or five tracks (backbone and four sub-tracks). Detailed AEDT model track use tables can be found in **Appendix B**.

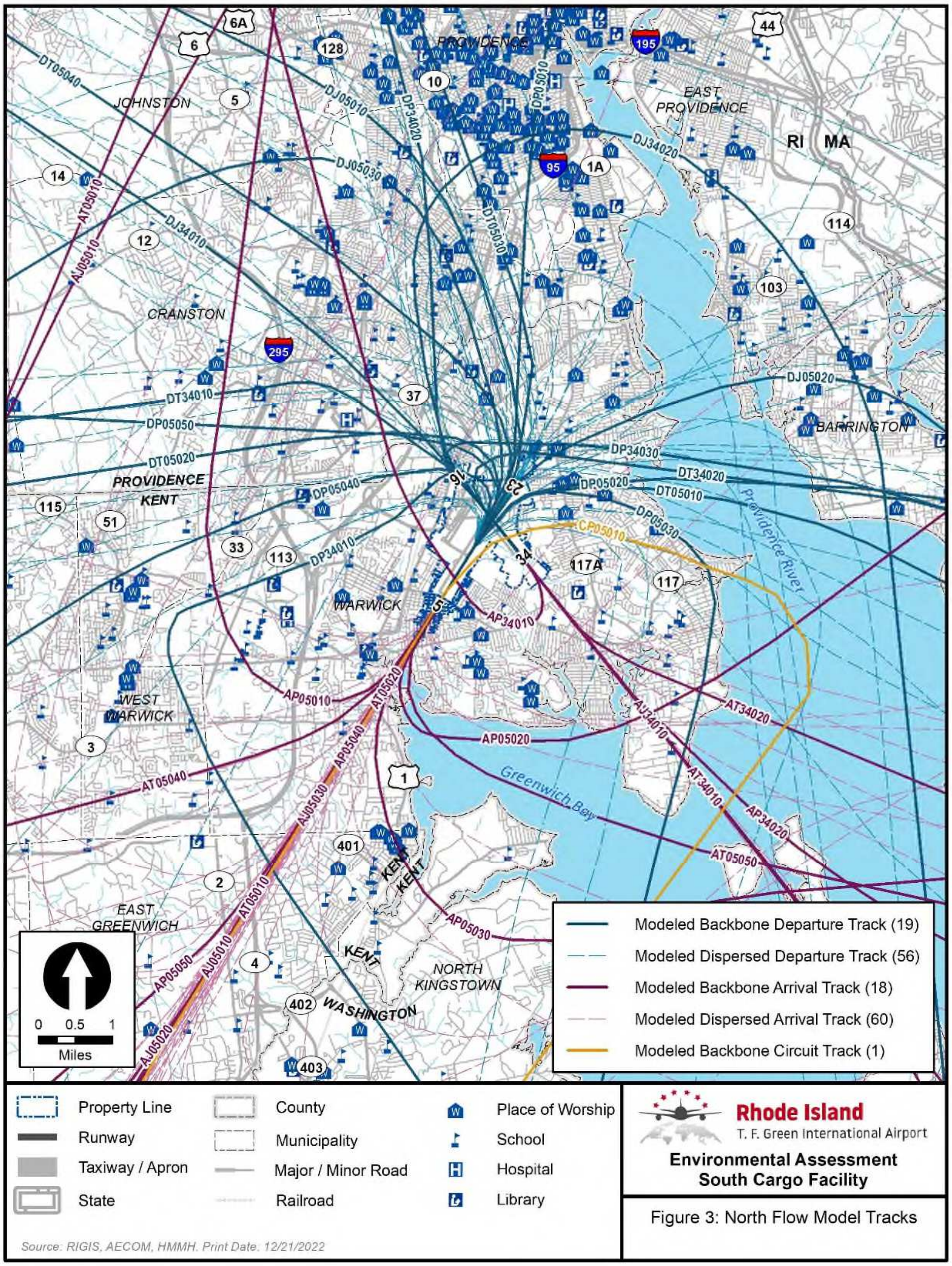


Figure 3: North Flow Model Tracks

Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

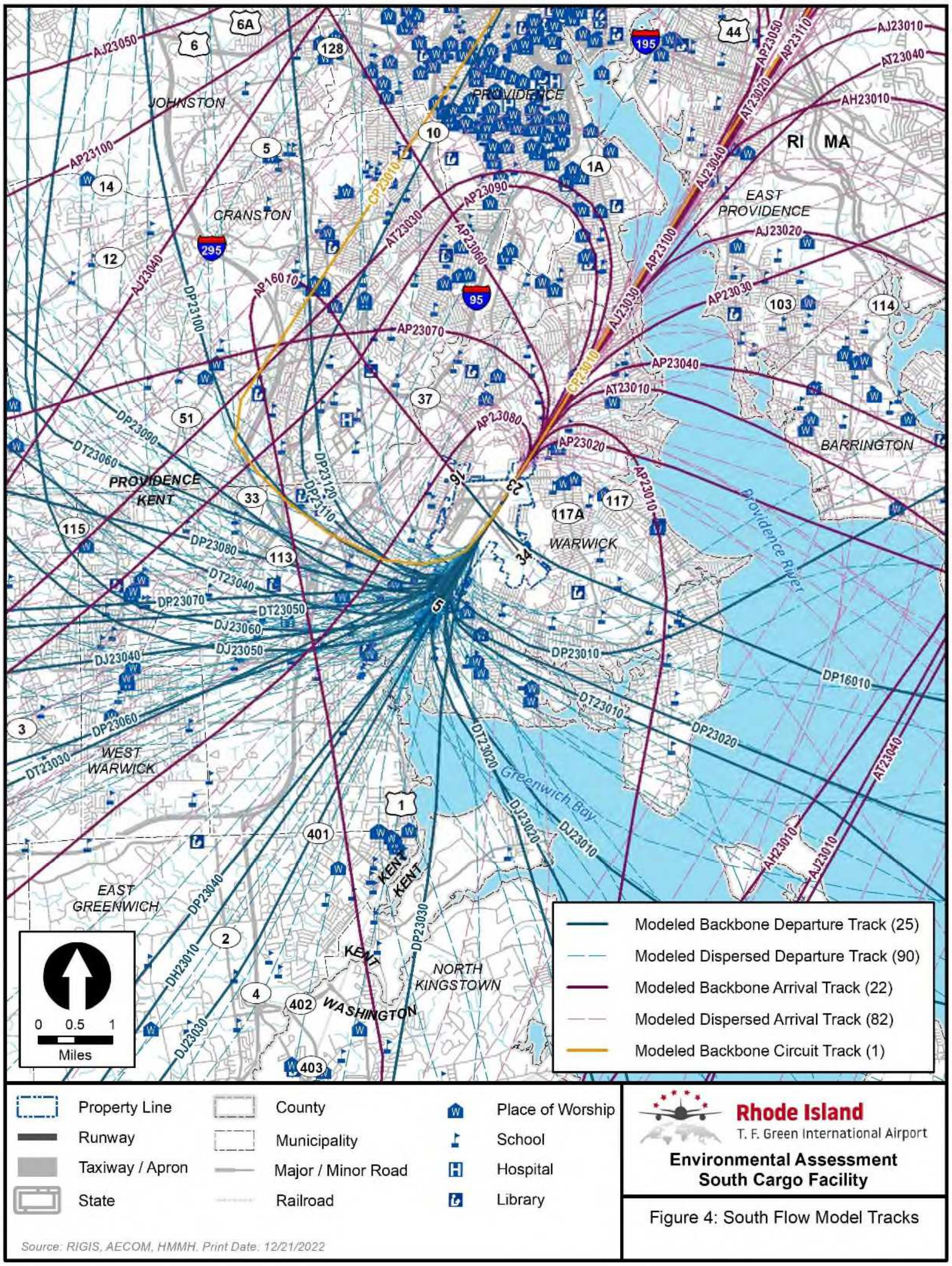


Figure 4: South Flow Model Tracks

Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

3.5 Existing Noise Exposure Contours

Figure 5 displays the 65 – 75 dB DNL noise contours for the 2021 Existing Conditions over a map of the existing land use in the study area. The map also shows individual noise-sensitive locations such as schools and places of worship. The FAA's guidelines for land use compatibility presented in Appendix A of 14 CFR Part 150 (**Table 2** above) state that all land uses are generally compatible with aircraft noise below DNL 65 dB. The DNL 65 dB noise contour extends off airport property in a small area to the east of Runway 5-23 on the corner of Warwick Industrial Drive and Strawberry Field Road. The land is a combination of industrial and open space. There is no residential land use within the DNL 65 dB or higher contours.

Table 8 provides the population exposure, housing unit count, and contour areas for the 2021 DNL noise contours. The DNL 65+ dB noise contour —which covers approximately 398 acres—contains no residents and no housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2021 DNL 65+ dB noise contour.

Table 8. 2021 Existing Conditions Noise Contours Population, Housing, and Area

DNL (dB) Noise Contour	2020 Population Census	2020 Housing Units	Area (acres)
65 - 70	0	0	222.9
70 - 75	0	0	100.2
> 75	0	0	74.8
Total	**0**	**0**	**397.9**

Source: HMMH, 2022; U.S. Census Bureau, 2020

Source: RIGIS, AECOM, HMMH. Print Date: 12/22/2022

Figure 5: 2021 Existing Conditions DNL Contours

4.0 Future Alternatives

The following sections discuss the development of the future 2026 aircraft operational forecast, runway use, flight tracks, and flight track usage for the future 2026 No Action and Proposed Action Alternative. **Section 4.3.3** discusses the comparison between the two alternatives.

4.1 Forecast

The forecast developed for the 2021 PVD Master Plan (MP) was used as the basis for this EA. The MP forecast was compared to the FAA Terminal Area Forecast (TAF) released in March of 2022. While the MP forecast is higher than the 2021 TAF for the year 2026, the forecast was within eight percent of the total forecast operations and within 10 percent for commercial operations which is within FAA guidelines. Also, the fiscal year actual operation totals for 2022 for PVD were higher for both commercial and overall operations forecasted in the 2021 TAF demonstrating a quicker return in operations than forecasted at the airport in the TAF due to the global pandemic. Therefore, the MP forecast was used for the future 2026 operational levels in this EA, which are shown in **Table 9**.

Table 9. 2021 – 2026 Forecast Operations Compared to the FAA TAF

2026 Forecast	Commercial	General Aviation	Military	Total
MP Forecast	56,509	26,166	451	83,126
TAF 2026	51,559	24,632	625	76,816
Difference	4,950	1,534	-174	6,310
Percent Difference	10%	6%	-1%	8%

Source: HMMH, 2022; FAA March 2021 TAF, PVD 2021 MP

The MP forecast was used to determine the number of operations for the 2026 No Action alternative and the fleet mix from 2021 was adjusted to match the 2026 operational totals. For the 2026 Proposed Action alternative, the 2026 No Action model operations were used as a basis, with additional cargo operations added and upgauging accounted for (i.e., “upsizing” of aircraft from Boeing 757 narrowbody to Boeing 767 widebody aircraft), per information provided by RIAC. **Tables 10, 11, and 12** display the results of the modeling for future conditions.

Table 10. Future Condition Operations

2026 Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
No Action Annual	47,861	8,648	26,166	451	83,126
No Action Average Annual Day	131.1	23.7	71.7	1.2	227.7
Proposed Action Annual	49,407	8,490	26,166	451	84,514
Proposed Action Average Annual Day	135.4	23.3	71.7	1.2	231.6
Annual Difference	**1,546**	**-158**	**0**	**0**	**1,388**
Average Annual Day Difference	**4.2**	**-0.4**	**0.0**	**0.0**	**3.8**

Source: HMMH, 2022; FAA March 2021 TAF, PVD 2021 MP, RIAC

Table 11. Future No Action Operations

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	757PW	0.6	0.5	1	0.1	0.0	0.0	2.2
		757RR	0.6	0.4	1	0.1	0.0	0.0	2.1
		EMB190	2.7	0.1	2.8	<0.1	0.0	0.0	5.6
		A319-131	1.4	0.4	1.3	0.5	0.0	0.0	3.6
		A320-211	3.2	2	3.3	1.9	0.0	0.0	10.4
		A320-232	4.9	0.9	5	0.9	0.0	0.0	11.7
		717200	0.5	0.2	0.3	0.4	0.0	0.0	1.4
		A320-271N	3.2	<0.1	3.1	0.1	0.0	0.0	6.4
		CRJ9-ER	13.1	1.7	12.7	2.1	0.0	0.0	29.6
		EMB170	1.1	0.3	1	0.4	0.0	0.0	2.8
		EMB175	5.8	2	5.6	2.2	0.0	0.0	15.6
		7378MAX	0.6	0.3	0.6	0.4	0.0	0.0	1.9
		737700	10	1.7	9.7	2.1	0.0	0.0	23.5
		737800	5.3	1.9	4.9	2.3	0.0	0.0	14.4
Air Carrier Subtotal			**53**	**12.4**	**52.3**	**13.5**	**0.0**	**0.0**	**131.2**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0.00	0.0	0.0	0.0
		CNA680	1.9	0.1	1.9	<0.1	0.0	0.0	3.9
		CL600	2.4	0.3	2.6	0.2	0.0	0.0	5.5
		CNA55B	1.4	0.1	1.4	<0.1	0.0	0.0	2.9
		EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
		EMB145	0.4	0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.1	<0.1	0.2	<0.1	0.0	0.0	0.3
		CNA208	3.6	0.6	3.3	0.8	0.0	0.0	8.3
		BEC58P	<0.1	0	<0.1	0	0.0	0.0	0
Air Taxi Subtotal			**10.5**	**1.2**	**10.4**	**1.3**	**0.0**	**0.0**	**23.4**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
		CNA560XL	0.9	0	0.9	<0.1	0.0	0.0	1.8
		CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6
		CNA750	2.9	0.2	2.8	0.3	0.0	0.0	6.2
		CL601	0.6	<0.1	0.6	<0.1	0.0	0.0	1.2
		GIV	0.8	<0.1	0.8	0.1	0.0	0.0	1.7
		LEAR35	0.6	0.1	0.6	<0.1	0.0	0.0	1.3
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
		GASEPF	2.7	<0.1	2.7	<0.1	0.0	0.0	5.4
		CNA172	8.3	0.1	8.3	0.1	27.1	0.4	44.3
		PA28	1.6	0.1	1.6	0.1	0.0	0.0	3.4
		COMSEP	0.5	<0.1	0.6	0	0.0	0.0	1.1

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
		CNA208	1.1	<0.1	0.9	0.3	0.0	0.0	2.3
General Aviation Subtotal			**21.4**	**0.5**	**21.2**	**0.9**	**27.1**	**0.4**	**71.5**
Military	Non-Jet	S70	0.5	0.0	0.5	0.0	0.2	0.0	1.2
Military Subtotal			**0.5**	**0.0**	**0.5**	**0.0**	**0.2**	**0.0**	**1.2**
Grand Total			**85.4**	**14.1**	**84.4**	**15.7**	**27.3**	**0.4**	**227.3**

Source: HMMH, 2022

Table 12. Future Proposed Action Operations

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
Air Carrier	Jet	7673ER	0.0	4.3	4.3	0.0	0.0	0.0	8.6
	Jet	EMB190	2.7	0.1	2.8	<0.1	0.0	0.0	5.6
	Jet	A319-131	1.4	0.4	1.3	0.5	0.0	0.0	3.6
	Jet	A320-211	3.2	2	3.3	1.9	0.0	0.0	10.4
	Jet	A320-232	4.9	0.9	5	0.9	0.0	0.0	11.7
	Jet	717200	0.5	0.2	0.3	0.4	0.0	0.0	1.4
	Jet	A320-271N	3.2	<0.1	3.1	0.1	0.0	0.0	6.4
	Jet	CRJ9-ER	13.1	1.7	12.7	2.1	0.0	0.0	29.6
	Jet	EMB170	1.1	0.3	1	0.4	0.0	0.0	2.8
	Jet	EMB175	5.8	2	5.6	2.2	0.0	0.0	15.6
	Jet	7378MAX	0.6	0.3	0.6	0.4	0.0	0.0	1.9
	Jet	737700	10	1.7	9.7	2.1	0.0	0.0	23.5
	Jet	737800	5.3	1.9	4.9	2.3	0.0	0.0	14.4
Air Carrier Subtotal			**51.8**	**15.8**	**54.6**	**13.3**	**0.0**	**0.0**	**135.5**
Air Taxi	Jet	LEAR35	<0.1	0.0	<0.1	0	0.0	0.0	0
	Jet	CNA680	1.9	0.1	1.9	<0.1	0.0	0.0	3.9
	Jet	CL600	2.4	0.3	2.6	0.2	0.0	0.0	5.5
	Jet	CNA55B	1.4	0.1	1.4	<0.1	0.0	0.0	2.9
	Jet	EMB14L	0.7	0.1	0.6	0.3	0.0	0.0	1.7
	Jet	EMB145	0.4	0.0	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPV	0.1	<0.1	0.2	<0.1	0.0	0.0	0.3
	Non-Jet	SD330	2.6	0	2.6	0	0.0	0.0	5.2
	Non-Jet	CNA208	1.4	<0.1	1.4	<0.1	0.0	0.0	2.8
	Non-Jet	BEC58P	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0
Air Taxi Subtotal			**10.9**	**0.6**	**11.1**	**0.5**	**0.0**	**0.0**	**23.1**
General Aviation	Jet	CNA525C	0.7	<0.1	0.7	<0.1	0.0	0.0	1.4
	Jet	CNA560XL	0.9	0	0.9	<0.1	0.0	0.0	1.8
	Jet	CNA680	0.3	<0.1	0.3	<0.1	0.0	0.0	0.6

Aircraft Category	Engine Type	AEDT Aircraft Type	Arrivals		Departures		Circuits		Total
			Day	Night	Day	Night	Day	Night	
	Jet	CNA750	2.9	0.2	2.8	0.3	0.0	0.0	6.2
	Jet	CL601	0.6	<0.1	0.6	<0.1	0.0	0.0	1.2
	Jet	GIV	0.8	<0.1	0.8	0.1	0.0	0.0	1.7
	Jet	LEAR35	0.6	0.1	0.6	<0.1	0.0	0.0	1.3
	Non-Jet	S76	0.4	<0.1	0.4	<0.1	0.0	0.0	0.8
	Non-Jet	GASEPF	2.7	<0.1	2.7	<0.1	0.0	0.0	5.4
	Non-Jet	CNA172	8.3	0.1	8.3	0.1	27.1	0.4	44.3
	Non-Jet	PA28	1.6	0.1	1.6	0.1	0.0	0.0	3.4
	Non-Jet	COMSEP	0.5	<0.1	0.6	0	0.0	0.0	1.1
	Non-Jet	CNA208	1.1	<0.1	0.9	0.3	0.0	0.0	2.3
General Aviation			**21.4**	**0.5**	**21.2**	**0.9**	**27.1**	**0.4**	**71.5**
Military	Non-Jet	S70	0.5	0.0	0.5	0.0	0.2	0.0	1.2
Military Subtotal			**0.5**	**0.0**	**0.5**	**0.0**	**0.2**	**0.0**	**1.2**
Grand Total			**84.6**	**16.9**	**87.4**	**14.7**	**27.3**	**0.4**	**231.3**

Source: HMMH, 2022

4.2 Noise Screening

The No Action and Proposed Action operational fleet mix were added to the FAA Area Equivalent Method (AEM) screening tool which only based on forecasted operations can indicate whether the Proposed Action may result in a significant noise impact. Due to the increase in cargo operations, upgauging of the cargo jets from Boeing 757 to Boeing 767 and increased nighttime arrivals, the screening tool indicated a likely significant impact due to the proposed project. The screening tool does not separate out arrival and departure operations or use runway use, therefore modeling with the FAA AEDT model is required to determine if there is a change in noise and whether it would result in a significant impact. Results of the AEM analysis are located in **Attachment 2**.

4.3 Future Noise Analysis

This section presents the noise modeling results along with an analysis of noise-impacted population and noise-sensitive sites. Estimates of noise effects resulting from aircraft operations can be interpreted in terms of the probable effects on human activities typical to specific land uses. FAA has adopted suggested guidelines for evaluating land-use compatibility with noise exposure. In general, most land uses are generally considered compatible with DNL less than 65 dB, but only certain uses are compatible with DNL greater than or equal to 65 dB. This section describes the potential noise effects associated with the implementation of the No Action Alternative or the Proposed Action Alternative.

4.3.1 No Action Alternative (2026)

Figure 6 displays the 65 – 75 dB DNL noise contours for the 2026 No Action over a map of the existing land use in the study area. The map also shows individual noise-sensitive locations such as schools and places of worship. The FAA's guidelines for land use compatibility presented in Appendix A of 14 CFR Part 150 (**Table 2** above) state that all land uses are generally compatible with aircraft noise below DNL 65 dB. The DNL 65 dB noise contour for Runway 5-23 extends into mostly residential land use to the north and south of the airport.

All of the residential land use within the DNL 65 dB area has been mitigated for aircraft noise by RIAC. The DNL 65 dB contour extends away from the airport in the following areas:

- The contour extends north of the Runway 23 end along the extended runway centerline into residential land use almost to 4th Avenue.
- The contour extends to the east of the Runway 23 end into residential land use near Wilbur Street. The contour also extends through most of Winslow Park.
- The contour extends south of the Runway 5 end along the extended runway centerline into residential land use almost to Route 117.
- The contour extends east of the Runway 5 end almost to Carolyn Street and west of the Runway 5 end to just past Earl Street.

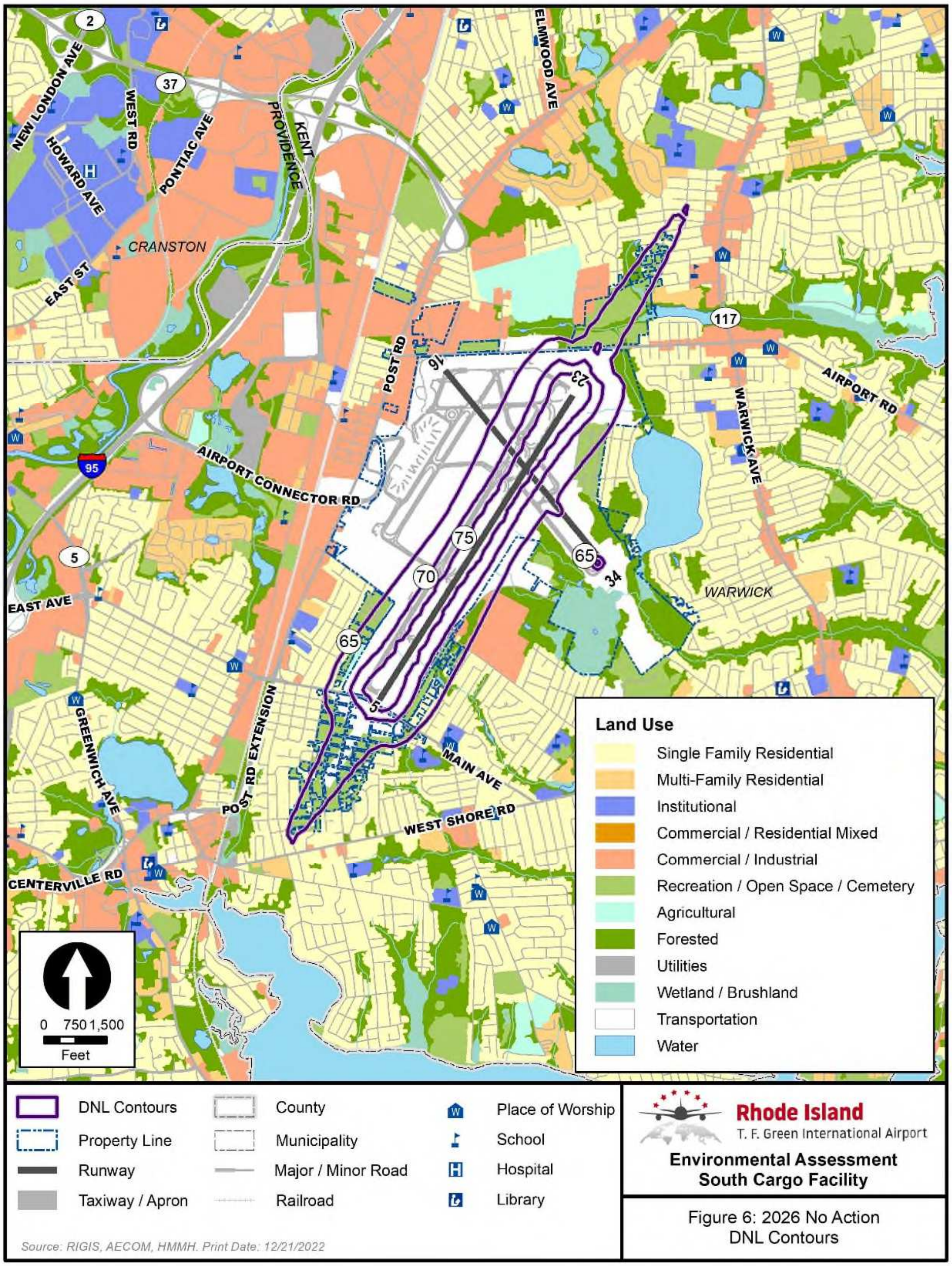
There is no residential land use within the DNL 70 dB or higher contours.

Table 13 provides the population exposure, housing unit count, and contour areas for the 2026 Future No Action DNL noise contours. The DNL 65+ dB noise contour—which covers approximately 659 acres—contains 250 residents and 88 housing units. These homes have all been mitigated for noise as part of the RIAC RSIP. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2026 Future No Action DNL 65+ dB noise contour.

Table 13. 2026 No Action Noise Contours Population, Housing, and Area

DNL (dB) Noise Contour	2020 Population Census	2020 Housing Units	Area (acres)
65 - 70	250	88	392.8
70 - 75	0	0	141.3
> 75	0	0	124.9
Total	**250**	**88**	**658.9**

Source: HMMH, 2022; U.S. Census Bureau, 2020



Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

Figure 6: 2026 No Action DNL Contours

4.3.2 Proposed Action (2026)

Figure 7 displays the 65 – 75 dB DNL noise contours for the 2026 Proposed Action over a map of the existing land use in the study area. The map also shows individual noise-sensitive locations such as schools and places of worship. The FAA's guidelines for land use compatibility presented in Appendix A of 14 CFR Part 150 (**Table 2** above) state that all land uses are generally compatible with aircraft noise below DNL 65 dB. The DNL 65 dB noise contour for Runway 5-23 extends into mostly residential land use to the north and south of the airport. All of the residential land use within the DNL 65 dB area has been mitigated for aircraft noise by RIAC. The DNL 65 dB contour extends away from the airport in the following areas:

- The contour extends north of the Runway 23 end along the extended runway centerline into residential land use as far north as Pilgrim Parkway.
- The contour extends to the east of the Runway 23 end into residential land use near Wilbur Street. The contour also extends through most of Winslow Park.
- The contour extends south of the Runway 5 end along the extended runway centerline into residential land use as far south as Long Street.
- The contour extends east of the Runway 5 end almost to Carolyn Street and west of the Runway 5 end to just past Earl Street.

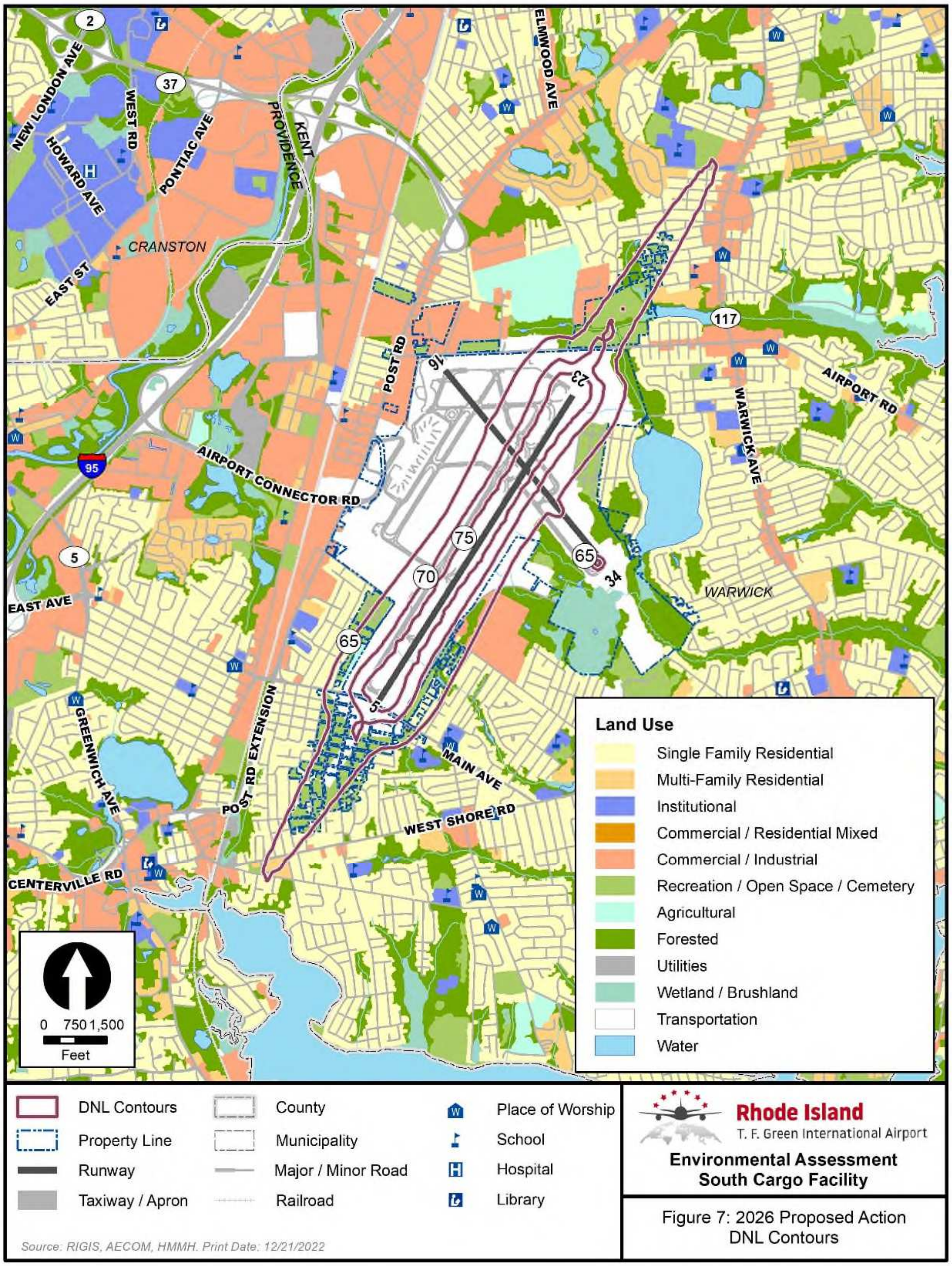
There is no residential land use within the DNL 70 dB or higher contours.

Table 14 provides the population exposure, housing unit count, and contour areas for the 2026 Future Proposed Action DNL noise contours. The DNL 65+ dB noise contour—which covers approximately 735 acres—contains 679 residents and 292 housing units. Longwood Condominiums are located between Route 117 and Long Street, south of Runway 5. This condominium development is the reason the Proposed Action has a larger increase in population and housing units compared to the area of the contour. These homes have all been mitigated for noise as part of the RIAC RSIP. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2026 Future Proposed Action DNL 65+ dB noise contour.

Table 14. 2026 Proposed Action Noise Contours Population, Housing, and Area

DNL (dB) Noise Contour	2020 Population Census	2020 Housing Units	Area (acres)
65 - 70	679	292	448.8
70 - 75	0	0	152.9
> 75	0	0	133.3
Total	**679**	**292**	**734.9**

Source: HMMH, 2022; U.S. Census Bureau, 2020.



Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

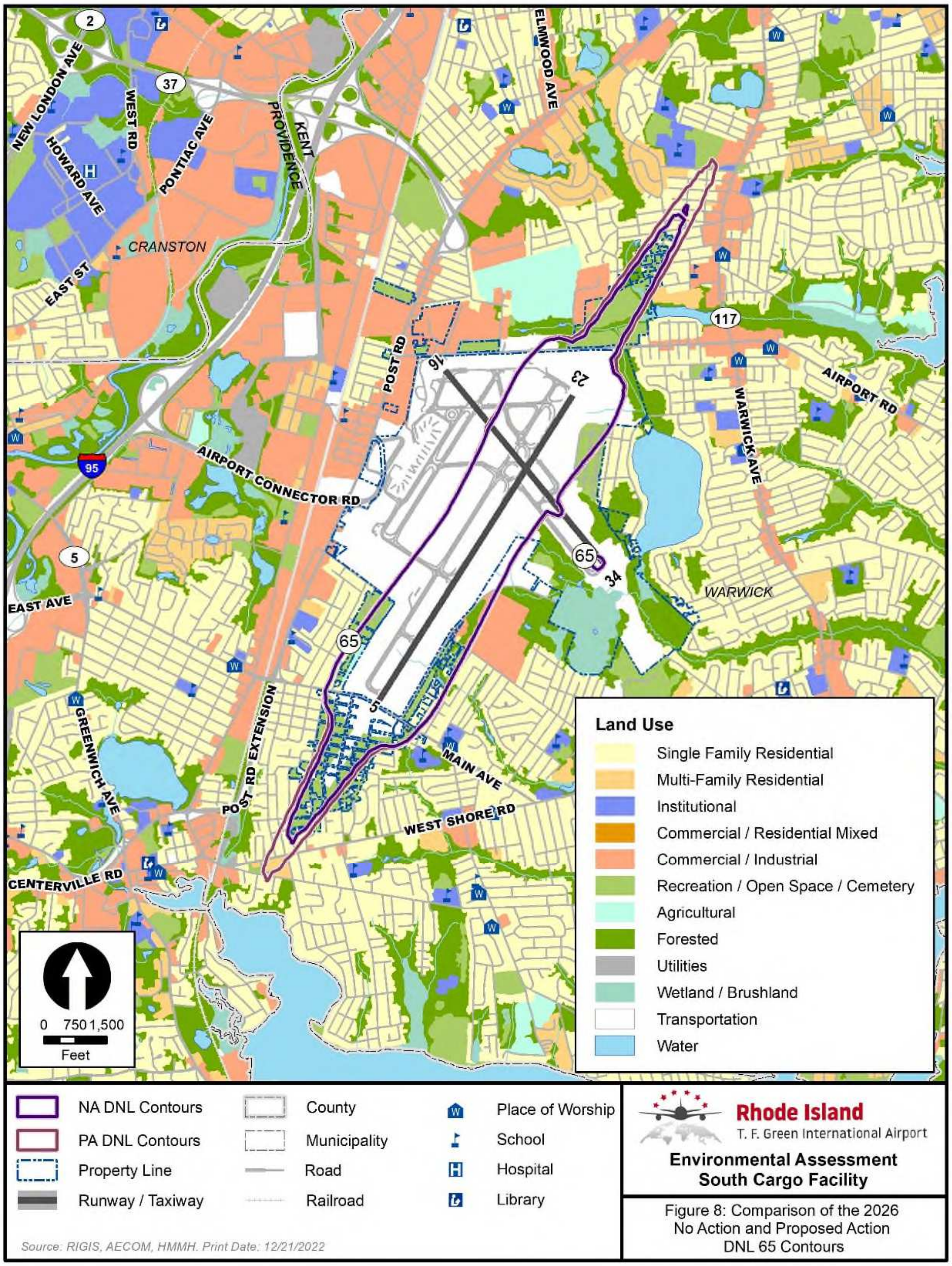
Figure 7: 2026 Proposed Action DNL Contours

4.3.3 No Action and Proposed Action Comparison

The 2026 Proposed Action DNL 65 dB contour is larger than the No Action DNL 65 dB contour primarily along the extended runway centerlines north and south of the airport. This results in an increase for both population and housing unit counts as well as acreage. The number of people exposed to a DNL 65 dB or greater noise level increases by 429 people (204 housing units) with an increase in area of 76 acres.

Figure 8 provides a comparison of the DNL 65 dB contours for each of the 2026 alternatives.

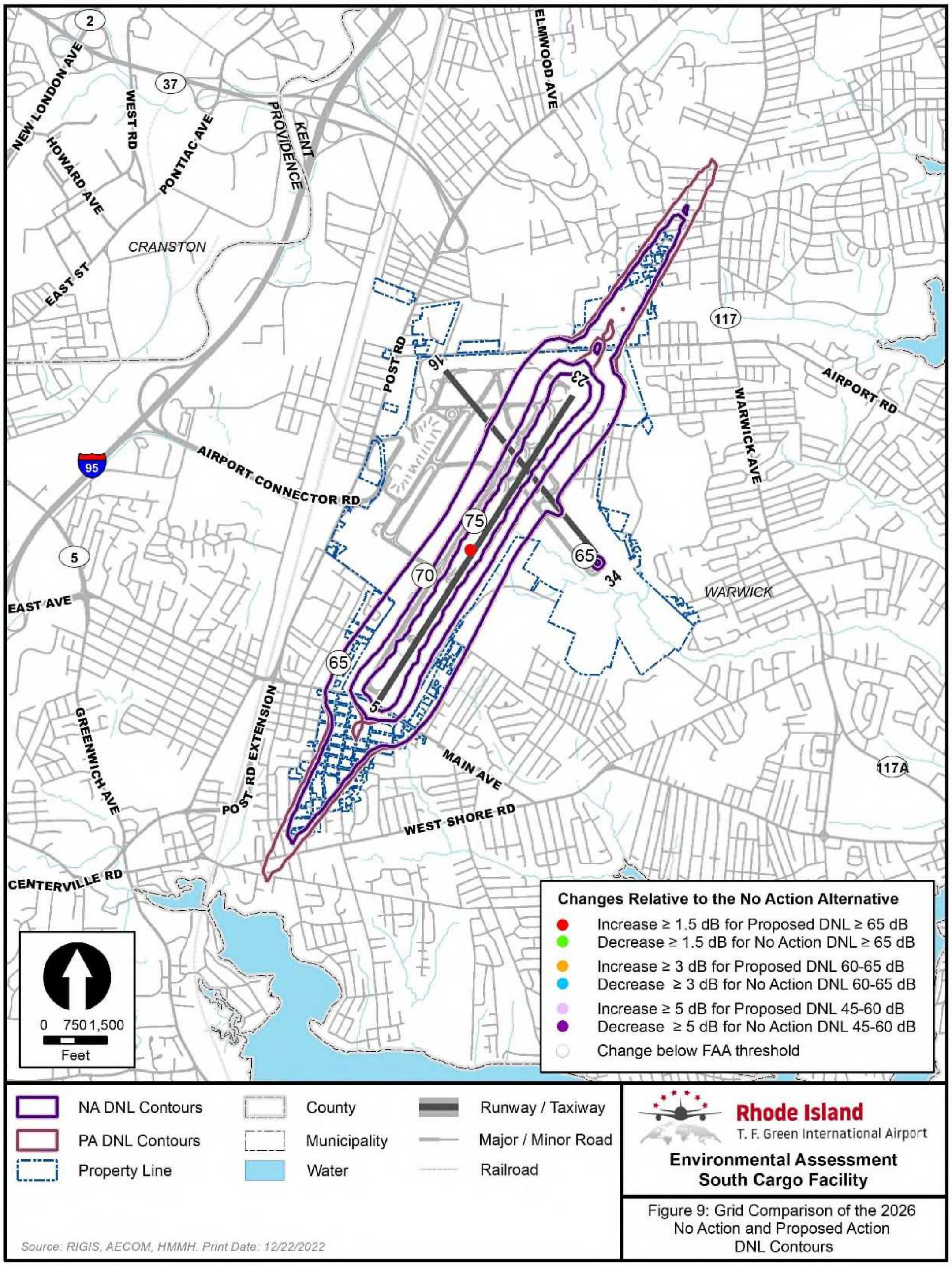
Figure 9 shows the grid points that would see a significant or reportable change in DNL when comparing the modeling results for the 2026 No Action Alternative and 2026 Proposed Action. With the increase in cargo operations and arrivals at night, there is only one grid point which indicates a significant noise increase over the airport and no areas outside of the airport. Therefore, there are no noise sensitive areas or land use exposed to a significant noise impact due to the Proposed Action.



Environmental Assessment
South Cargo Facility

Figure 8: Comparison of the 2026 No Action and Proposed Action DNL 65 Contours

Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022



Source: RIGIS, AECOM, HMMH. Print Date: 12/22/2022

Figure 9: Grid Comparison of the 2026 No Action and Proposed Action DNL Contours

4.3.4 Ground Noise

The area that would experience an increase in ground noise greater than DNL 65 dB due to the Proposed Action Alternative falls within Airport property very close to Strawberry Field Road. These homes would be exposed to higher noise due to cargo aircraft operating on the ramp and trucking activity at the proposed facility.

A separate study was conducted to evaluate the effectiveness of a potential noise wall along Strawberry Field Road and Palace Avenue/Fieldview Drive. **Figure 10** provides the layout of the proposed project and the location of the proposed noise wall. The following noise sources were modeled at the facility:

- Aircraft taxi operations in and out of the cargo facility
- Ground service equipment for the cargo aircraft
- Auxiliary power units for the cargo aircraft
- Truck operations along the service road leading to and through the facility

The SoundPLAN® model was used to develop Day-Night Average Sound Level (DNL)[3] contours and to calculate predicted DNL at 22 specified community "receptor" locations shown in Figure 1**0**. The DNL was calculated for noise levels resulting from each of the sound sources identified above as they would likely operate at the proposed cargo facility. The 22 modeled community receptor sites include ten residences on Strawberry Field Road and 12 residences on Palace Avenue/Fieldview Drive. The receptor sites were chosen based on their proximity to the Airport and the proposed site.

Predicted DNL values at the nearest residences in the adjacent community to the Proposed Action range from approximately DNL 52 decibels (dB)[4] to DNL 60 dB from a combination of aircraft ground noise, cargo ground support equipment, and truck noise sources. Since the ground noise calculation results at any receptor locations do not meet or exceed DNL 65 dB, the proposed cargo facility expansion would not expose any homes to a DNL 65 dB or higher noise level. Also, in combination with aircraft operational noise levels, the Proposed Action noise levels would not expand the aircraft operational DNL 65 dB contour to include any additional homes. Therefore, the Proposed Action would not result in the addition of noncompatible residential land use.[5]

The noise wall evaluation indicated that a 6-foot berm with a 9-foot wall on top of the berm would provide noise reduction (DNL 1 to 4 dB) to the adjacent homes with the highest reduction along Strawberry Field Road. With the noise wall, predicted DNL values at the nearest residences in the adjacent community to the Proposed Action range from approximately DNL 51 decibels (dB) to DNL 56 dB from a combination of aircraft ground noise, cargo ground support equipment, and truck noise sources.

An analysis of maximum level noise levels (L_{max}) from single events at the facility resulted in a range of approximately 52 decibels (dB)[6] to 67 dB from aircraft ground noise, cargo ground support equipment, and truck noise sources. The analysis summary indicates that a 6-foot berm with a 9-foot wall on top of the berm would provide noise reduction (L_{max} 1 to 13 dB) to the adjacent homes. Receivers R13 to R22 are closest to the proposed facility and the 6-foot berm with a 9-foot wall on top of the berm would provide a substantial reduction—5 to 13 dB—in maximum level noise events to those homes. In order to comply with the City of Warwick Noise Ordinance and to reduce noise levels to the adjacent homes, it is recommended that RIAC consider construction of the noise barrier to reduce noise levels to the adjacent homes.

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[3] For the regulatory definition of DNL see 14 CFR Part 150 §150.7 Definitions. http://www.ecfr.gov/cgi-bin/text-idx?SID=f8e6df268e3dad2edb848f61b9a0fb51&mc=true&node=pt14.3.150&rgn=div5

[4] Note that all sound levels from aircraft and trucks presented in this Technical Memorandum are A-weighted unless otherwise specified.

[5] FAA considers residential land use exposed to DNL 65 dB or higher as noncompatible with aircraft noise unless mitigation has been provided.

[6] Note that all sound levels from aircraft and trucks presented in this Technical Memorandum are A-weighted unless otherwise specified.

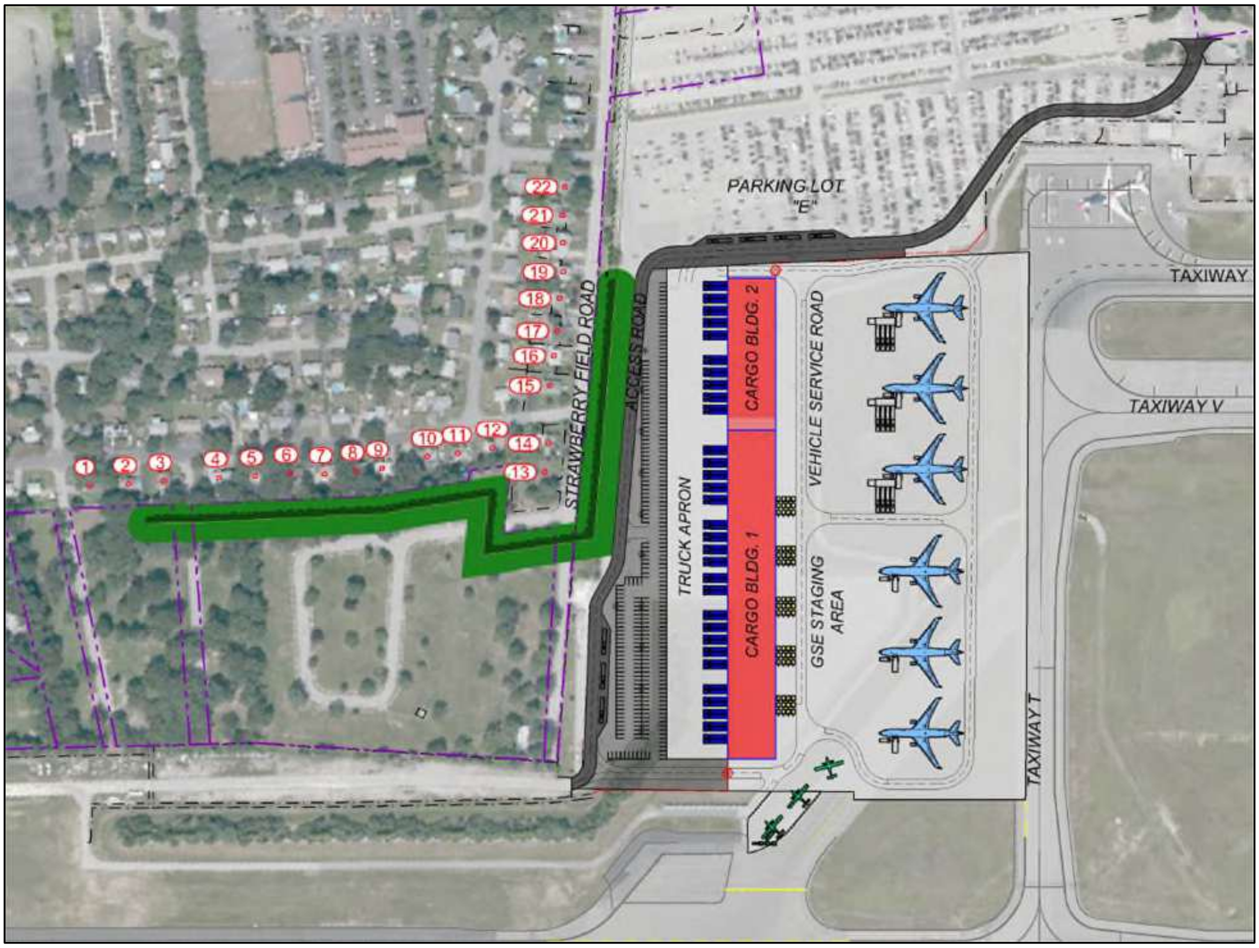

Figure 10. Proposed Project and SoundPLAN Modeled Receptors

Source: AECOM, HMMH 2022

4.3.5 Construction Impacts

Construction noise would temporarily increase sound levels in the immediate vicinity of construction and land clearing. Pile driving, pavement removal, and grading operations are the noisiest, with such equipment generating noise levels as high as 75 to 95 dB within 50 feet of its operation. Distance rapidly diminishes noise levels, so depending on the distance from the site, area residents would likely experience some increase in noise during construction hours. The potential noise impact associated with the operation of on-site machinery would be temporary and can be reduced using construction timing and staging. To further minimize potential noise, construction equipment would be maintained to meet manufacturers' operating specifications.

Construction of the noise wall would result in the highest temporary impact to residents as the project site is directly across the street from many homes. Once the wall is constructed, temporary noise impacts from the construction of the proposed facility will be minimized.

Impacts related to the delivery of materials may be minimized by requiring that the contractor use designated haul routes that directly connect to the Airport and avoid residential and other noise-sensitive areas. Overall, construction noise is expected to have a minor and temporary impact, and no permanent impact, to noise-sensitive land or facilities.

4.3.6 Mitigation Measures

The residential areas north and south of the airport that would experience an increase (but below the level of a significant increase) in noise due to the proposed project aircraft operations have been mitigated previously by RIAC. Therefore, no mitigation is proposed for these areas.

4.3.6.1 Construction Noise

Although construction noise levels would be temporary and are not considered significant, the following measures are recommended for the contractor to reduce the effects of construction noise when operating near noise-sensitive areas:

- Provide appropriate manufacturer's noise reduction devices, including, but not limited to a manufacturer's muffler (or equivalently rated material) that is free of rust, holes, and exhaust leaks on construction equipment operating on-site.
- Ensure that the engine housing doors are kept closed on construction devices with internal combustion engines.
- Cover equipment, such as compressors, generators, pumps, and other such devices with noise insulating fabric as well as operate the device at lower engine speeds during work to the maximum extent possible.
- Use operational controls, such as limiting vehicle engine idling on-site and time-of-day restrictions for certain activities.
- Use quieter or ambient-sensitive back-up alarms on construction equipment whenever practical.
- Strategically position construction vehicles to minimize operation near receptors and direct construction haul vehicles away from receptors when traveling to and from the work site.
- Use noise pathway controls, including noise barriers and enclosures free from gaps and holes, placed as close as possible to construction areas.

5.0 Aircraft Noise Terminology

Noise is a complex physical quantity. The properties, measurement, and presentation of noise involve specialized terminology that can be difficult to understand. To provide a basic reference on these technical issues, this section introduces fundamentals of noise terminology, the effects of noise on human activity, and noise propagation.

5.1 Introduction to Noise Terminology

Analyses of potential impacts from changes in aircraft noise levels rely largely on a measure of cumulative noise exposure over an entire calendar year, expressed in terms of a metric called the Day-Night Average Sound Level (DNL). However, DNL does not provide an adequate description of noise for many purposes. A variety of measures, which are further described in subsequent sub-sections, are available to address essentially any issue of concern, including:

- Sound Pressure Level, SPL, and the Decibel, dB
- A-Weighted Decibel, dBA
- Maximum A-Weighted Sound Level, L_{max}
- Time Above, TA
- Sound Exposure Level, SEL
- Equivalent A-Weighted Sound Level, L_{eq}

- Day-Night Average Sound Level, DNL

5.1.1 Sound Pressure Level, SPL, and the Decibel, dB

All sounds come from a sound source – a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source travels through the air in sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. The ear senses these pressure variations and – with much processing in our brain – translates them into "sound."

Our ears are sensitive to a wide range of sound pressures. The loudest sounds that we can hear without pain contain about one million times more energy than the quietest sounds we can detect. To allow us to perceive sound over this very wide range, our ear/brain "auditory system" compresses our response in a complex manner, represented by a term called sound pressure level (SPL), which we express in units called decibels (dB).

Mathematically, SPL is a logarithmic quantity based on the ratio of two sound pressures, the numerator being the pressure of the sound source of interest (P_{source}), and the denominator being a reference pressure ($P_{reference}$).[7]

$$\text{Sound Pressure Level (SPL)} = 20 * Log\left(\frac{P_{source}}{P_{reference}}\right) dB$$

The logarithmic conversion of sound pressure to SPL means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels from about 40 to 100 dB.[8]

Because decibels are logarithmic quantities, we cannot use common arithmetic to combine them. For example, if two sound sources each produce 100 dB operating individually, when they operate simultaneously, they produce 103 dB -- not the 200 dB we might expect. Increasing to four equal sources operating simultaneously will add another three decibels of noise, resulting in a total SPL of 106 dB. For every doubling of the number of equal sources, the SPL goes up another three decibels.

If one noise source is much louder than another is, the louder source "masks" the quieter one and the two sources together produce virtually the same SPL as the louder source alone. For example, a 100 dB and 80 dB sources produce approximately 100 dB of noise when operating together.

Two useful "rules of thumb" related to SPL are worth noting: (1) humans generally perceive a six to 10 dB increase in SPL to be about a doubling of loudness,[9] and (2) changes in SPL of less than about three decibels for an particular sound are not readily detectable outside of a laboratory environment.

5.1.2 A-Weighted Decibel

An important characteristic of sound is its frequency, or "pitch." This is the per-second oscillation rate of the sound pressure variation at our ear, expressed in units known as Hertz (Hz).

When analyzing the total noise of any source, acousticians often break the noise into frequency components (or bands) to consider the "low," "medium," and "high" frequency components. This breakdown is important for two reasons:

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[7] The reference pressure is approximately the quietest sound that a healthy young adult can hear.

[8] The logarithmic ratio used in its calculation means that SPL changes relatively quickly at low sound pressures and more slowly at high pressures. This relationship matches human detection of changes in pressure. We are much more sensitive to changes in level when the SPL is low (for example, hearing a baby crying in a distant bedroom), than we are to changes in level when the SPL is high (for example, when listening to highly amplified music).

[9] A "10 dB per doubling" rule of thumb is the most often used approximation.

- Our ear is better equipped to hear mid and high frequencies and is least sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.
- Engineering solutions to noise problems differ with frequency content. Low-frequency noise is generally harder to control.

The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 to 15,000 Hz. Most people respond to sound most readily when the predominant frequency is in the range of normal conversation – typically around 1,000 to 2,000 Hz. The acoustical community has defined several “filters,” which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

The so-called "A" filter (“A weighting”) generally does the best job of matching human response to most environmental noise sources, including natural sounds and sound from common transportation sources. “A-weighted decibels” are abbreviated “dBA.” Because of the correlation with our hearing, the U. S. Environmental Protection Agency (EPA) and nearly every other federal and state agency have adopted A-weighted decibels as the metric for use in describing environmental and transportation noise. **Figure 11** depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

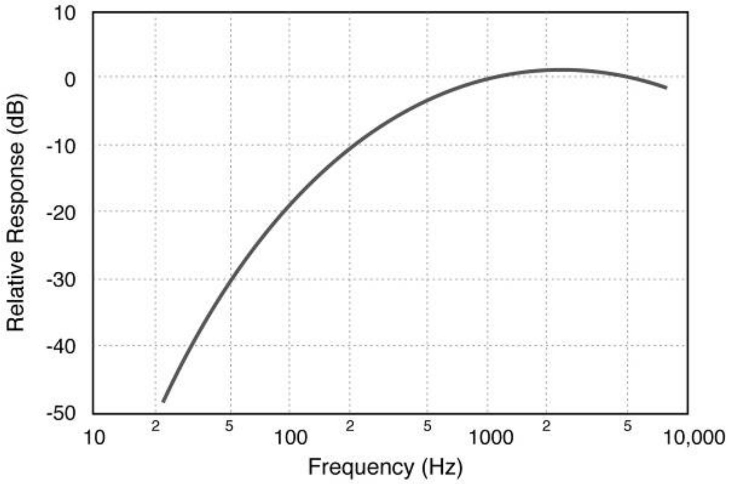

Figure 11. A-Weighting Frequency Response

Source: Extract from Harris, Cyril M., Editor, “Handbook of Acoustical Measurements and Control,” McGraw-Hill, Inc., 1991, pg. 5.13; HMMH

As **Figure 11** shows, A-weighting significantly de-emphasizes noise content at lower and higher frequencies where we do not hear as well, and has little effect, or is nearly "flat,” in for mid-range frequencies between 1,000 and 5,000 Hz. All sound pressure levels presented in this document are A-weighted unless otherwise specified.

Figure 12 depicts representative A-weighted sound levels for a variety of common sounds.

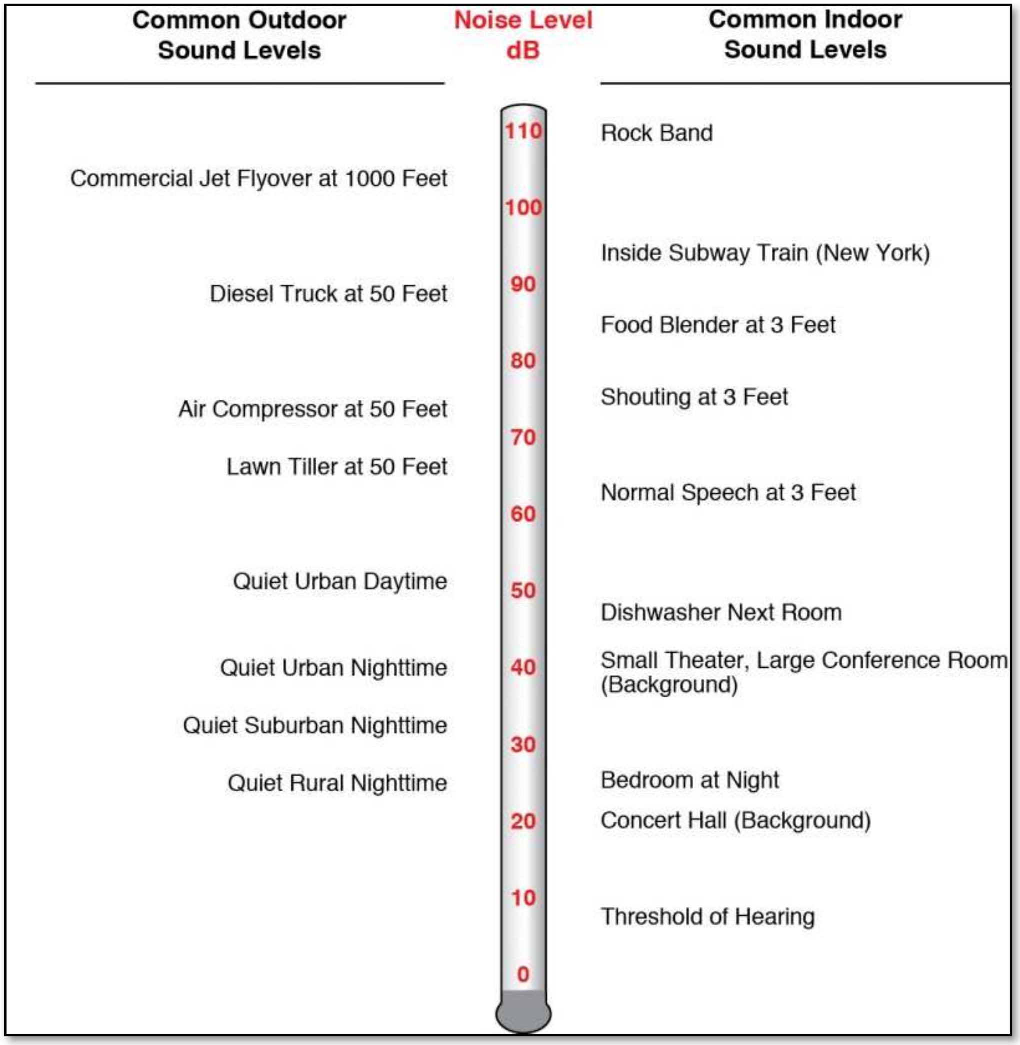

Figure 12. A-Weighted Sound Levels for Common Sounds

Source: HMMH

5.1.3 Maximum A-Weighted Sound Level, L_{max}

An additional dimension to environmental noise is that A-weighted levels vary with time. For example, the sound level increases as a car or aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance. The background or “ambient” level continues to vary in the absence of a distinctive source, for example due to birds chirping, insects buzzing, leaves rustling, etc. It is often convenient to describe a particular noise "event" (such as a vehicle passing by, a dog barking, etc.) by its maximum sound level, abbreviated as L_{max}.

Figure 13 depicts this general concept, for a hypothetical noise event with an L_{max} of approximately 102 dB.

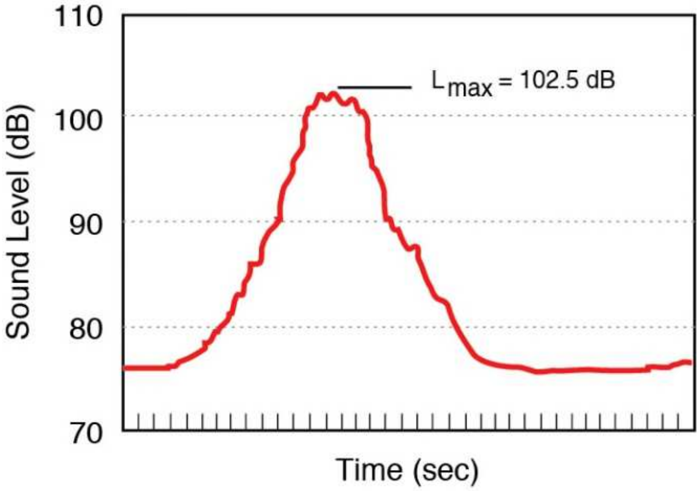

Figure 13. Variation in A-Weighted Sound Level over Time and Maximum Noise Level

Source: HMMH

While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative "noisiness" of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event's overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next section introduces a measure that accounts for this concept of a noise "dose," or the cumulative exposure associated with an individual "noise event" such as an aircraft flyover.

5.1.4 Sound Exposure Level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the A-weighted sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level.

SEL provides a basis for comparing noise events that generally match our impression of their overall "noisiness," including the effects of both duration and level. The higher the SEL, the more annoying a noise event is likely to be. In simple terms, SEL "compresses" the energy for the noise event into a single second. **Figure 14** depicts this compression, for the same hypothetical event shown in **Figure 13**. Note that the SEL is higher than the L_{max}.

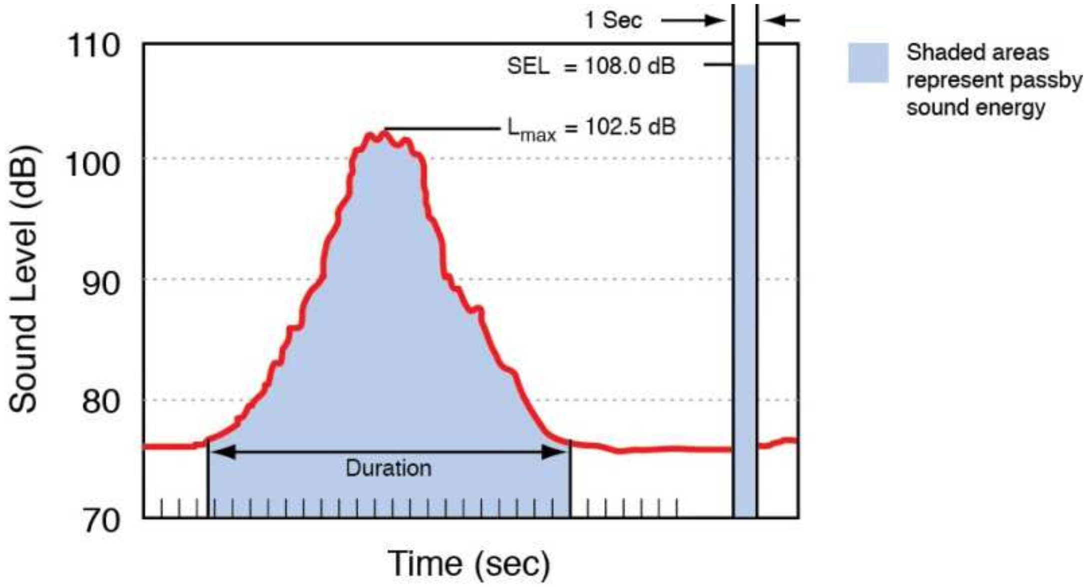

Figure 14. Graphical Depiction of Sound Exposure Level

Source: HMMH

The "compression" of energy into one second means that a given noise event's SEL will almost always will be a higher value than its L_{max}. For most aircraft flyovers, SEL is roughly five to 12 dB higher than L_{max}. Adjustment for duration means that relatively slow and quiet propeller aircraft can have the same or higher SEL than faster, louder jets, which produce shorter duration events.

5.1.5 Equivalent A-Weighted Sound Level, L_{eq}

The Equivalent Sound Level, abbreviated L_{eq}, is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., one hour, an eight-hour school day, nighttime, or a full 24-hour day. L_{eq} plots for consecutive hours can help illustrate how the noise dose rises and falls over a day or how a few loud aircraft significantly affect some hours.

L_{eq} may be thought of as the constant sound level over the period of interest that would contain as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. **Figure 15** illustrates this concept for the same hypothetical event shown in **Figure 13** and **Figure 14**. Note that the L_{eq} is lower than either the L_{max} or SEL.

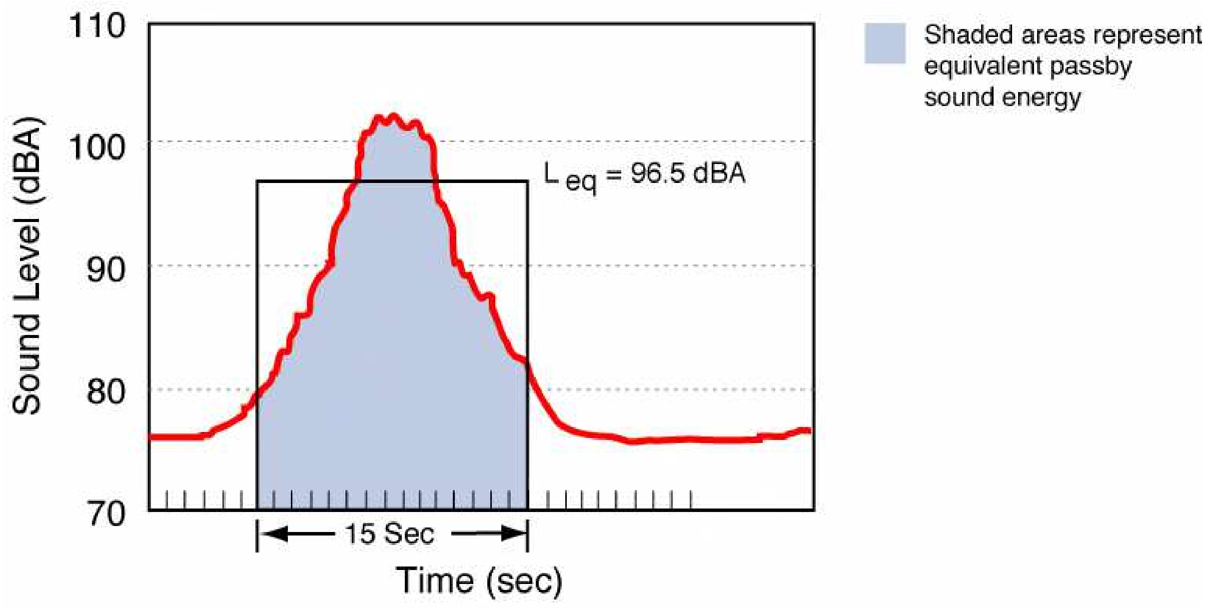

Figure 15. Example of a 15-Second Equivalent Sound Level

Source: HMMH

5.1.6 Day-Night Average Sound Level, DNL or L_{dn}

The FAA requires that airports use a measure of noise exposure that is slightly more complicated than L_{eq} to describe cumulative noise exposure – the Day-Night Average Sound Level, DNL.

The U.S. EPA identified DNL as the most appropriate means of evaluating airport noise based on the following considerations.[10]

- The measure should be applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods.
- The measure should correlate well with known effects of the noise environment and on individuals and the public.
- The measure should be simple, practical, and accurate. In principle, it should be useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics, should be commercially available.
- The measure should be closely related to existing methods currently in use.
- The single measure of noise at a given location should be predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise.
- The measure should lend itself to small, simple monitors, which can be left unattended in public areas for long periods.

Most federal agencies dealing with noise have formally adopted DNL. The Federal Interagency Committee on Noise (FICON) reaffirmed the appropriateness of DNL in 1992. The FICON summary report stated: “There are no

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[10] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," U. S. EPA Report No. 550/9-74-004, March 1974.

new descriptors or metrics of sufficient scientific standing to substitute for the present DNL cumulative noise exposure metric."

In 2015, the FAA began a multi-year effort to update the scientific evidence on the relationship between aircraft noise exposure and its effects on communities around airports.[11] This was the most comprehensive study using a single noise survey ever undertaken in the United States, polling communities surrounding 20 airports nationwide. The FAA Reauthorization Act of 2018 under Section 188 and 173, required FAA to complete the evaluation of alternative metrics to the DNL standard within one year. The Section 188 and 173 Report to Congress was delivered on April 14, 2020[12] and concluded that while no single noise metric can cover all situations, DNL provides the most comprehensive way to consider the range of factors influencing exposure to aircraft noise. In addition, use of supplemental metrics is both encouraged and supported to further disclose and aid in the public understanding of community noise impacts. The full study supporting these reports was released in January 2021. If changes are warranted in the use of DNL, which DNL level to assess or the use of supplemental metrics, FAA will propose revised policy and related guidance and regulations, subject to interagency coordination, as well as public review and comment.

In simple terms, DNL is the 24-hour L_{eq} with one adjustment; all noises occurring at night (defined as 10 p.m. through 7 a.m.) are increased by 10 dB, to reflect the added intrusiveness of nighttime noise events when background noise levels decrease. In calculating aircraft exposure, this 10 dB increase is mathematically identical to counting each nighttime aircraft noise event ten times.

DNL can be measured or estimated. Measurements are practical only for obtaining DNL values for limited numbers of points, and, in the absence of a permanently installed monitoring system, only for relatively short periods. Most airport noise studies use computer-generated DNL estimates depicted as equal-exposure noise contours (much as topographic maps have contours of equal elevation).

The annual DNL is mathematically identical to the DNL for the average annual day—i.e., a day on which the number of operations is equal to the annual total divided by 365 (366 in a leap year). **Figure 16** graphically depicts the manner in which the nighttime adjustment applies in calculating DNL. **Figure 17** presents representative outdoor DNL values measured at various U.S. locations.

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[11] Federal Aviation Administration. Press Release – FAA To Re-Evaluate Method for Measuring Effects of Aircraft Noise. https://www.faa.gov/news/press_releases/news_story.cfm?newsId=18774

[12] Federal Aviation Administration. Report to Congress on an evaluation of alternative noise metrics. https://www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf

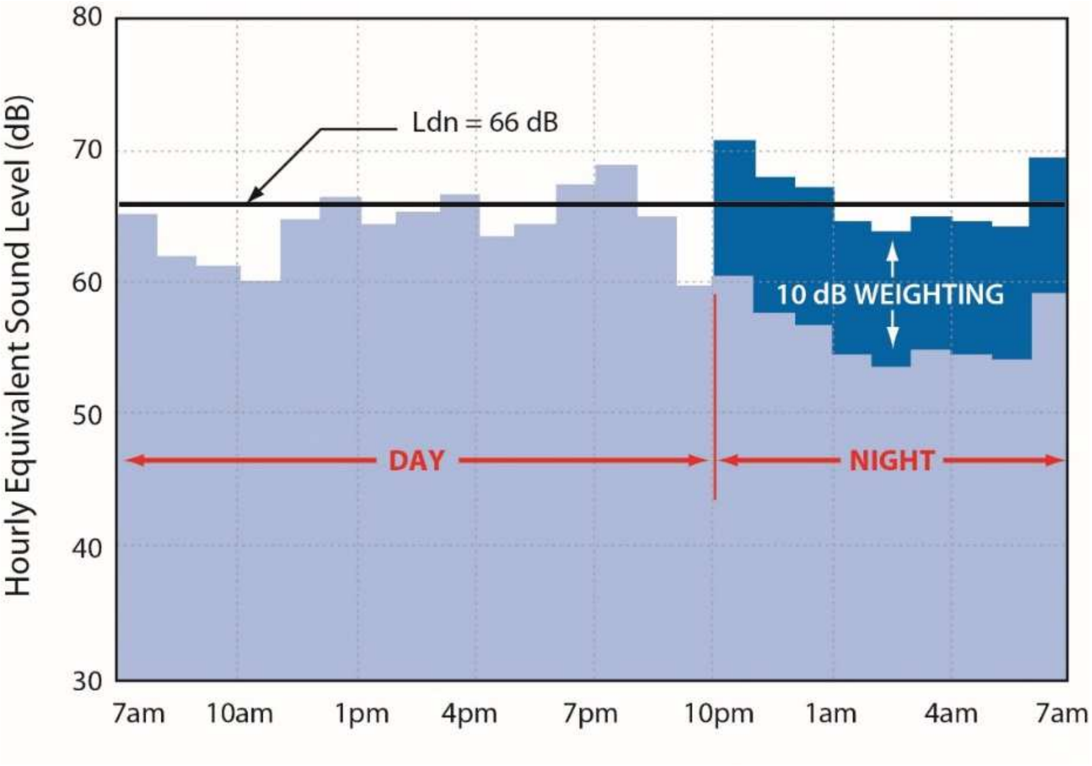

Figure 16. Example of a Day-Night Average Sound Level Calculation

Source: HMMH

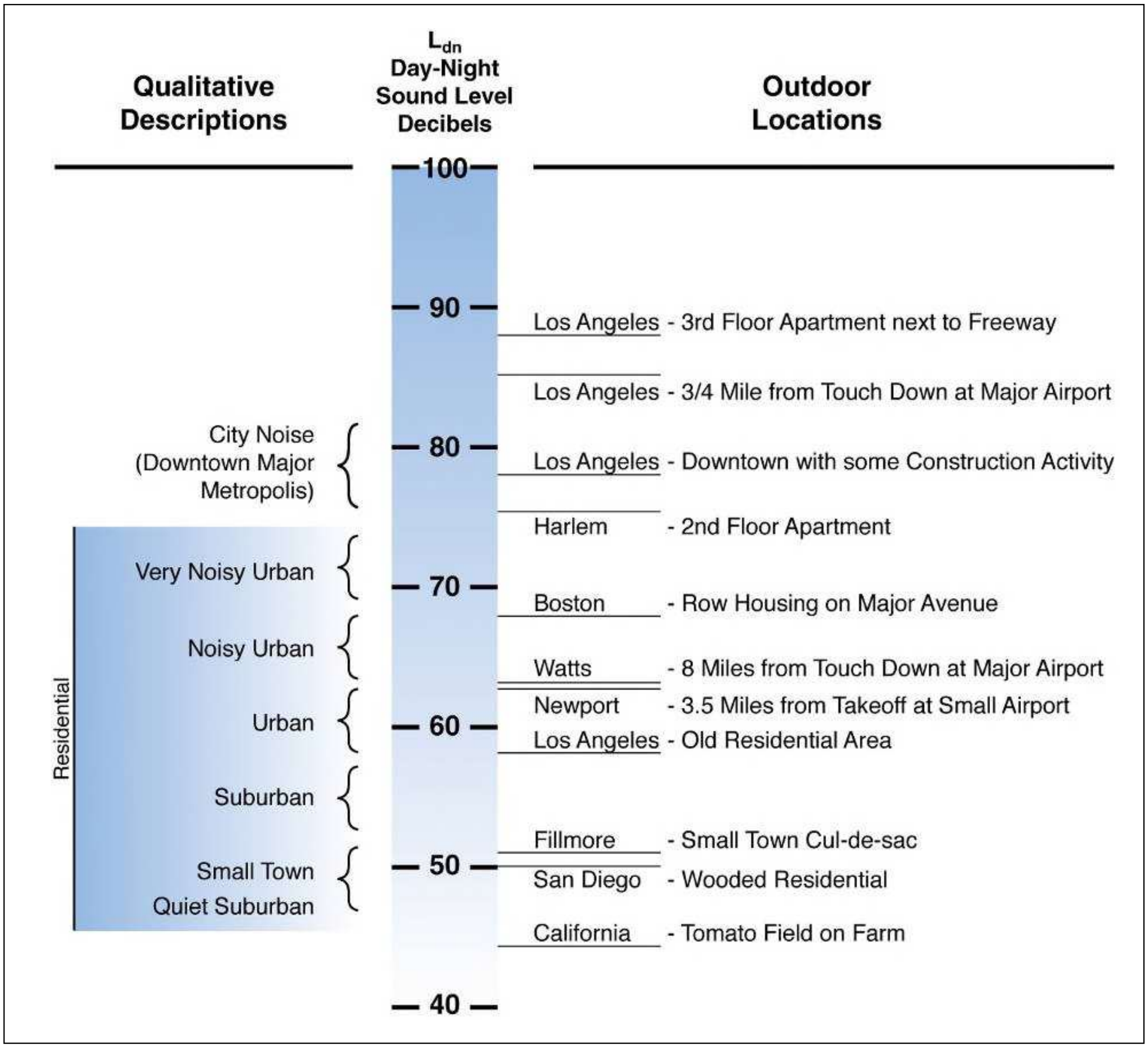

Figure 17. Examples of Measured Day-Night Average Sound Levels, DNL

Source: U.S. Environmental Protection Agency, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.14.

5.2 Aircraft Noise Effects on Human Activity

Aircraft noise can be an annoyance and a nuisance. It can interfere with conversation and listening to television, disrupt classroom activities in schools, and disrupt sleep. Relating these effects to specific noise metrics helps in the understanding of how and why people react to their environment.

5.2.1 Speech Interference

One potential effect of aircraft noise is its tendency to "mask" speech, making it difficult to carry on a normal conversation. The sound level of speech decreases as the distance between a talker and listener increases. As the background sound level increases, it becomes harder to hear speech.

Figure 18 presents typical distances between talker and listener for satisfactory outdoor conversations, in the presence of different steady A-weighted background noise levels for raised, normal, and relaxed voice effort.

As the background level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

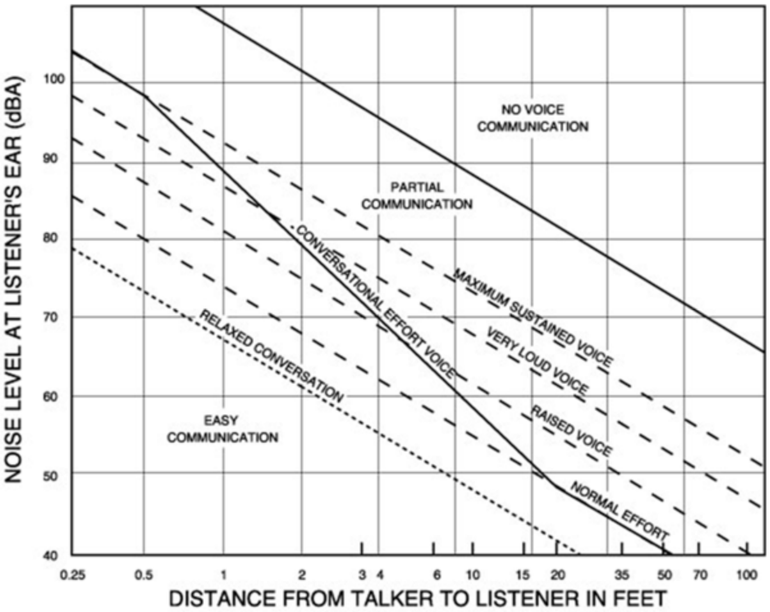

Figure 18. Outdoor Speech Intelligibility

Source: U.S. EPA, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.D-5.

Satisfactory conversation does not always require hearing every word; 95% intelligibility is acceptable for many conversations. In relaxed conversation, however, we have higher expectations of hearing speech and generally require closer to 100% intelligibility. Any combination of talker-listener distances and background noise that falls below the bottom line in the figure (which roughly represents the upper boundary of 100% intelligibility) represents an ideal environment for outdoor speech communication. Indoor communication is generally acceptable in this region as well.

One implication of the relationships in **Figure 18** is that for typical communication distances of three or four feet, acceptable outdoor conversations can be carried on in a normal voice as long as the background noise outdoors is less than about 65 dB. If the noise exceeds this level, as might occur when an aircraft passes overhead, intelligibility would be lost unless vocal effort were increased or communication distance were decreased.

Indoors, typical distances, voice levels, and intelligibility expectations generally require a background level less than 45 dB. With windows partly open, housing generally provides about 10 to 15 dB of interior-to-exterior noise level reduction. Thus, if the outdoor sound level is 60 dB or less, there is a reasonable chance that the resulting indoor sound level will afford acceptable interior conversation. With windows closed, 24 dB of attenuation is typical.

5.2.2 Sleep Interference

Research on sleep disruption from noise has led to widely varying observations. In part, this is because (1) sleep can be disturbed without awakening, (2) the deeper the sleep the more noise it takes to cause arousal, (3) the tendency to awaken increases with age, and other factors. **Figure 19** shows a summary of findings on the topic.

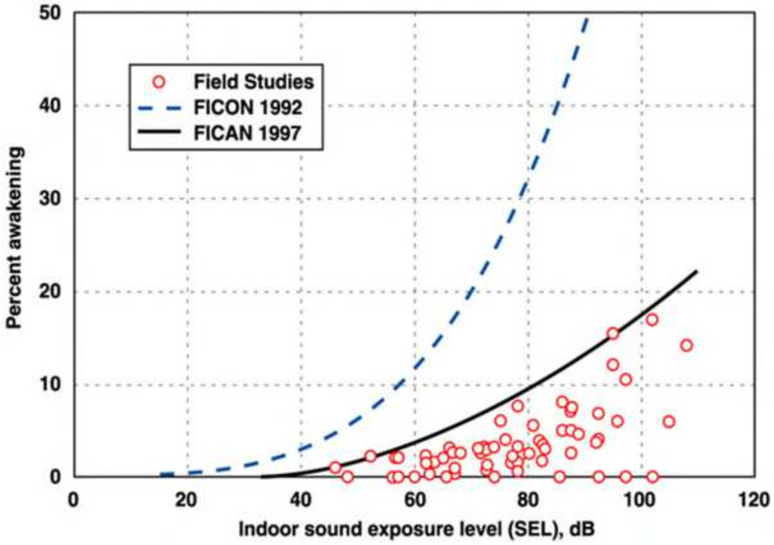

Figure 3. Sleep Interference

Source: Federal Interagency Committee on Aircraft Noise (FICAN), "Effects of Aviation Noise on Awakenings from Sleep," June 1997, pg. 6

Figure 19 uses indoor SEL as the measure of noise exposure; current research supports the use of this metric in assessing sleep disruption. An indoor SEL of 80 dBA results in a maximum of 10% awakening.[13]

5.2.3 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individual reactions to noise vary widely with noise exposure level. Since the early 1970s, researchers have determined (and subsequently confirmed) that aggregate community response is generally predictable and relates reasonably well to cumulative noise exposure such as DNL. **Figure 20** depicts the widely recognized relationship between environmental noise and the percentage of people "highly annoyed," with annoyance being the key indicator of community response usually cited in this body of research. Separate work by the EPA showed that overall community reaction to a noise environment was also correlated with DNL. **Figure 21** depicts this relationship.

As noted above in the discussion of DNL, the full report on the FAA's recent research, polling communities surrounding 20 airports nationwide, was released in January 2021. At the time of this reporting, the public review and comment period on that research had ended but FAA had not yet issued new guidance.

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[13] The awakening data presented in Figure A-9 apply only to individual noise events. The American National Standards Institute (ANSI) has published a standard that provides a method for estimating the number of people awakened at least once from a full night of noise events: ANSI/ASA S12.9-2008 / Part 6, "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes." This method can use the information on single events computed by a program such as the FAA's AEDT, to compute awakenings.

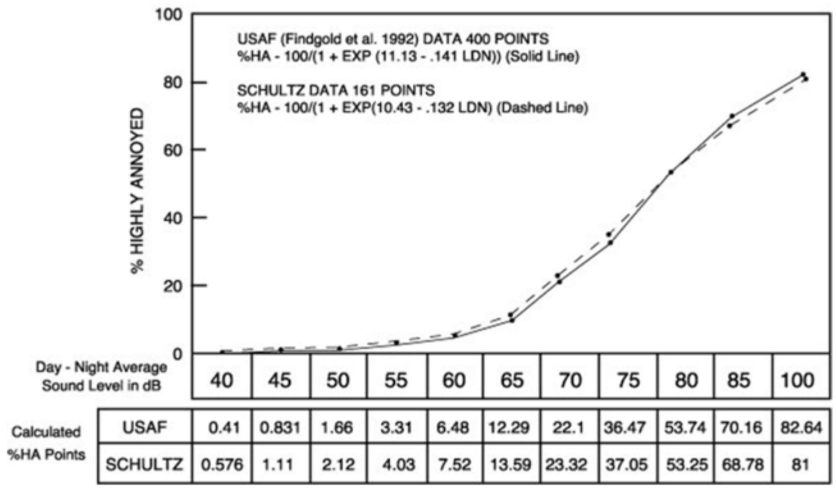

Figure 20. Percentage of People Highly Annoyed

Source: FICON, "Federal Agency Review of Selected Airport Noise Analysis Issues," September 1992

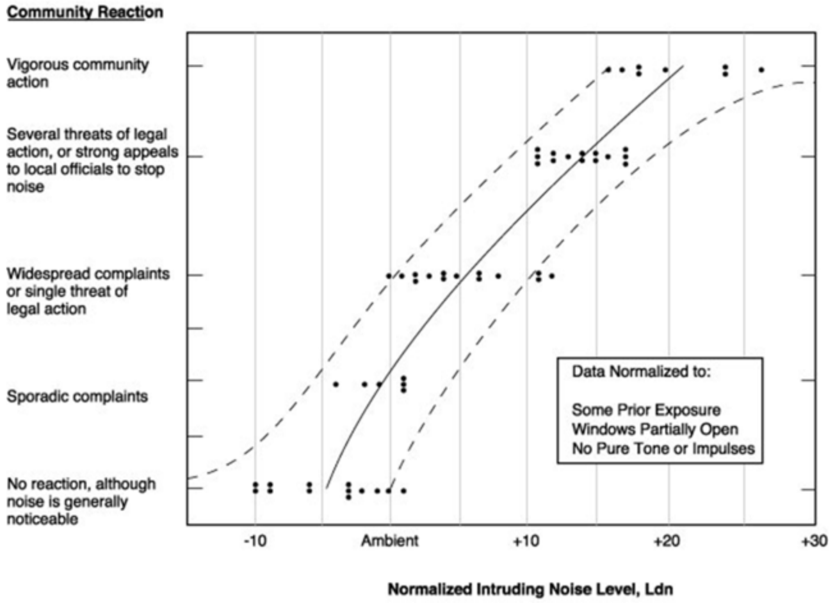

Figure 21. Community Reaction as a Function of Outdoor DNL

Source: Wyle Laboratories, Community Noise, prepared for the U.S. EPA, Office of Noise Abatement and Control, Washington, D.C., December 1971, pg. 63

Data summarized in the figure suggest that little reaction would be expected for intrusive noise levels five decibels below the ambient, while widespread complaints can be expected as intruding noise exceeds background levels by about five decibels. Vigorous action is likely when levels exceed the background by 20 dB.

5.3 Noise Propagation

This section presents information sound-propagation effect due to weather, source-to-listener distance, and vegetation.

5.3.1 Weather-Related Effects

Weather (or atmospheric) conditions that can influence the propagation of sound include humidity, precipitation, temperature, wind, and turbulence (or gustiness). The effect of wind – turbulence in particular – is generally more important than the effects of other factors. Under calm-wind conditions, the importance of temperature (in particular vertical “gradients”) can increase, sometimes to very significant levels. Humidity generally has little significance relative to the other effects.

5.3.2 Influence of Humidity and Precipitation

Humidity and precipitation rarely effect sound propagation in a significant manner. Humidity can reduce propagation of high-frequency noise under calm-wind conditions. This is called “Atmospheric absorption.” In very cold conditions, listeners often observe that aircraft sound “tinny,” because the dry air increases the propagation of high-frequency sound. Rain, snow, and fog also have little, if any, noticeable effect on sound propagation. A substantial body of empirical data supports these conclusions.[14]

5.3.3 Influence of Temperature

The velocity of sound in the atmosphere is dependent on the air temperature.[15] As a result, if the temperature varies at different heights above the ground, sound will travel in curved paths rather than straight lines. During the day, temperature normally decreases with increasing height. Under such “temperature lapse" conditions, the atmosphere refracts ("bends") sound waves upwards and an acoustical shadow zone may exist at some distance from the noise source.

Under some weather conditions, an upper level of warmer air may trap a lower layer of cool air. Such a “temperature inversion” is most common in the evening, at night, and early in the morning when heat absorbed by the ground during the day radiates into the atmosphere.[16] The effect of an inversion is just the opposite of lapse conditions. It causes sound propagating through the atmosphere to refract downward.

The downward refraction caused by temperature inversions often allows sound rays with originally upward-sloping paths to bypass obstructions and ground effects, increasing noise levels at greater distances. This type of effect is most prevalent at night, when temperature inversions are most common and when wind levels often are very low, limiting any confounding factors.[17] Under extreme conditions, one study found that noise from ground-borne aircraft might be amplified 15 to 20 dB by a temperature inversion. In a similar study, noise caused by an aircraft on the ground registered a higher level at an observer location 1.8 miles away than at a second observer location only 0.2 miles from the aircraft.[18]

5.3.4 Influence of Wind

Wind has a strong directional component that can lead to significant variation in propagation. In general, receivers that are downwind of a source will experience higher sound levels, and those that are upwind will experience lower sound levels. Wind perpendicular to the source-to-receiver path has no significant effect.

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[14] Ingard, Uno. “A Review of the Influence of Meteorological Conditions on Sound Propagation,” *Journal of the Acoustical Society of America*, Vol. 25, No. 3, May 1953, p. 407.

[15] In dry air, the approximate velocity of sound can be obtained from the relationship:

$c = 331 + 0.6T_c$ (c in meters per second, T_c in degrees Celsius). Pierce, Allan D., *Acoustics: An Introduction to its Physical Principles and Applications.* McGraw-Hill. 1981. p. 29.

[16] Embleton, T.F.W., G.J. Thiessen, and J.E. Piercy, “Propagation in an inversion and reflections at the ground,” *Journal of the Acoustical Society of America*, Vol. 59, No. 2, February 1976, p. 278.

[17] Ingard, p. 407.

[18] Dickinson, P.J., “Temperature Inversion Effects on Aircraft Noise Propagation,” (Letters to the Editor) *Journal of Sound and Vibration.* Vol. 47, No. 3, 1976, p. 442.

The refraction caused by wind direction and temperature gradients is additive.[19] One study suggests that for frequencies greater than 500 Hz, the combined effects of these two factors tends towards two extreme values: approximately 0 dB in conditions of downward refraction (temperature inversion or downwind propagation) and -20 dB in upward refraction conditions (temperature lapse or upwind propagation). At lower frequencies, the effects of refraction due to wind and temperature gradients are less pronounced.[20]

Wind turbulence (or "gustiness") can also affect sound propagation. Sound levels heard at remote receiver locations will fluctuate with gustiness. In addition, gustiness can cause considerable attenuation of sound due to effects of eddies traveling with the wind. Attenuation due to eddies is essentially the same in all directions, with or against the flow of the wind, and can mask the refractive effects discussed above.[21]

5.3.5 Distance-Related Effects

People often ask how distance from an aircraft to a listener affects sound levels. Changes in distance may be associated with varying terrain, offsets to the side of a flight path, or aircraft altitude. The answer is a bit complex, because distance affects the propagation of sound in several ways.

The principal effect results from the fact that any emitted sound expands in a spherical fashion – like a balloon – as the distance from the source increases, resulting in the sound energy being spread out over a larger volume. With each doubling of distance, spherical spreading reduces instantaneous or maximum level by approximately six decibels and SEL by approximately three decibels.

5.3.6 Vegetation-Related Effects

Sound can be scattered and absorbed as it travels through vegetation. This results in a decrease in sound levels. The literature on the effect of vegetation on sound propagation contains several approaches to calculating its effect. Although these approaches differ in some aspects, they agree on the following:

- The vegetation must be dense and deep enough to block the line of sight
- The noise reduction is greatest at high frequencies and least at low frequencies

The International Standard ISO 9613-2[22] provides a useful example of the types of calculations employed in these methods. Originally developed for industrial noise sources, ISO 9613-2 is well-suited for the evaluation of ground-based aircraft noise sources under favorable meteorological conditions for sound propagation. ISO 9613-2's methodology for calculating sound propagation includes geometric dispersion from acoustical point sources, atmospheric absorption, the effects of areas of hard and soft ground, screening due to barriers, and reflections. The attenuation provided by dense foliage varies by octave band and by distance as shown in **Table 15**.

For propagation through less than 10 m of dense foliage, no attenuation is assumed. For propagation through 10 m to 20 m of dense foliage, the total attenuation is shown in the first row of **Table 15**. For distances between 20 m and 200 m, the total attenuation is computed by multiplying the distance of propagation through dense foliage by the dB/m values shown in the second row of **Table 15**.

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[19] Piercy and Embleton, p. 1412. Note, in addition, as a result of the scalar nature of temperature and the vector nature of wind, the following is true: under lapse conditions, the refractive effects of wind and temperature add in the upwind direction and cancel each other in the downwind direction. Under inversion conditions, the opposite is true.

[20] Piercy and Embleton, p. 1413.

[21] Ingard, pp. 409-410.

[22] International Organization for Standardization, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation, International Standard ISO9613-2, Geneva, Switzerland (15 December 1996).

Table 14. Dense Foliage Noise Attenuation

Propagation Distance	Nominal Midband Frequency (Hz)							
	63	125	250	500	1,000	2,000	4,000	8,000
10 m to 20 m (dB Attenuation)	0	0	1	1	1	1	2	3
20 m to 200 m (dB/m Attenuation)	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.12

Source: ISO 9613-2, Table A.1

ISO 9613-2 assumes a moderate downwind condition. The equations in the ISO Standard also hold, equivalently, for average propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs on clear, calm nights. In either case, the sound is refracted downward. The radius of this curved path is assumed to be 5 km. With this curved sound path, only portions of the sound path may travel through the dense foliage, as illustrated by **Figure 21**. Thus, the relative locations of the source and receiver, the dimensions of the volume of dense foliage, and the contours of the intervening terrain are essential to the estimation of the noise attenuation.

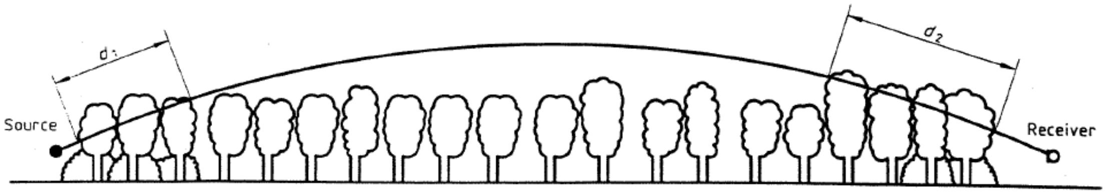


Figure 21. Downward Refracting Sound Path

Source: ISO 9613-2

As illustrated in **Figure 21**, the foliage only provides attenuation if the sound path passes through the foliage. For aircraft in the air, the sound will pass through little, if any foliage. Additionally, either the noise source or receiver must be near the foliage for it to have an effect.

ATTACHMENT 1

Operation	CATEGORY	ENGINE	RUNWAY	TRACK_BUNDLE	Day Usage	Night Usage
A	AC	J	5	AJ0501	0.03%	0.00%
A	AC	J	5	AJ0502	1.94%	5.18%
A	AC	J	5	AJ0503	98.04%	94.82%
A	AC	J	23	AJ2301	72.57%	53.06%
A	AC	J	23	AJ2302	0.02%	0.00%
A	AC	J	23	AJ2303	0.30%	0.33%
A	AC	J	23	AJ2304	25.99%	38.06%
A	AC	J	23	AJ2305	1.12%	8.56%
A	AC	J	34	AJ3401	100.00%	100.00%
A	AT	J	5	AJ0501	3.17%	0.00%
A	AT	J	5	AJ0502	0.32%	0.00%
A	AT	J	5	AJ0503	96.51%	100.00%
A	AT	J	23	AJ2301	61.48%	59.18%
A	AT	J	23	AJ2302	1.02%	0.00%
A	AT	J	23	AJ2303	2.47%	2.04%
A	AT	J	23	AJ2304	32.78%	30.61%
A	AT	J	23	AJ2305	2.25%	8.16%
A	AT	J	34	AJ3401	100.00%	0.00%
A	AT	P	5	AP0501	6.25%	0.00%
A	AT	P	5	AP0503	6.25%	0.00%
A	AT	P	5	AP0504	68.75%	0.00%
A	AT	P	5	AP0505	18.75%	0.00%
A	AT	P	23	AP2301	43.75%	0.00%
A	AT	P	23	AP2305	6.25%	0.00%
A	AT	P	23	AP2306	6.25%	0.00%
A	AT	P	23	AP2307	18.75%	0.00%
A	AT	P	23	AP2308	12.50%	0.00%
A	AT	P	23	AP2309	12.50%	0.00%
A	AT	T	5	AT0501	1.69%	0.69%
A	AT	T	5	AT0502	8.02%	26.90%
A	AT	T	5	AT0503	43.67%	0.69%
A	AT	T	5	AT0504	1.48%	71.72%
A	AT	T	5	AT0505	45.15%	0.00%
A	AT	T	23	AT2301	80.97%	4.00%
A	AT	T	23	AT2302	13.57%	0.00%
A	AT	T	23	AT2303	3.10%	92.00%
A	AT	T	23	AT2304	2.36%	4.00%
A	AT	T	34	AT3401	57.14%	0.00%

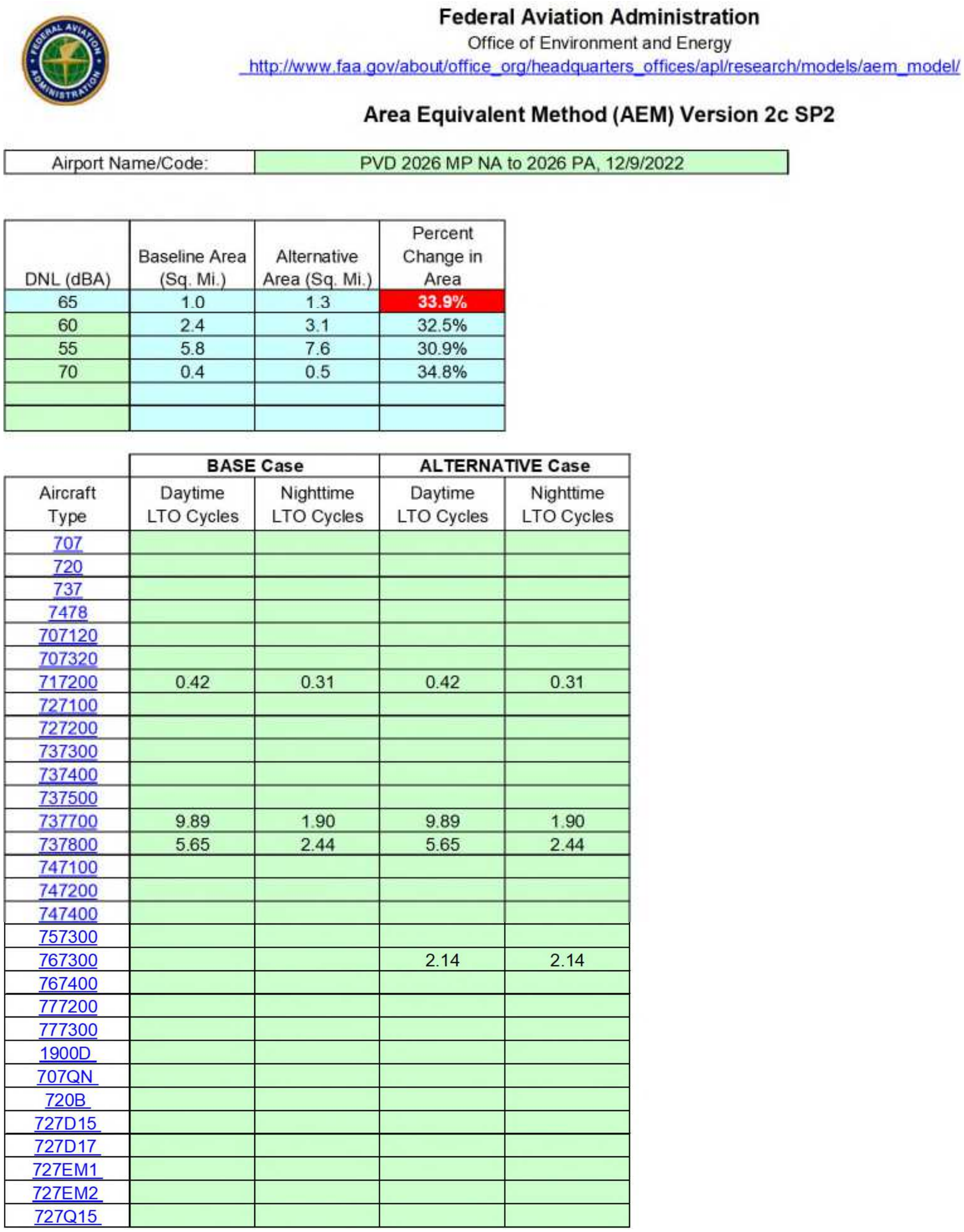
Operation	CATEGORY	ENGINE	RUNWAY	TRACK_BUNDLE	Day Usage	Night Usage
A	AT	T	34	AT3402	42.86%	0.00%
A	GA	J	5	AJ0501	4.01%	0.00%
A	GA	J	5	AJ0502	1.27%	3.70%
A	GA	J	5	AJ0503	94.73%	96.30%
A	GA	J	23	AJ2301	49.41%	26.67%
A	GA	J	23	AJ2302	2.38%	
A	GA	J	23	AJ2303	3.30%	3.33%
A	GA	J	23	AJ2304	42.14%	60.00%
A	GA	J	23	AJ2305	2.77%	10.00%
A	GA	J	34	AJ3401	100.00%	0.00%
A	GA	P	5	AP0501	28.51%	6.25%
A	GA	P	5	AP0502	6.83%	0.00%
A	GA	P	5	AP0503	19.68%	6.25%
A	GA	P	5	AP0504	26.91%	68.75%
A	GA	P	5	AP0505	18.07%	18.75%
A	GA	P	16	AP1601	100.00%	0.00%
A	GA	P	23	AP2301	21.92%	43.75%
A	GA	P	23	AP2302	10.37%	0.00%
A	GA	P	23	AP2303	2.23%	0.00%
A	GA	P	23	AP2304	12.20%	0.00%
A	GA	P	23	AP2305	2.23%	6.25%
A	GA	P	23	AP2306	11.81%	6.25%
A	GA	P	23	AP2307	20.73%	18.75%
A	GA	P	23	AP2308	2.89%	12.50%
A	GA	P	23	AP2309	5.25%	12.50%
A	GA	P	23	AP2310	3.81%	0.00%
A	GA	P	23	AP2311	6.56%	0.00%
A	GA	P	34	AP3401	50.00%	0.00%
A	GA	P	34	AP3402	50.00%	0.00%
A	GA	T	5	AT0501	19.44%	0.00%
A	GA	T	5	AT0502	63.89%	0.00%
A	GA	T	5	AT0503	5.56%	0.00%
A	GA	T	5	AT0504	2.78%	0.00%
A	GA	T	5	AT0505	8.33%	0.00%
A	GA	T	23	AT2301	11.29%	0.00%
A	GA	T	23	AT2302	3.23%	0.00%
A	GA	T	23	AT2303	59.68%	100.00%
A	GA	T	23	AT2304	25.81%	0.00%
C	GA	P	5	CP0501	100.00%	100.00%
C	GA	P	23	CP2301	100.00%	100.00%

Operation	CATEGORY	ENGINE	RUNWAY	TRACK_BUNDLE	Day Usage	Night Usage
D	AC	J	5	DJ0501	62.74%	78.18%
D	AC	J	5	DJ0502	37.26%	21.62%
D	AC	J	5	DJ0503	0.00%	0.20%
D	AC	J	23	DJ2301	0.09%	0.00%
D	AC	J	23	DJ2302	36.86%	21.38%
D	AC	J	23	DJ2303	0.00%	0.56%
D	AC	J	23	DJ2304	0.05%	0.16%
D	AC	J	23	DJ2305	62.97%	77.90%
D	AC	J	23	DJ2306	0.02%	0.00%
D	AC	J	34	DJ3401	38.46%	33.33%
D	AC	J	34	DJ3402	61.54%	66.67%
D	AT	J	5	DJ0501	69.22%	35.29%
D	AT	J	5	DJ0502	28.35%	61.18%
D	AT	J	5	DJ0503	2.43%	3.53%
D	AT	J	23	DJ2301	3.98%	1.96%
D	AT	J	23	DJ2302	23.14%	48.04%
D	AT	J	23	DJ2304	1.73%	0.98%
D	AT	J	23	DJ2305	68.44%	48.04%
D	AT	J	23	DJ2306	2.70%	0.98%
D	AT	J	34	DJ3401	80.00%	0.00%
D	AT	J	34	DJ3402	20.00%	0.00%
D	AT	P	5	DP0501	13.64%	0.00%
D	AT	P	5	DP0502	18.18%	0.00%
D	AT	P	5	DP0503	13.64%	0.00%
D	AT	P	5	DP0504	50.00%	0.00%
D	AT	P	5	DP0505	4.55%	0.00%
D	AT	P	23	DP2302	3.85%	0.00%
D	AT	P	23	DP2303	26.92%	0.00%
D	AT	P	23	DP2304	30.77%	0.00%
D	AT	P	23	DP2306	15.38%	0.00%
D	AT	P	23	DP2307	7.69%	0.00%
D	AT	P	23	DP2309	7.69%	0.00%
D	AT	P	23	DP2310	3.85%	0.00%
D	AT	P	23	DP2311	3.85%	0.00%
D	AT	P	23	DP2312	0.00%	100.00%
D	AT	T	5	DT0501	90.41%	87.93%
D	AT	T	5	DT0502	4.48%	10.34%
D	AT	T	5	DT0503	1.07%	1.72%
D	AT	T	5	DT0504	4.05%	0.00%
D	AT	T	23	DT2301	91.18%	43.94%

Operation	CATEGORY	ENGINE	RUNWAY	TRACK_BUNDLE	Day Usage	Night Usage
D	AT	T	23	DT2302	2.25%	0.00%
D	AT	T	23	DT2303	0.69%	26.77%
D	AT	T	23	DT2304	2.08%	1.01%
D	AT	T	23	DT2305	0.52%	23.74%
D	AT	T	23	DT2306	3.29%	4.55%
D	AT	T	34	DT3401	14.29%	0.00%
D	AT	T	34	DT3402	85.71%	0.00%
D	GA	J	5	DJ0501	68.39%	93.33%
D	GA	J	5	DJ0502	28.28%	6.67%
D	GA	J	5	DJ0503	3.33%	0.00%
D	GA	J	23	DJ2301	5.66%	4.35%
D	GA	J	23	DJ2302	23.59%	13.04%
D	GA	J	23	DJ2303	0.00%	4.35%
D	GA	J	23	DJ2304	2.21%	8.70%
D	GA	J	23	DJ2305	66.62%	69.57%
D	GA	J	23	DJ2306	1.93%	0.00%
D	GA	J	34	DJ3402	100.00%	0.00%
D	GA	P	5	DP0501	32.57%	40.00%
D	GA	P	5	DP0502	19.64%	6.67%
D	GA	P	5	DP0503	12.44%	0.00%
D	GA	P	5	DP0504	17.68%	40.00%
D	GA	P	5	DP0505	17.68%	13.33%
D	GA	P	16	DP1601	100.00%	0.00%
D	GA	P	23	DP2301	1.99%	0.00%
D	GA	P	23	DP2302	22.02%	0.00%
D	GA	P	23	DP2303	4.15%	0.00%
D	GA	P	23	DP2304	5.05%	7.69%
D	GA	P	23	DP2306	11.19%	23.08%
D	GA	P	23	DP2307	9.03%	15.38%
D	GA	P	23	DP2308	4.51%	0.00%
D	GA	P	23	DP2309	1.44%	7.69%
D	GA	P	23	DP2310	9.03%	0.00%
D	GA	P	23	DP2311	18.59%	23.08%
D	GA	P	23	DP2312	13.00%	23.08%
D	GA	P	34	DP3401	25.00%	0.00%
D	GA	P	34	DP3402	50.00%	0.00%
D	GA	P	34	DP3403	25.00%	0.00%
D	GA	T	5	DT0501	25.71%	0.00%
D	GA	T	5	DT0502	28.57%	100.00%
D	GA	T	5	DT0504	45.71%	0.00%

Operation	CATEGORY	ENGINE	RUNWAY	TRACK_BUNDLE	Day Usage	Night Usage
D	GA	T	23	DT2301	17.54%	0.00%
D	GA	T	23	DT2302	29.82%	0.00%
D	GA	T	23	DT2303	3.51%	57.41%
D	GA	T	23	DT2304	36.84%	0.00%
D	GA	T	23	DT2305	1.75%	38.89%
D	GA	T	23	DT2306	10.53%	3.70%
A	GA	H	H23	AH2301	100.00%	100.00%
D	GA	H	H23	DH2301	100.00%	100.00%
A	ML	H	H23	AH2301	100.00%	100.00%
D	ML	H	H23	DH2301	100.00%	100.00%

ATTACHMENT 2



Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	PVD 2026 MP NA to 2026 PA, 12/9/2022

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	1.0	1.3	33.9%
60	2.4	3.1	32.5%
55	5.8	7.6	30.9%
70	0.4	0.5	34.8%

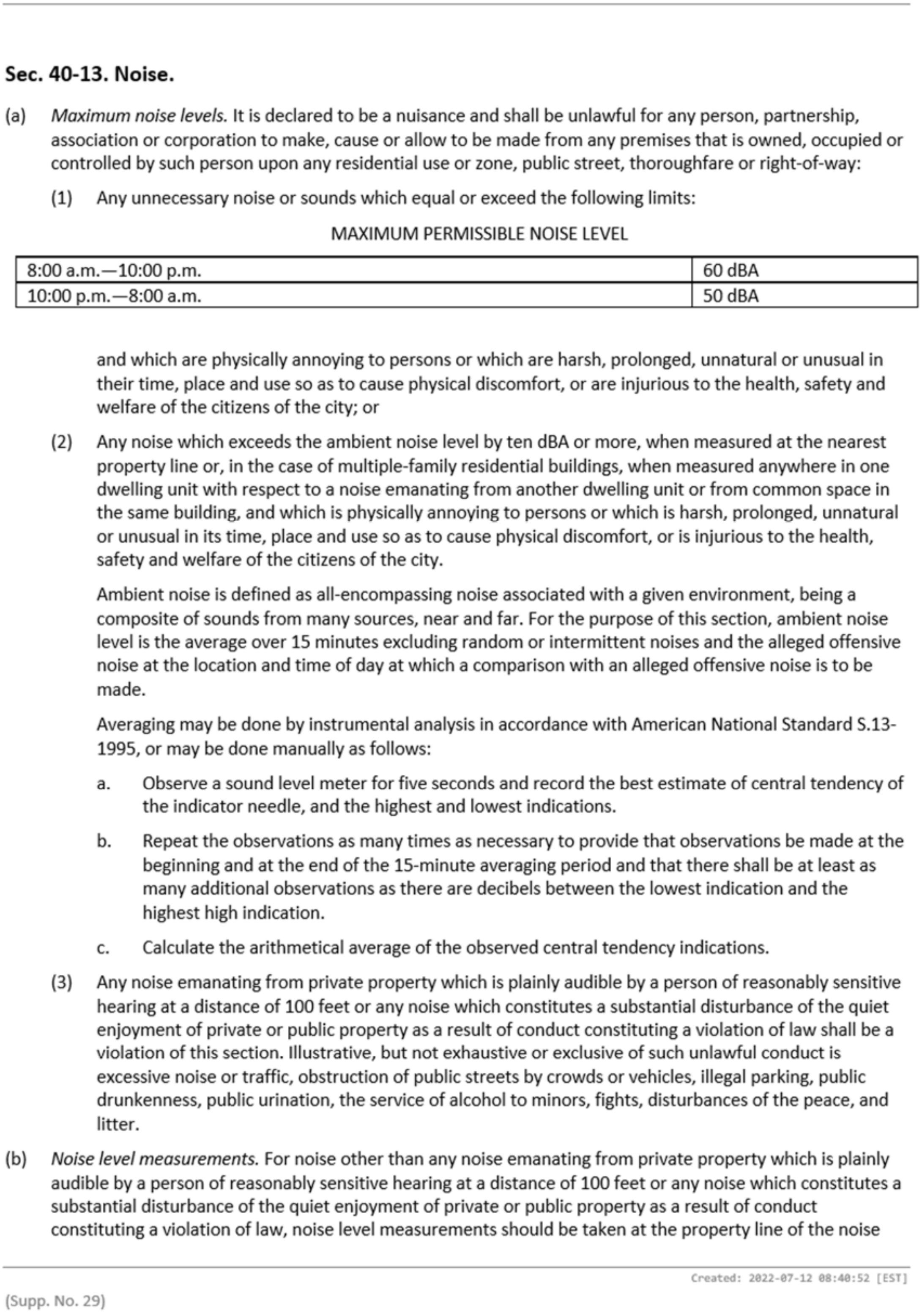
	BASE Case		**ALTERNATIVE Case**	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478				
707120				
707320				
717200	0.42	0.31	0.42	0.31
727100				
727200				
737300				
737400				
737500				
737700	9.89	1.90	9.89	1.90
737800	5.65	2.44	5.65	2.44
747100				
747200				
747400				
757300				
767300			2.14	2.14
767400				
777200				
777300				
1900D				
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				

727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.83	0.26		
757RR	0.83	0.24		
767CF6				
767JT9				
7773ER				
7878R				
A10A				
A3				
A300-622R				
A300B4-203				
A310-304				
A319-131	1.32	0.42	1.32	0.42
A320-211	3.22	1.98	3.22	1.98
A320-232	8.11	0.92	8.11	0.92
A321-232				
A330-301				
A330-343				
A340-211				
A340-642				
A37				
A380-841				
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P	0.02		0.02	
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				

CL600	2.51	0.24	2.51	0.24
CL601	0.60	0.02	0.60	0.02
CNA172	21.83	0.29	21.83	0.29
CNA182				
CNA182FLT				
CNA206				
CNA208	4.47	0.85	2.36	0.18
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.74	0.01	0.74	0.01
CNA55B	1.39	0.05	1.39	0.05
CNA560E				
CNA560U				
CNA560XL	0.90	0.00	0.90	0.00
CNA680	2.26	0.07	2.26	0.07
CNA750	2.83	0.22	2.83	0.22
COMJET				
COMSEP	0.55	0.00	0.55	0.00
CONCRD				
CRJ9-ER	12.90	1.92	12.90	1.92
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6				
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145	0.43	0.00	0.43	0.00
EMB14L	0.66	0.20	0.66	0.20
EMB170	1.03	0.37	1.03	0.37
EMB175	5.73	2.07	5.73	2.07
EMB190	2.75	0.07	2.75	0.07
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF	2.69	0.03	2.69	0.03
GASEPV	1.17	0.03	1.17	0.03
GII				
GIIB				
GIV	0.79	0.06	0.79	0.06
GV				
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.58	0.06	0.58	0.06
MD11GE				
MD11PW				
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28	1.63	0.13	1.63	0.13
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330			2.56	
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	98.72	15.15	99.66	16.12

ATTACHMENT 3

City of Warwick Noise Ordinance, Section 40-13, Supplement No 29



Sec. 40-13. Noise.

(a) *Maximum noise levels.* It is declared to be a nuisance and shall be unlawful for any person, partnership, association or corporation to make, cause or allow to be made from any premises that is owned, occupied or controlled by such person upon any residential use or zone, public street, thoroughfare or right-of-way:

(1) Any unnecessary noise or sounds which equal or exceed the following limits:

MAXIMUM PERMISSIBLE NOISE LEVEL

8:00 a.m.—10:00 p.m.	60 dBA
10:00 p.m.—8:00 a.m.	50 dBA

and which are physically annoying to persons or which are harsh, prolonged, unnatural or unusual in their time, place and use so as to cause physical discomfort, or are injurious to the health, safety and welfare of the citizens of the city; or

(2) Any noise which exceeds the ambient noise level by ten dBA or more, when measured at the nearest property line or, in the case of multiple-family residential buildings, when measured anywhere in one dwelling unit with respect to a noise emanating from another dwelling unit or from common space in the same building, and which is physically annoying to persons or which is harsh, prolonged, unnatural or unusual in its time, place and use so as to cause physical discomfort, or is injurious to the health, safety and welfare of the citizens of the city.

Ambient noise is defined as all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far. For the purpose of this section, ambient noise level is the average over 15 minutes excluding random or intermittent noises and the alleged offensive noise at the location and time of day at which a comparison with an alleged offensive noise is to be made.

Averaging may be done by instrumental analysis in accordance with American National Standard S.13-1995, or may be done manually as follows:

a. Observe a sound level meter for five seconds and record the best estimate of central tendency of the indicator needle, and the highest and lowest indications.

b. Repeat the observations as many times as necessary to provide that observations be made at the beginning and at the end of the 15-minute averaging period and that there shall be at least as many additional observations as there are decibels between the lowest indication and the highest high indication.

c. Calculate the arithmetical average of the observed central tendency indications.

(3) Any noise emanating from private property which is plainly audible by a person of reasonably sensitive hearing at a distance of 100 feet or any noise which constitutes a substantial disturbance of the quiet enjoyment of private or public property as a result of conduct constituting a violation of law shall be a violation of this section. Illustrative, but not exhaustive or exclusive of such unlawful conduct is excessive noise or traffic, obstruction of public streets by crowds or vehicles, illegal parking, public drunkenness, public urination, the service of alcohol to minors, fights, disturbances of the peace, and litter.

(b) *Noise level measurements.* For noise other than any noise emanating from private property which is plainly audible by a person of reasonably sensitive hearing at a distance of 100 feet or any noise which constitutes a substantial disturbance of the quiet enjoyment of private or public property as a result of conduct constituting a violation of law, noise level measurements should be taken at the property line of the noise generator which is closest to the residential use or zone, public street, public or private right-of-way, alley or thoroughfare that is being affected. All measurements shall be made with a sound level meter having an A-weighted scale, containing both fast and slow meter response capability and constructed in accordance with specifications as contained in the standards of the American National Standards Institute.

(c) *Response to complaints.* Upon receiving a complaint of excessive noise, the building official and/or the police department will respond to determine compliance or noncompliance with this section.

(d) *Mailing of notice to property owner.* Notice of police intervention pursuant to this section shall be mailed to any property owner of the City of Warwick Property Tax Assessment Records and shall advise the property owner that any subsequent such intervention within 60 days on the same premises shall result in liability of the property owner for all penalties associated with such intervention as more particularly set forth below:

(e) *Persons liable for a subsequent response to a gathering constituting a public nuisance.* If the police department is required to respond to a gathering constituting a public nuisance on the premises more than once in any 60-day period, the following persons shall be jointly and severally liable for fines as set forth below:

(1) The person or persons who own the property where the gathering constituting the public nuisance took place, provided that notice has been mailed to the owner of the property as set forth herein and the gathering occurs at least two weeks after the mailing of such notice.

(2) The person or persons residing on or otherwise in control of the property where such gathering took place.

(3) The person or persons who organized or sponsored such gathering.

(4) All persons attending such gatherings who engage in any activity resulting in the public nuisance.

(5) Nothing in this section shall be construed to impose liability on the resident or owners of the premises or sponsor of the gathering for the conduct of persons who are present without the express or implied consent of the resident or sponsor, as long as the resident and sponsor have taken all steps reasonably necessary to exclude such uninvited participants from the premises, including landlords who are actively attempting to evict a tenant from the premises.

Where an invited guest engages in conduct which the sponsor or resident could not reasonably foresee and the conduct is an isolated instance of a guest at the event violating the law which the sponsor is unable to reasonably control without the intervention of the police, the unlawful conduct of the individual guest shall not be attributable to the sponsor or resident for the purposes of determining whether the event constitutes a public nuisance under this section.

(f) *Penalty.* Violation of this section, except those under section (a)(3), shall be punishable by a fine of $50.00 for the first and second offense by a person. The fine may be paid by mail or in person at the city municipal court. Upon the third and each subsequent violation of this section, a person shall be subject to the penalties set forth in section 1-4 of the Code.

(1) *Penalties for gatherings deemed a public nuisance under section 40-13(a)(3).* It shall be an ordinance violation punishable by the following schedule when a violation at the same location occurs within a 60-day period after an initial violation.

a. For the second violation in a 60-day period, the fine shall be a minimum mandatory $250.00;

b. For the third violation in a 60-day period the fine shall be a minimum mandatory $350.00;

c. For any fourth or subsequent violation in a 60-day period the fine shall be a minimum mandatory $500.00.

(g) *Special exceptions.* As part of its licensing and permitting procedure for events within the city, the board of public safety may grant a special exception to the enforcement of this section on a case-by-case basis and with the special exception limited to specific dates and specific times on those dates.

(Code 1971, § 13-16; Ord. No. O-96-30, § I, 12-16-96; Ord. No. O-97-8, § I, 4-14-96; Ord. No. O-97-15, § I, 6-16-97; Ord. No. O-00-16, § I, 5-11-00; Ord. No. O-06-29, § I, 10-16-06)

Cross reference(s)—Noisy animals, § 4-14; noisemaking devices prohibited in public recreation facilities, § 58-6; vehicle loads causing unnecessary noise, § 76-82.

APPENDIX I

Socioeconomics, Environmental Justice and Children's Health and Safety

APPENDIX I

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/5/2022

Project #: 73330.00

From: Donny Goris-Kolb, AICP, Senior Sustainability Planner

Re: Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
South Cargo Facility
T.F. Green International Airport
Rhode Island Airport Corporation

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

Per Federal Aviation Administration (FAA) Order 1050.1F, Environmental Impacts: Policies and Procedures,[1] and its associated Desk Reference,[2] a socioeconomics analysis evaluates how a project would affect elements of the human environment such as population, employment, housing, and public services. Environmental justice (EJ) is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[3] The U.S. Environmental Protection Agency (USEPA) defines "fair treatment" as "no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies." Lastly, children's environmental health and safety risks refers to the effect of environmental exposure during early life, from conception until 21 years of age, since children may be at a greater risk to environmental contaminants than adults due to differences in activity patterns, behavior, and biology.[4] These may include risks that are attributable to products or substances that a child is likely to contact or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to. There are four priority concerns in particular: 1) asthma, 2) unintentional injuries, 3) developmental disorders (including lead poisoning), and 4) cancer.

The following sections describe the applicable regulatory setting as well as the applicable FAA significance thresholds under the National Environmental Policy Act (NEPA). Specific to the project, this technical memorandum details existing conditions, environmental consequences, and proposed mitigation measures, as appropriate.

Regulatory Setting

Related federal statutes or orders include:

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[1] U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F: Environmental Impacts: Policies and Procedures, Exhibit 4-1, "Significance Determination for FAA Actions," pages 4-4 to 4-13, July 16, 2015.

[2] U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, 1050.1F Desk Reference, Version 2, February 2020.

[3] U.S. Environmental Protection Agency, "Learn About Environmental Justice," September 22, 2021, www.epa.gov/environmentaljustice/.

[4] U.S. Environmental Protection Agency, "2021 Policy on Children's Health," October 5, 2021, https://www.epa.gov/children/epas-policy-childrens-health.

Socioeconomics

- The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 U.S.C § 61 et seq.), which contains provisions that must be followed if acquisition of real property or displacement of people would occur from a federal action.

Environmental Justice

- Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C §§ 2000d-2000d-7), which prohibits discrimination in federally funded programs and projects.
- Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which requires federal agencies to incorporate EJ into programs, policies, and activities.
- U.S. Department of Transportation (DOT) Order 5610.2(a), *Environmental Justice in Minority and Low-Income Populations*, which establishes principles for integrating EJ into current policies and practices.
- Council on Environmental Quality (CEQ) Guidance, "Environmental Justice: Guidance Under the National Environmental Policy Act" (1997), which outlines the consideration of EJ in NEPA documents and provides definitions of minority, low-income, and other EJ concepts.
- The Memorandum of Understanding on Environmental Justice and Executive Order 12898 (2011), where participating federal agencies (FAA included) agree to declare the continued importance of identifying and addressing EJ considerations in their programs, policies, and activities as provided in EO 12898.
- The U.S. Department of Transportation (USDOT) Environmental Justice Strategy, which describes the framework for incorporating EJ into the USDOT's programs, policies, and activities.
- The Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee's "Promising Practices for EJ Methodologies in NEPA Reviews" guidance document (2016).
- EO 14008 Justice40, which mandates that 40 percent or more of the benefits of certain federal programs must flow to disadvantaged communities.

Children's Environmental Health and Safety Risks

- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children.[5]

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[5] The White House, Executive Office of the President, Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, 62 Federal Register 19885, April 21, 1997.

Rhode Island Regulatory Considerations

The Rhode Island Department of Environmental Management (RIDEM) has instituted a *Policy for Considering Environmental Justice in the Review of Investigation and Remediation of Contaminated Properties*.[6] The Policy notes that, because of Rhode Island's industrial history and heritage, properties have been impacted by environmental contamination from oil and hazardous chemicals. In many cases, low income and minority populations live in the communities around the sites, which are primarily in urban areas. Therefore, addressing these inequities and providing a fair, effective process for future involvement in site remediation projects is a main premise of EJ in Rhode Island.[7] RIDEM identifies and publishes EJ areas based on the 2000 Census Block Group Boundary layer, determined as block groups having percentages in the top 15 percent of the state for low-income residents and/or racial minorities.

FAA Significance Thresholds

The FAA has not established a significant impact threshold for socioeconomics, EJ, or children's environmental health and safety risks. However, the FAA has identified factors to consider in making a significance determination for these environmental impact categories. These factors, which are based on FAA guidance provided in FAA Order 1050.1F,[8] are summarized in **Table 1**.

Table 1 FAA Order 1050.1F Significant Impact Thresholds

Impact Category	FAA Order 1050.1F Significance Threshold and Factors to Consider
Socioeconomics	None established. Consider if the action would: ▪ Induce substantial economic growth in an area, either directly or indirectly ▪ Disrupt or divide an established community; ▪ Cause extensive relocation when sufficient replacement housing is unavailable; ▪ Cause extensive relocation of businesses that would cause severe economic hardship; ▪ Disrupt local traffic patterns and substantially reduce levels of service of roads serving an airport and its surrounding communities; or ▪ Substantially change the community tax base.
Environmental Justice	None established. Consider if the action would lead to a disproportionately high and adverse impact on an EJ population due to: ▪ Significant impacts in other categories; or ▪ Impacts that affect an EJ population in a way FAA determines are unique and significant.

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[6] Rhode Island Department of Environmental Management, *Policy for Considering Environmental Justice in the Review of Investigation and Remediation of Contaminated Properties*, SOP Number BEP-AWC-1, Effective June 26, 2009, Revision 1.

[7] Rhode Island Department of Environmental Management, Office of Land Revitalization and Sustainable Materials Management, "The Rhode Island Department of Environmental Management's Site Remediation Program & Environmental Justice Fact Sheet," https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-10/olrsmm-brownfields-environmental-justice-fs-english.pdf.

[8] U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F: *Environmental Impacts: Policies and Procedures*, Exhibit 4-1, "Significance Determination for FAA Actions," pages 4-4 to 4-13, July 16, 2015.

Table 1 FAA Order 1050.1F Significant Impact Thresholds

Impact Category	FAA Order 1050.1F Significance Threshold and Factors to Consider
Children's Environmental Health & Safety	None established. Consider if the action would have the potential to lead to a disproportionate health or safety risk to children.

Source: U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F: *Environmental Impacts: Policies and Procedures*, Exhibit 4-1, "Significance Determination for FAA Actions," pages 4-4 to 4-13, July 16, 2015; U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, *1050.1F Desk Reference*, Version 2, February 2020.

Existing Conditions

Table 2 summarizes demographics in and adjacent to the project site. The project is in U.S. Census Block Group 1 of Census Tract 9800, which also includes the full Airport boundary. No population resides within this block group. Block groups and underlying census tracts adjacent to the study area are included for comparison. Data are also compared to the City of Warwick, Kent County, Providence County, and the State of Rhode Island. Included is information on population, age, race and ethnicity, income, housing, and employment.

Socioeconomics

A socioeconomic and demographic assessment of the communities within and adjacent to the project study area was performed to assess the potential for impacts from the project. Considerations include economic activity, employment, income, population, housing, public services, and social conditions. Applicable data are included in **Table 2**. Note that Block Group 1, Tract 98001, in which the project site and Airport is located, was excluded from **Table 2**, as it does not contain any population.

APPENDIX I

Table 2 Population, Age, Race and Ethnicity, Housing, and Unemployment (2020)

	Block Group 1, Tract 219.01[1]	Block Group 1, Tract 221[2]	Block Group 4, Tract 211[3]	Tract 219[4]	Tract 211[5]	City of Warwick	Kent County	Providence County	Rhode Island
Total Population	529	2,400	1,013	3,309	4,908	81,043	164,122	636,161	1,057,798
Population under 5 Years	17 (3%)	219 (9%)	21 (2%)	217 (7%)	332 (7%)	3,831 (5%)	7,995 (5%)	36,361 (6%)	54,688 (5%)
Population under 18 years	61 (12%)	650 (27%)	160 (16%)	836 (25%)	991 (20%)	14,475 (18%)	30,775 (19%)	130,930 (21%)	205,444 (19%)
Median Age	52.2	49.7	30.3	39.5	35.0	45.1	43.8	37.4	40.0
Race & Ethnicity									
White alone	490 (93%)	2,258 (94%)	953 (94%)	2,917 (88%)	4,753 (97%)	73,007 (90%)	148,484 (90%)	451,524 (71%)	835,608 (79%)
Black or African American alone	0 (0%)	11 (0%)	60 (6%)	215 (6%)	82 (2%)	1,699 (2%)	2,943 (2%)	60,500 (10%)	69,196 (7%)
American Indian & Alaska Native alone	35 (7%)	0 (0%)	0 (0%)	35 (1%)	0 (0%)	341 (0%)	485 (0%)	2,632 (0%)	4,344 (0%)
Asian alone	0 (0%)	61 (3%)	0 (0%)	44 (1%)	0 (0%)	2,668 (3%)	4,836 (3%)	26,552 (4%)	36,536 (3%)
Hawaiian & Pacific Islander alone	0 (0%)	0 (0%)	0 (0%)	0 (0%)	13 (0%)	13 (0%)	13 (0%)	538 (0%)	790 (0%)
Some other race	0 (0%)	70 (3%)	0 (0%)	13 (0%)	14 (0%)	922 (1%)	2,665 (2%)	53,701 (8%)	59,003 (6%)
Two or more races	4 (1%)	0 (0%)	0 (0%)	85 (3%)	46 (1%)	2,393 (3%)	4,696 (3%)	40,714 (6%)	52,321 (5%)
Hispanic or Latino	151 (29%)	272 (11%)	41 (4%)	669 (20%)	68 (1%)	4,764 (6%)	8,818 (5%)	148,608 (23%)	168,007 (16%)
Number of Households	283	1,046	526	1,317	526	35,465	70,085	240,886	414,730
Number of Housing Units	301	1,125	572	1,372	572	37,502	74,526	266,624	469,289
Median Household Income (in 2020 dollars)	$57,070	$40,192	$78,106	$68,633	$73,467	$73,285	$75,857	$62,323	$70,305

APPENDIX I

	Block Group 1, Tract 219.01[1]	Block Group 1, Tract 221[2]	Block Group 4, Tract 211[3]	Tract 219[4]	Tract 211[5]	City of Warwick	Kent County	Providence County	Rhode Island
Per Capita Income (in 2020 dollars)	$27,937	$29,634	$39,639	$29,948	$34,638	$40,177	$40,969	$32,739	$37,504
% Below Poverty Level	17%	9%	9%	5%	13%	7%	8%	14%	9%
% of Civilian Labor Force Unemployed	0%	0%	0%	3%	5%	5%	4%	6%	6%
% Limited English Speaking	12%	0%	0%	3%	1%	1%	1%	8%	5%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2016-2020), 2022.

Notes:

1 - Block Group 1, Tract 219.01 is south of Strawberry Field Rd., east of Post Rd., southwest of the Airport, and north of Main Ave.

2 - Block Group 1, Tract 221 is west of Jefferson Blvd. and the Airport, north of Main Ave., and east of I-95.

3 - Block Group 4, Tract 211 is south of Lincoln Ave. Fwy., west of Post Rd. and the Airport, north of Airport Connector Rd., and east of I-95.

4 - Tract 219 is south of the Airport, west of Post Rd., and north of Shore Rd.

5 - Tract 211 is northwest of the airport and east of I-95.

Environmental Justice

To identify EJ areas adjacent to the project site, the meaningfully greater analysis was applied. The meaningfully greater threshold is at a federal agency's discretion; however, according to *Promising Practices for EJ Methodologies in NEPA Reviews*, a threshold of 10 to 20 percent above a reference geography's benchmark is an appropriate indicator.[9] For this assessment, RIAC applied a threshold of 10 percent over average state levels for persons of color (i.e., individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino) and low-income populations (i.e., population in households where the household income is less than or equal to twice the federal "poverty level"). Applicable data at the block group level are included in **Table 3**. As in **Table 2**, Block Group 1, Tract 98001 was excluded due to containing no population.

As shown in **Table 3**, only Block Group 1, Census Tract 221 meets the established meaningfully greater threshold of 10 percent. This area has a low-income population of 36 percent compared to the state average of 26 percent.

Table 3 Persons of Color and Low-Income Populations (2020)

Block Group	People of Color Population (%) (State Average %)	Low-Income Population (%) (State Average %)
Block Group 4, Tract 211	10% (29%)	30% (26%)
Block Group 1, Census Tract 221	14% (29%)	36% (26%)
Block Group 1, Census Tract 219.01	29% (29%)	22% (26%)

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2016-2020), 2022.

According to the RIDEM Environmental Resources Map,[10] there are no state-identified EJ block groups within one mile of the project site. The closest of such block groups (Block Group 2, Census Tract 142) is 1.1 miles to the northwest.

Children's Environmental Health and Safety Risks

In consideration of potential impacts to children's health and safety, resource areas such as air quality, water quality, and noise were considered in alignment with EO 13045. Land uses and available geographic information system (GIS) mapping data were reviewed to determine the presence of schools, daycare facilities, parks, and/or children's health clinics in the vicinity of the project. To identify how many children live in the neighborhoods closest to the project and how old they are, U.S. Census Bureau data on children was collected using the USEPA's EJScreen tool.[11]

According to U.S. Census Bureau American Community Survey Data (5-Year Estimates 2016-2020) (see **Table 2**), the percent of the population under age 5 makes up 3 percent of the population in the census block group closest to the

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[9] *Promising Practices for EJ Methodologies in NEPA Reviews: Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee*, March 2016, page 25.

[10] https://ridemgis.maps.arcgis.com/apps/webappviewer/index.html?id=87e104c8adb449eb9f905e5f18020de5

[11] U.S. Environmental Protection Agency, EJScreen Environmental Justice Screening and Mapping Tool, Version 2.1, based on the U.S. Census Bureau American Community Survey Five-Year Estimates (2016-2020), https://ejscreen.epa.gov/mapper/.

project (Block Group 1, Census Tract 219.01) (41st percentile in Rhode Island). As stated previously, no persons reside in the census block group in which the project is located (Block Group 1 of Census Tract 9800).

Warwick Public Schools is comprised of 13 elementary schools, 2 middle schools, 2 high schools, the Warwick Area Career & Technical Center, and the Warwick Early Learning Center at John Brown Francis.[12] In addition to these public institutions, various private education institutions and day care facilities service this population. The public school nearest the proposed project is Greenwood Elementary School, which is more than one mile southwest of the project.

Probable Impacts

The project is not expected to result in impacts to socioeconomics, EJ, or children's environmental health or safety. The following sections describe the project in relation to the FAA's factors to consider under NEPA.

Socioeconomics

The project site is located on Airport property and would not interfere with a planned development or be inconsistent with the plans or goals of the City of Warwick. The project is not expected to impact off-Airport roadways, either by disrupting local traffic patterns or substantially reducing levels of service. No residents or businesses would be relocated as a result of the project. On- and off-Airport spending by owners of the proposed facility and the newly based cargo aircraft are expected to provide direct, indirect, and induced economic benefits to the local and regional economies. Construction associated with the project is anticipated to provide a benefit to local employment and the local economy.

Environmental Justice

The project overall will not result in significant impacts as defined by the FAA in Order 1050.1F, *Environmental Impacts: Policies and Procedures* and its associated Desk Reference, or impacts potentially to be considered unique to the identified EJ area (Block Group 1, Census Tract 221). Accordingly, the project will not result in disproportionately high and adverse impacts to EJ populations.

The project site is not situated within a RIDEM-identified EJ area and is therefore not subject to the RIDEM EJ requirements specified in the RIDEM *Policy for Considering Environmental Justice in the Review of Investigation and Remediation of Contaminated Properties*.

Children's Environmental Health and Safety Risks

Impacts to children's environmental health and safety are considered in the context of other resource categories with potential impacts since a specific significance threshold is not established in FAA Order 1050.1F. When evaluating the context and intensity of potential environmental impacts for children's environmental health and safety, the FAA must consider whether the proposed action or its alternatives would have the potential to lead to a disproportionate health or safety risk to children.

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[12] Warwick Public Schools, 2022, https://www.warwickschools.org.

No impacts or risks to children's environmental health or safety are anticipated with the project. The project would not result in potential significant impacts to air quality or water quality, significantly change the Airport's existing or future noise levels, increase capacity, require the relocation of residences, nor change surface traffic. It would not create or make more readily available products or substances that could potentially harm children via contact or ingestion through air, food, drinking water, recreational waters, or soil. Therefore, no disproportionate impacts to health and/or safety risks to children are anticipated.

Mitigation Measures

As there are no significant impacts to socioeconomics, EJ, or children's environmental health and safety risks under NEPA, mitigation measures are not necessary. However, RIAC will provide opportunities for meaningful public involvement, including by minority and low-income populations, in accordance with NEPA requirements. This includes providing the opportunity for the public (and agencies) to participate in review of the EA and provide comments regarding project decision-making and voice concerns regarding potential effects on their environment and/or health. In addition to ensuring full and fair participation by all potentially affected communities in the public engagement process, RIAC will ensure the identified minority and low-income populations are targeted for information sharing concerning the project and its potential human health and environmental impacts, as well as for input solicitation.

APPENDIX J

Traffic Impact Study

APPENDIX J

AECOM

South Cargo Facility at Rhode Island T.F. Green International Airport

Traffic Impact Study

Prepared for:
Rhode Island Airport Corporation
2000 Post Road
Warwick, RI 02886

January, 2023

Delivering a better world

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Introduction

AECOM has prepared this Traffic Impact Study to determine the potential traffic related impacts of the proposed air cargo facility relocation within T.F. Green International Airport in Warwick, Rhode Island. The air cargo facility relocation project proposes the relocation of the existing air cargo facility along Airport Rd to T.F. Green Airport Long Term Express Parking Lot E. This relocation will improve shipping operations by removing the requirement of shipping trucks to pass through a security gate in order to enter the air side of the airport facility. It will also increase the size of the facility which will improve shipping operations as well as meet existing latent shipping demand. A locus map of the project area and study intersections is shown in Figure 1.

The primary purpose of this report was to quantify impacts to nearby intersections of the proposed facility relocation. A Synchro traffic model was developed to do a comparison between Existing, No-Build, Build Preferred, and Build Mitigated as needed.

Figure 1 – Locus Map with Study Intersections Shown

Study Area

The study area includes significant intersections located along the route between the existing cargo facility and the proposed cargo facility. The study intersections are:

- Post Rd (Route 1) and Airport Rd (Intersection A)
- Post Rd (Route 1) at Coronado Rd (Intersection B)
- Post Rd (Route 1) and TF Green Connector Entrance Ramp (Intersection C)
- Post Rd (Route 1) and TF Green Connector Exit Ramp (Intersection D)
- Post Rd (Route 1) and Aviation Ave (Intersection E)

- Post Rd (Route 1) and Baywood St (Intersection F)
- TF Green Connector Road and Evans Ave (Intersection G)

Methodology

Two future analysis years were chosen for this project. An opening analysis year of 2026 as well as an analysis year five years after opening of 2031. Multiple scenarios were investigated to do a comparative analysis of the results, including:

- **Existing Conditions** (Year 2022)
- **No-Build Conditions** (Year 2026 and Year 2031) – Assumes no geometric changes are made to the existing roadway, but volumes are grown at 0.5% per year for four years for an opening year model and an additional five years for an opening year + 5 model.
- **Build Preferred Conditions** (Year 2026 and Year 2031) – Matches the No-Build condition, but project generated trips are added to the model. See below for description.
- **Build Mitigated Conditions** (Year 2026 and Year 2031) - Matches the Build Preferred condition, but geometric modifications are made at Post Rd and Aviation Ave intersection to allow vehicles to exit to Post Rd without circulating through the airport terminal traffic.

Build Preferred Condition

The Build Preferred Condition requires no geometric modifications to the roadway network to access the proposed site. Entering vehicles will be able to access the proposed air cargo facility via TF Green Connector and Evans Ave (if coming from I-95) or Post Road and Aviation Ave if coming from Route 1. Exiting vehicles will be able to leave the site via the TF Green Connector (if going to I-95) or via Post Rd and Coronado Rd (if going to Route 1).

Build Mitigated Condition

The Build Mitigated Condition includes modifying the geometry at Post Rd and Aviation Ave by adding a westbound exit. This modification allows vehicles exiting the proposed air cargo facility a less circuitous route to get to Route 1.

To understand traffic impacts at a signalized intersection, a deterministic traffic model is developed following methodologies described in the Highway Capacity Manual. Synchro is one such deterministic software that takes collected traffic data and calculates an expected Level of Service (LOS) for an intersection, which is a qualitative measurement of traffic conditions. The LOS of an intersection is designated on a scale of A to F, with A representing the best operating conditions and F the worst. The LOS is determined using the calculated delay of the intersection. Table 1 below shows the LOS according to the calculated delay ranges for a signalized and unsignalized intersection.

Table 1 - LOS for Intersections

LOS	Signalized Intersection	Unsignalized Intersection
A	≤ 10 seconds	≤ 10 seconds
B	10 – 20 seconds	10 – 15 seconds
C	20 – 35 seconds	15 – 25 seconds
D	35 – 55 seconds	25 – 35 seconds
E	55 – 80 seconds	35 – 50 seconds
F	> 80 seconds	> 50 seconds

Source: Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis

Existing (2022) Condition

This section documents the condition of the roadways and intersections located in the study area.

Roadway Descriptions

Post Rd (Route 1) – Post Rd is classified as a principal arterial owned and maintained by the Rhode Island Department of Transportation (RIDOT). The arterial runs through the study area in a north/south direction and consists of four 12-foot travel lanes with a 2-foot shoulder on the east side of the road and 3-foot shoulder on the west side of the road. Several two-way-left-turn lanes are in the median to assist drivers trying to turn left into many businesses along the roadway, typically 10 feet wide. The posted speed limit is 35 miles per hour. Vehicle parking on both sides of Post Rd is prohibited with “NO PARKING ANY TIME” signage.

Airport Rd - Airport Rd is classified as a minor arterial and runs in the general east/west direction and is owned and maintained by RIDOT. The minor arterial has two 12-foot travel lanes in each direction, with 4-foot shoulders and 5-foot-wide sidewalks on both sides of the road. The posted speed limit is 35 miles per hour. The roadway is surrounded mainly by commercial and industrial properties.

Coronado Rd – Coronado Rd is classified as an urban collector owned and maintained by RIDOT. The road spans over the Northeast Corridor AMTRAK railroad tracks and connects Post Rd and Jefferson Blvd. The road consists of one 12-foot travel lane with 1-foot shoulders and 5-foot-wide sidewalks in both directions.

Airport Connector Ramps – The Airport Connector Ramps are owned and maintained by RIDOT. These ramps provide access to T.F. Green Airport Connector Rd westbound and eastbound. There is access to the ramps from both Post Rd northbound and southbound. These ramps are limited access roadway with no bicycle or pedestrian access. The road consists of two 12-floot travel lanes in each direction with varying shoulder widths ranging from 1 to 3 feet.

Donald Ave – Donald Ave is classified as local roadway under the City of Warwick jurisdiction. This roadway provides access to multiple businesses and their parking lots.

Aviation Ave – Aviation Ave is classified as a local roadway owned and maintained by RIDOT. This roadway provides ingress access only to T.F. Green Airport departures, arrivals, parking areas, and cargo areas.

Evans Ave – Evans Ave is classified as a local roadway owned and maintained by RIDOT. This roadway provides access to long term airport parking. Evans Ave includes a 5-foot-wide sidewalk on the southern side of the roadway starting at the long-term parking lot and continuing to the airport terminals. The roadway consists of one 12-foot travel lane in each direction with 1-foot shoulders.

Baywood St – Baywood St is classified as a local roadway under the City of Warwick jurisdiction and provides access to residential land uses. Baywood St is a two-way, two-lane roadway with a 4-foot-wide sidewalk on the northern side of the roadway for approximately 150 feet.

Intersection Descriptions

Post Rd at Airport Rd (Intersection A) – The intersection of Post Rd at Airport Rd forms a three-legged, signalized intersection. Post Rd forms the north/south legs while Airport Rd forms the east leg. Airport Rd at this intersection consists of five lanes with two left turn lanes and one right turn lane for westbound travel approaching the intersection and two receiving lanes for eastbound travel away from the intersection. The northbound approach consists of two through lanes and one exclusive right turn lane and has two southbound lanes departing the intersection. The southbound approach consists of two through lanes, and two dedicated left turn lanes. There are concrete sidewalks along both sides of all legs of the intersection. There are crosswalks painted across the Airport Rd leg and Post Rd leg south of the intersection.

Post Rd at Coronado Rd (Intersection B) – The intersection of Post Rd at Coronado Rd forms a four-legged, signalized intersection. Post Rd forms the north/south legs of the intersection and Coronado Rd forms the west/east legs of the intersection. The Post Rd northbound approach to the intersection consists of two through lanes and a dedicated left-turn lane. The southbound approach to the intersection consists of one through lane, and one shared through and right turn lane. Both northbound and southbound approaches on Post Rd have two receiving lanes for a total of a five-lane cross-section for the northbound approach and a four-lane cross-section for the southbound approach. Coronado Rd eastbound approach consists of one dedicated left, and one dedicated right turn lane with one receiving lane for a total of three lanes. Coronado Rd westbound approach is a one-way approach entering the intersection with three turning lanes; one dedicated left, one through lane and a channelized right lane controlled with a stop sign onto the Post Rd, without any receiving lanes. The channelized right lane on the east leg forms a traffic island for pedestrian refuge. There are 7’ wide concrete sidewalks along both sides of all legs of the intersection. There are crosswalks painted across the Post Rd at the south leg, and both legs of the Coronado Rd.

Post Rd at T.F. Green Airport Connector Rd Entrance Ramp (Intersection C) – The intersection of Post Rd and T.F. Green Connector Rd Entrance Ramp forms a three-legged signalized intersection. Post Rd forms the north/south legs of the intersection, and the Airport Connector Entrance Ramp forms the west leg of the intersection. The Post Rd northbound approach to the intersection consists of two through lanes, a dedicated left-turn lane, and two receiving lanes. The southbound approach to the intersection consists of two through lanes, two receiving lanes, and a channelized right lane that is controlled with a yield sign onto the Airport Connector. There are 7’ concrete sidewalks on both sides of Post Rd and a painted crosswalk across the on-ramp. There are no crosswalks across Post Rd at this intersection.

Post Rd at T.F. Green Airport Connector Rd Exit Ramp (Intersection D) – The intersection of Post Rd and T.F. Green Airport Connector Rd Exit Ramp forms a three-legged signalized intersection. Post Rd forms the north/ south legs of the intersection, and the Airport Connector Exit Ramp forms the west leg of the intersection. The Post Rd approaches to the intersection consists of two through lanes each for a 4-lane cross-section. The eastbound approach to the intersection, the Airport Connector Exit Ramp, consists of three lanes with two left turn lanes and one right turn lane and is signed with a “No Turn on Red”. There are 7’ wide concrete sidewalks on both sides of Post Rd and a painted crosswalk across the Exit Ramp. There are no crosswalks across Post Rd at this intersection.

Post Rd at Aviation Ave (Intersection E) – The intersection of Post Rd and Aviation Ave forms a four-legged signalized intersection. Post Rd forms the north/south legs of the intersection, Donald Ave forms the west leg of the intersection, and Aviation Ave forms the east leg of the intersection. Both approaches of Post Rd consist of one dedicated left turn, one exclusive through lane, and one shared through and right turn lane. The Donald Ave approach has one lane that shares all movements. Aviation Ave only has a single receiving lane. There are 7’ wide concrete sidewalks on both sides of Post Rd and Donald Ave. There are painted crosswalks across the west, east and south side of the intersection.

Post Rd at Baywood St (Intersection F) – The intersection of Post Rd and Baywood St forms an unsignalized intersection. Post Rd forms the north/south legs of the intersection and the Baywood St forms the east leg of the intersection. The Post Rd northbound approach consists of one through lane and a shared through and right-turn lane. The Post Rd southbound approach consists of one through lane, and one shared through and left turn lane. Both northbound and southbound approaches on Post Rd have two receiving lanes for a total of 4 lanes at each approach. Baywood St westbound consists of one shared left and right turn lane controlled with a stop sign and has one receiving lane. There are 5 to 6’ wide concrete sidewalks on both sides of all approaches. To the north of this intersection, there is a painted crosswalk for pedestrians with signalization.

T.F. Green Airport Connector Rd at Evans Ave (Intersection G) – The intersection of T.F. Green Airport Connector Rd and Evans Ave forms a four-legged signalized intersection. T.F. Green Airport Connector Rd forms the north/south legs of the intersection and Evans Ave forms the east/west legs of the intersection. T.F. Green Airport Connector Rd northbound approach consists of a single shared through and right turn lane. The Evans Ave westbound approach consists of a left turn lane and a right turn lane. The Evans Ave eastbound approach consists of a right turn lane, a thru lane, and left turn lane. The north leg of the intersection is one-way away from the intersection. There are no pedestrian accommodations at this intersection.

Traffic Data Collection

Data collection included both Turning Movement Counts (TMCs) and Automatic Traffic Recorder Counts (ATR). Figure 2 below shows a map of TMC and ATR count locations.

Turning Movement Counts

Tuesday August 23rd, 2022 4AM - 9AM and 4PM - 9PM with vehicle classification

- A Post Rd (Route 1) and Aviation Ave
- B Post Rd (Route 1) and TF Green Connector Exit Ramp
- C Post Rd (Route 1) and TF Green Connector Entrance Ramp
- D Post Rd (Route 1) and Coronado Rd
- E Post Rd (Route 1) and Airport Rd
- F Post Rd (Route 1) and Baywood St
- H Total Enter/Exit of four driveway access points

Wednesday, December 14th 2022 6AM - 8AM and 4PM - 6PM with vehicle classification

- G TF Green Connector Rd and Evans Ave

ATR Counts

Tuesday August 23rd to Wedensday August 24th 48-Hour with vehicle classification

- 1 Route 37 WB | W. of Route 1 SB Merge
- 2 Route 37 EB | E. of I-95 NB Merge
- 3 Airport Rd | E. of Senator St (bi-directional)
- 4 TF Green Connector WB | Between Route 1 NB Merge and Jefferson Blvd NB Merge
- 5 TF Green Connector EB | Between Exit 1A and Exit 1B

Figure 2 - TMC and ATR Data Collection Locations

Turning Movement Counts

Turning movement counts were collected from 4:00 - 9:00 a.m. and 4:00 - 9:00 p.m. on Tuesday August 23rd, 2022 for locations A-H shown in Figure 2. A second data collection was done between 6:00 – 8:00 a.m. and 4:00 – 6:00 p.m. at TF Green Airport Connector Rd and Evans Ave on Wednesday December 14th, 2022. The TMCs include vehicle, heavy vehicle, bicycle, and pedestrian counts for all study intersections. The morning and afternoon peak hours were determined by totaling all turning movement volumes for every study intersection for each hour of data collected. The total network traffic volumes by hour are shown in Figure 3. The figure indicates that the morning peak hour occurs between 7:30 – 8:30 a.m. and the afternoon peak hour occurs between 4:00 - 5:00 p.m. Turning movement count data may be found in Appendix A.

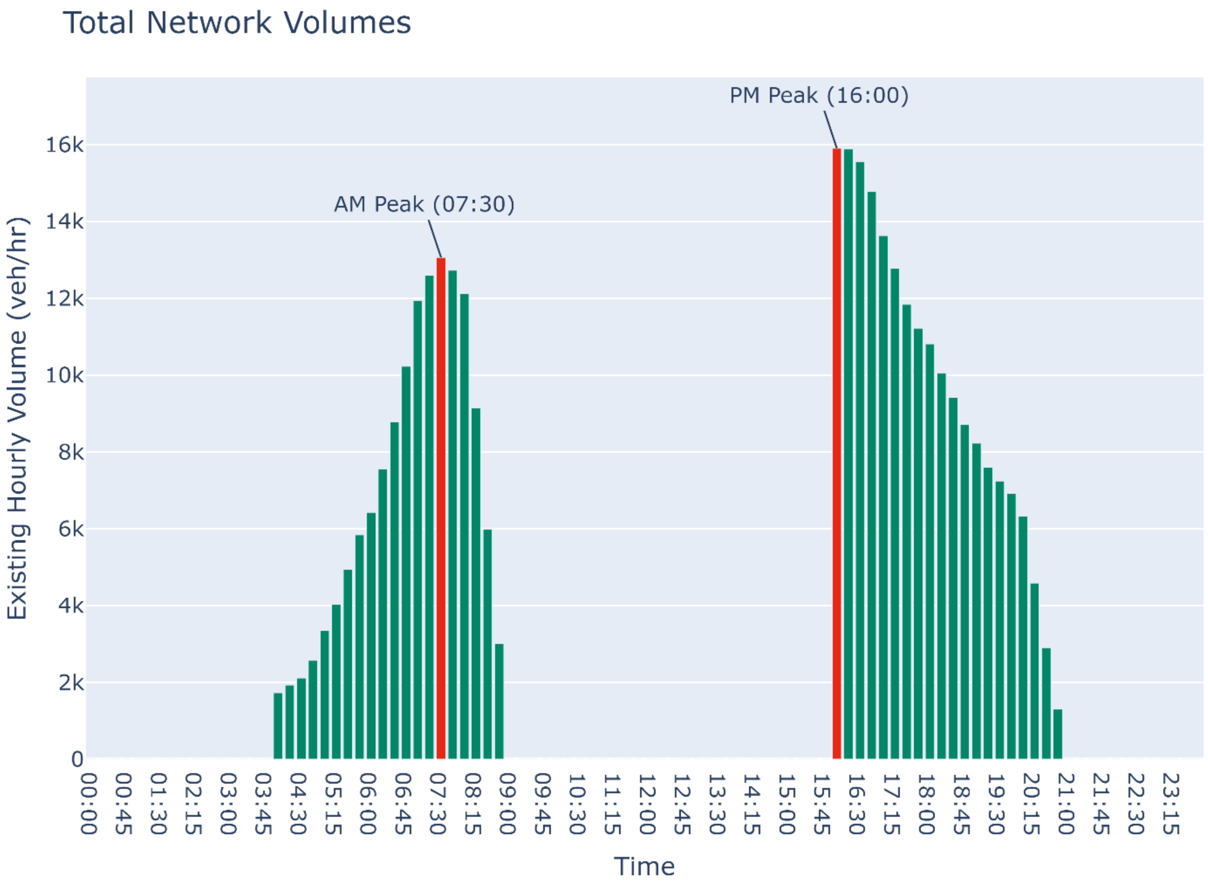

Figure 3 - Total Network Volumes by Hour

Traffic volumes at study intersections in the morning and afternoon peak hour are shown in Figure 4. Volume balancing adjustments were made at the following three intersections due to their close proximity with each other:

- Post Rd and Aviation Ave
- Post Rd and TF Green Connector Exit Ramp
- Post Rd and TF Green Connector Entrance Ramp

APPENDIX J

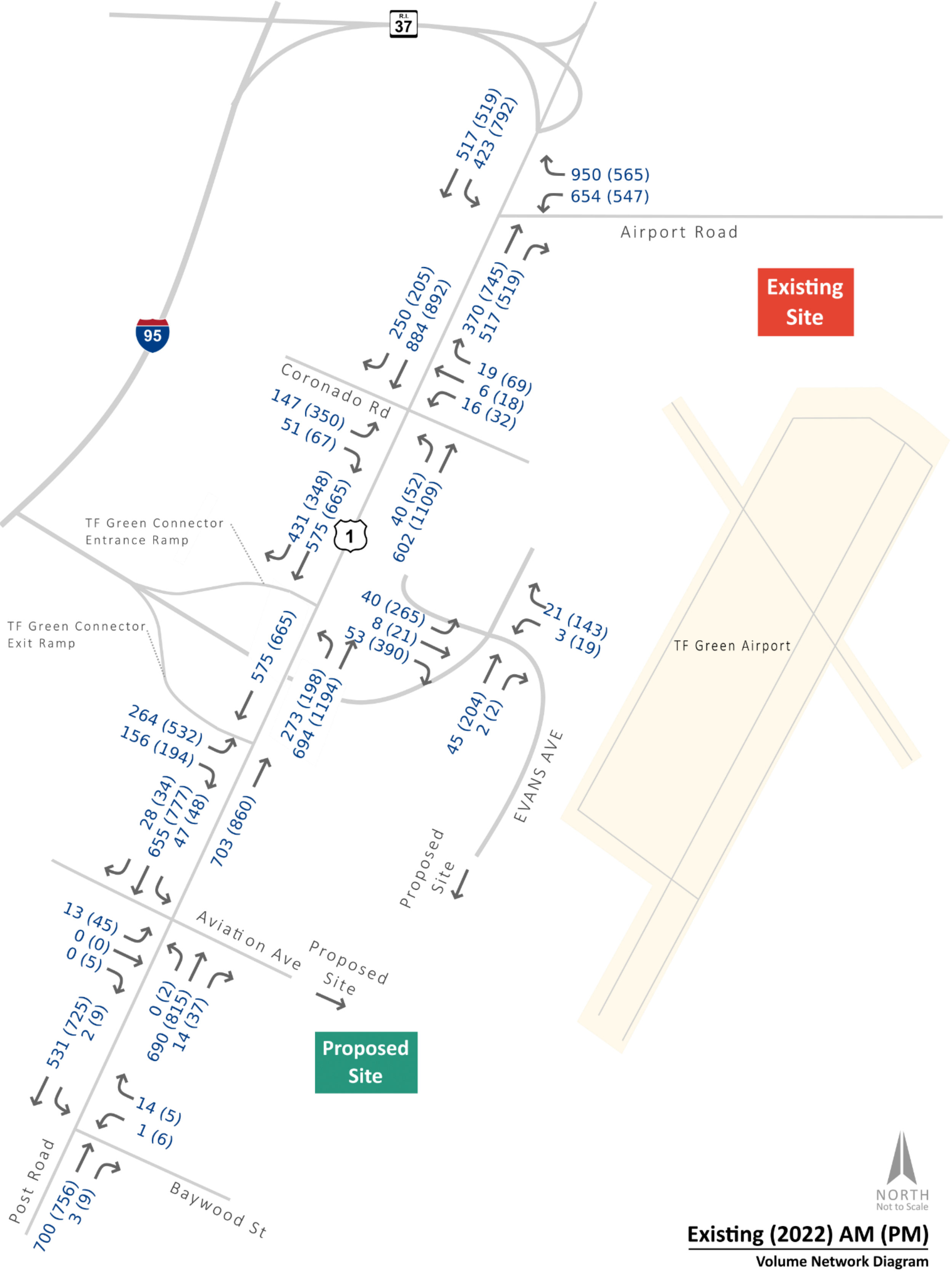

Figure 4 – Existing (2022) Volume Network Diagram

Automatic Traffic Recorder Counts

An ATR is a device that continuously records the number and class of vehicle on a roadway for a given time period. ATR counts were collected at five different locations for a 48-hour period from Tuesday August 23rd, 2022, to Wednesday August 24th, 2022. ATR data is summarized below in Table 2. All collected ATR data may be found in Appendix A.

Table 2 - Summary of ATR Traffic Volumes

No.	Location	Daily Traffic	Heavy Vehicle %	K Factor
1	Route 37 WB West of Route 1 SB Merge	23,258	4.3%	0.085
2	Route 37 EB East of I-95 NB Merge	21,900	3.9%	0.094
3	Airport Rd East of Senator St (bi-directional)			
	Eastbound	18,011	5.4%	0.095
	Westbound	18,494	5.9%	0.087
	Total	18,253	5.7%	0.080
4	TF Green Connector WB between Route 1 NB Merge and Jefferson Blvd NB Merge	3,862	0.57%	0.085
5	TF Green Connector EB between Exit 1A and Exit 1B	4,036	3.6%	0.086

ATR data for each location was also plotted by time of day. The following figures (Figure 5 through Figure 10) show the hourly traffic volume as well as the heavy vehicle percentage for each hour.

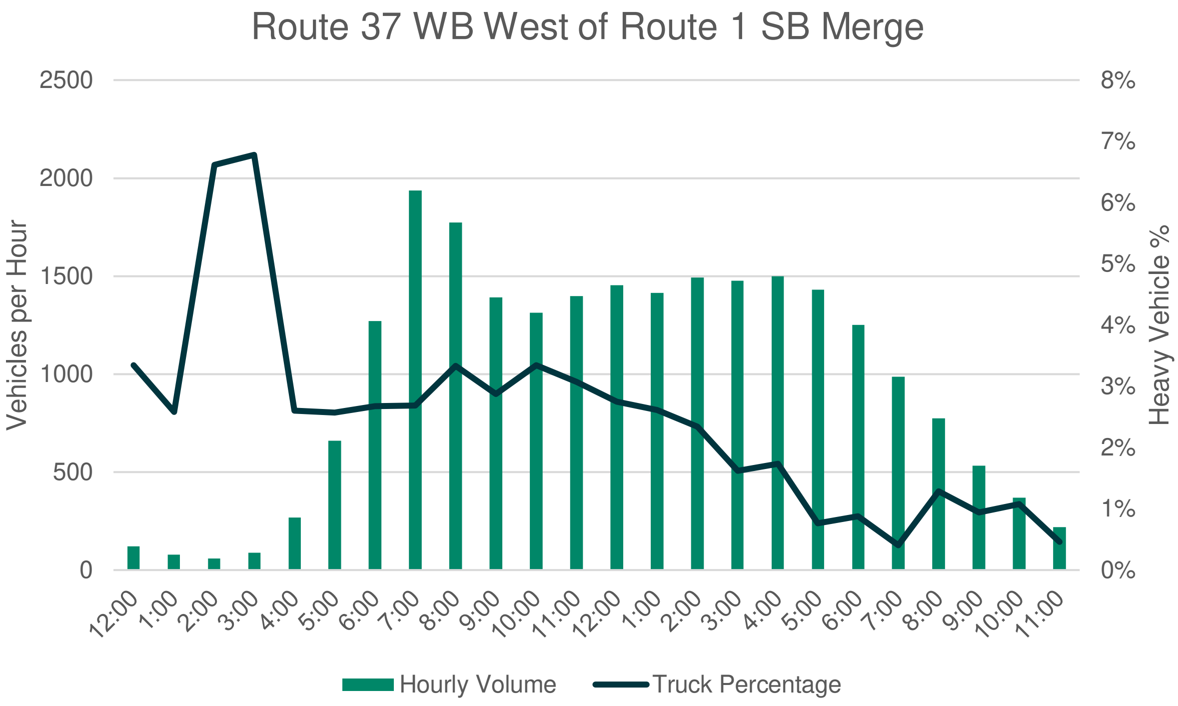

Figure 5 - Route 37 West of Route 1 SB Merge ATR Volumes

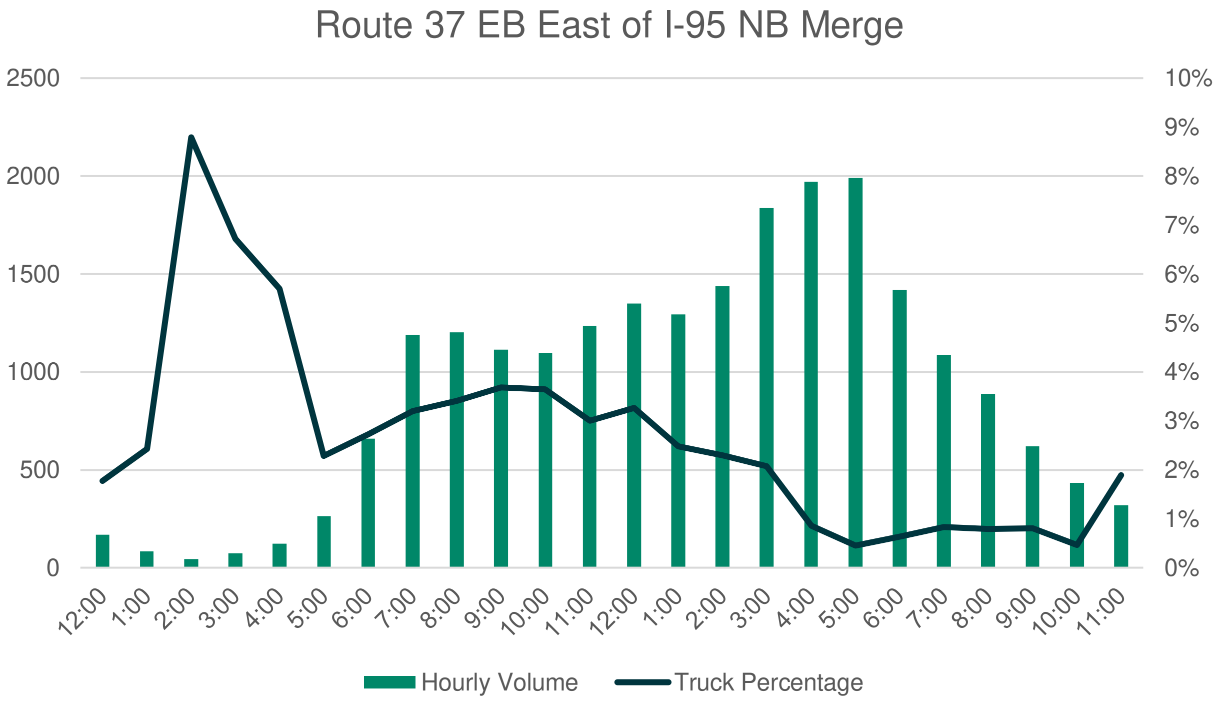

Figure 6 - Route 37 EB East of I-95 NB Merge ATR Volumes

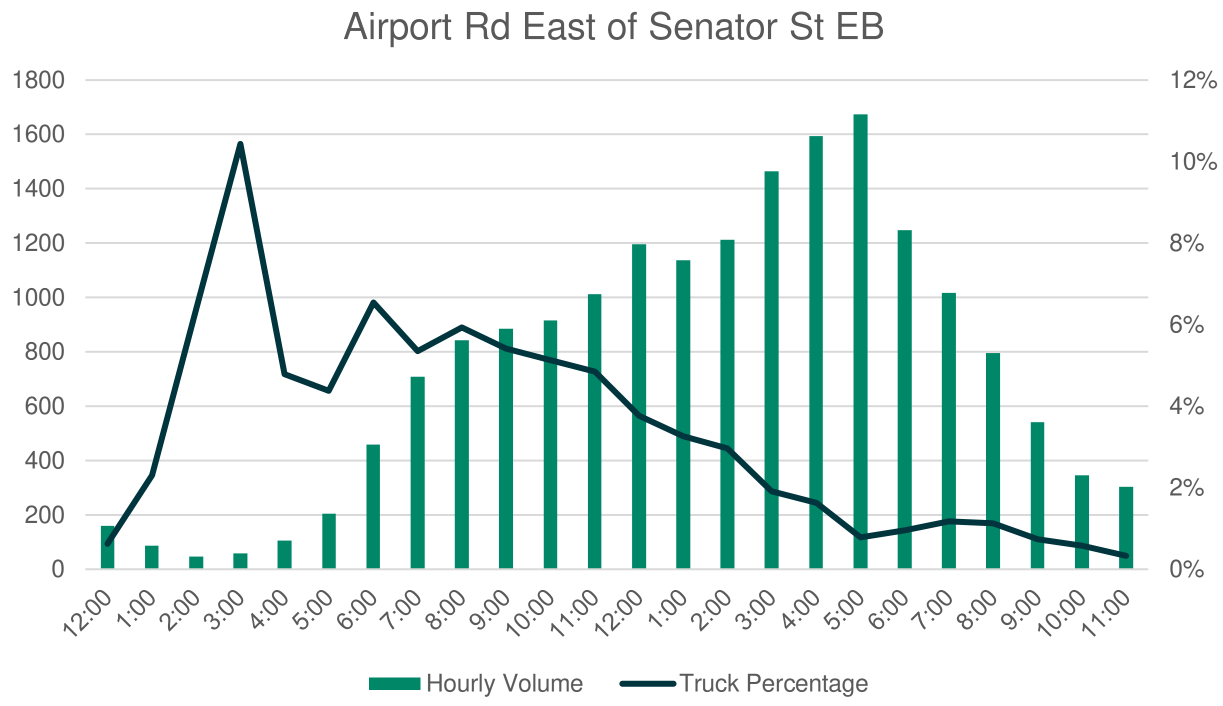

Figure 7 - Airport Rd East of Senator St EB ATR Volumes

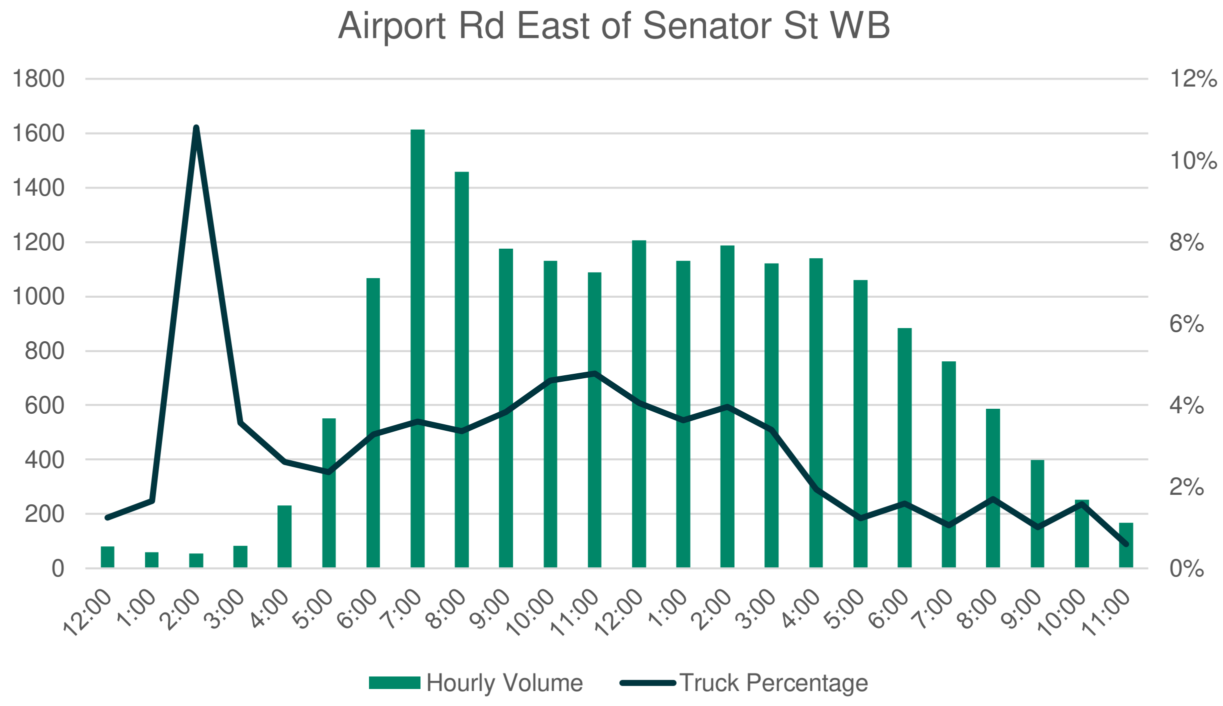

Figure 8 - Airport Rd East of Senator St WB ATR Volumes

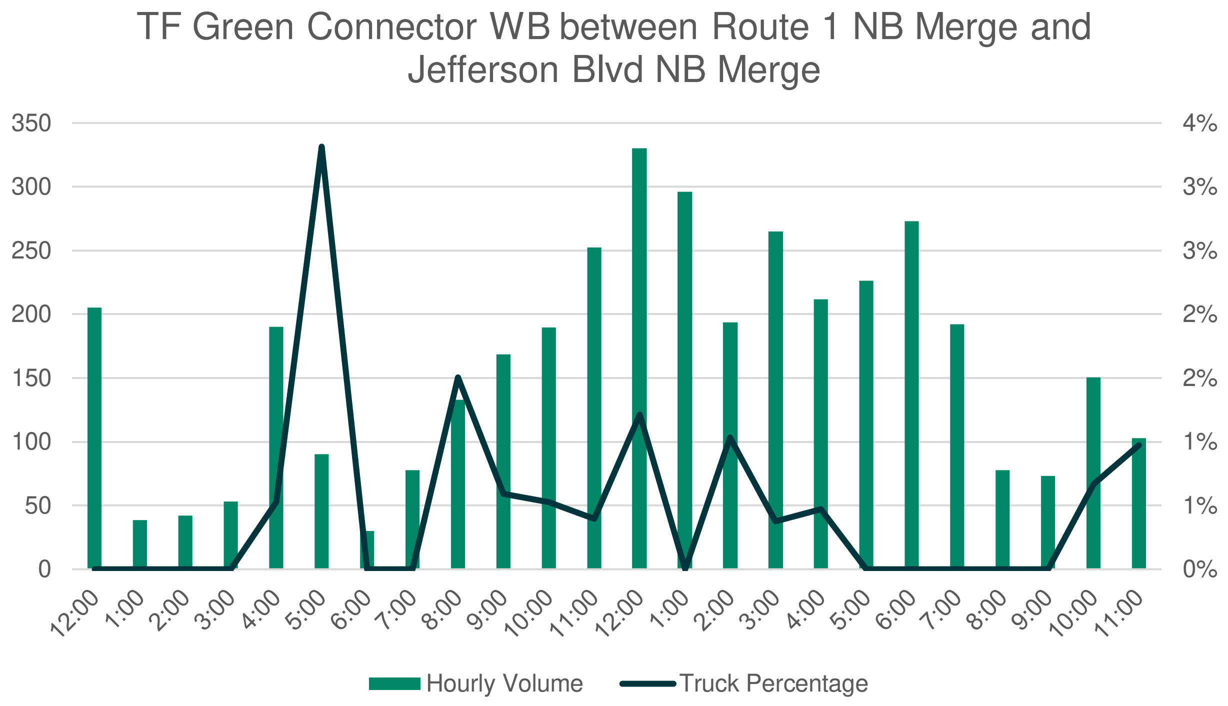

Figure 9 - TF Green Connector WB between Route 1 NB Merge and Jefferson Blvd NB Merge Volumes

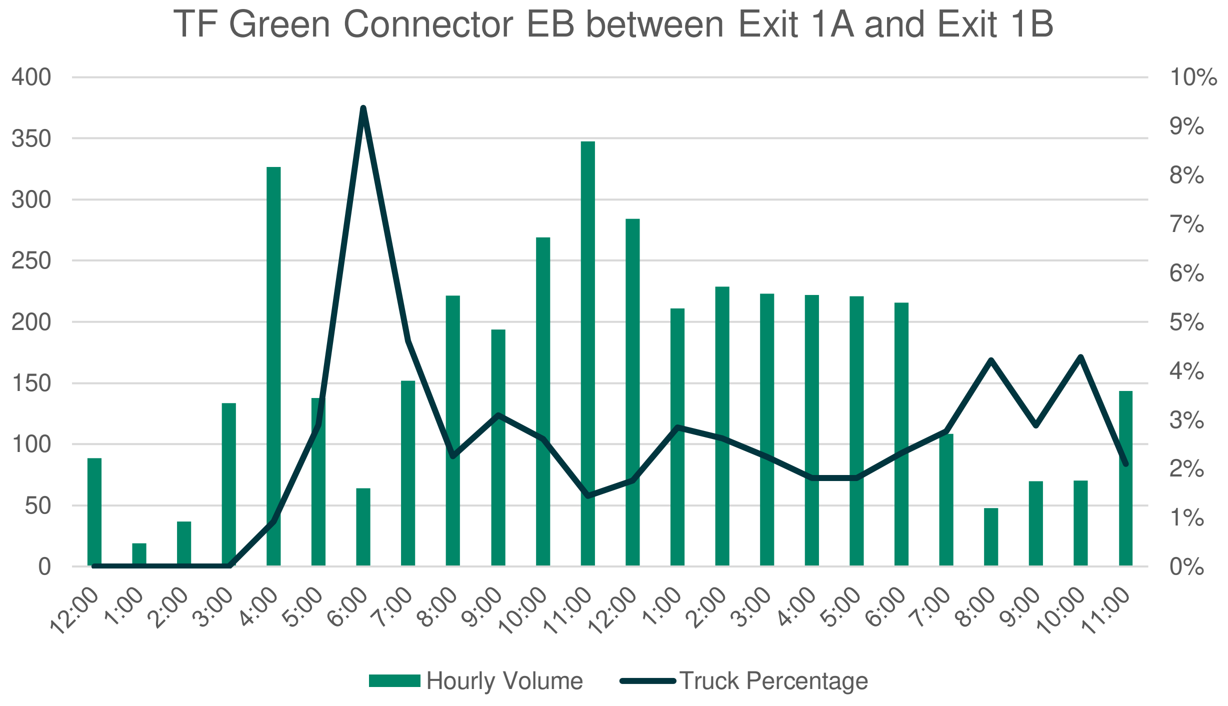

Figure 10 - TF Green Connector EB between Exit 1A and Exit 1B Volumes

The ATR count data indicates that there are high percentages of heavy vehicles in the morning peak hour. This is expected due to heavy vehicles needing to maintain operation schedules and deliver goods on-time.

Existing (2022) Condition Operations Analysis

Peak hour turning movements were used in development of a Synchro traffic model. Peak-hour factors for each approach were calculated using the turning movement count data. The percentage of heavy vehicles was entered for each movement that had available data; a 2% heavy vehicle percentage was assumed for movements that did not have heavy vehicle data. LOS was calculated using Synchro which is based upon HCM standard methodologies. Refer to Table 1 for LOS ranges based upon average stopped delay per vehicle. Table 3 and Table 4 summarize the results of the capacity analysis. The full Synchro results are provided in Appendix B.

Table 3 - Existing (2022) Morning Capacity Analysis Results

Intersection	Existing (2022) Morning Peak Hour (7:30 AM – 8:30 AM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**28.3**	**0.95**		
Post Rd NB Thru | Thru	C	31.2	0.53	98	144
Post Rd NB Right	B	10.4	0.58	119	216
Post Rd SB Left | Left	C	26.5	0.44	96	161
Post Rd SB Thru | Thru	C	34.9	0.69	138	195
Airport Rd WB Left | Left	C	33.1	0.73	173	#300
Airport Rd WB Right	C	30.9	0.95	374	#880
Coronado Rd/Airport Connector Rd at Post Rd	**B**	**19.8**	**0.81**		
Post Rd NB Left	D	42.3	0.18	21	65
Post Rd NB Thru | Thru	A	8.0	0.31	75	150
Coronado Rd EB Left	C	31.8	0.47	70	138
Coronado Rd EB Right	A	5.2	0.09	0	22
Post Rd SB Thru | Thru/Right	C	24.0	0.81	278	465
Airport Connector Rd WB Left	D	46.7	0.16	10	33
Airport Connector Rd WB Thru	D	44.8	0.06	4	19
Airport Connector Rd WB Right	A	1.2	0.12	0	0
Airport Connector Entrance at Post Rd	**B**	**10.0**	**0.66**		
Post Rd NB Left	B	15.3	0.32	45	187
Post Rd NB Thru | Thru	A	0.1	0.22	0	0
Post Rd SB Thru | Thru	C	25.4	0.59	156	195
Post Rd SB Right	A	0.7	0.35	0	0
Airport Connector Exit at Post Rd	**A**	**9.9**	**0.66**		
Post Rd NB Thru | Thru	A	3.3	0.37	83	20
Airport Connector Exit EB Left | Left	C	31.4	0.54	70	93
Airport Connector Exit EB Right	B	10.5	0.25	41	72
Post Rd SB Thru | Thru	A	7.5	0.66	12	13
Donald Ave/Airport Connector at Post Rd	**A**	**7.2**	**0.36**		
Post Rd NB Left	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	8.6	0.33	44	204
Donald Ave EB Left/Thru/Right	C	30.3	0.14	13	15
Post Rd SB Left	C	35.0	0.36	31	m51
Post Rd SB Thru | Thru/Right	A	3.2	0.29	0	87
Baywood St at Post Rd	**A**	**0.2**	**0.044**		
Post Rd SB Thru/Left | Thru	A	9.3	0.003	NA	0.0
Baywood St WB Left/Right	B	11.9	0.044	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**4.5**	**0.15**		
TF Green Connector NB Thru	A	4.7	0.06	6	12
Evans Ave EB Left	A	3.9	0.11	0	8
Evans Ave EB Thru	A	8.9	0.03	2	6
Evans Ave EB Right	A	3.9	0.15	0	9
Evans Ave WB Left	A	8.7	0.01	1	3
Evans Ave WB Right	A	4.6	0.07	0	7

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.

[XXXX] - Movement is only available in the build condition.

~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

APPENDIX J

Table 4 - Existing (2022) Afternoon Capacity Analysis Results

Intersection	Existing (2022)				
	Afternoon Peak Hour (4:00 PM – 5:00 PM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**31.0**	**0.91**		
Post Rd NB Thru | Thru	D	36.8	0.80	218	295
Post Rd NB Right	B	13.7	0.62	160	263
Post Rd SB Left | Left	D	47.2	0.91	243	#361
Post Rd SB Thru | Thru	C	29.8	0.56	141	197
Airport Rd WB Left | Left	C	33.7	0.66	167	232
Airport Rd WB Right	B	16.2	0.67	222	352
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**25.7**	**0.84**		
Post Rd NB Left	D	49.6	0.31	37	81
Post Rd NB Thru | Thru	B	15.1	0.62	270	341
Coronado Rd EB Left	D	46.1	0.83	219	#357
Coronado Rd EB Right	A	9.8	0.12	13	39
Post Rd SB Thru | Thru/Right	C	29.6	0.84	355	450
Airport Connector Rd WB Left	D	52.0	0.28	23	56
Airport Connector Rd WB Thru	D	48.1	0.14	12	37
Airport Connector Rd WB Right	B	11.1	0.37	0	29
Airport Connector Entrance at Post Rd	**A**	**8.9**	**0.77**		
Post Rd NB Left	B	11.8	0.23	41	108
Post Rd NB Thru | Thru	A	0.3	0.39	0	0
Post Rd SB Thru | Thru	C	28.7	0.69	168	229
Post Rd SB Right	A	0.4	0.25	0	0
Airport Connector Exit at Post Rd	**B**	**12.8**	**0.77**		
Post Rd NB Thru | Thru	A	5.4	0.53	19	23
Airport Connector Exit EB Left | Left	C	29.6	0.68	133	185
Airport Connector Exit EB Right	B	10.2	0.27	52	90
Post Rd SB Thru | Thru	A	9.5	0.77	13	36
Donald Ave/Airport Connector at Post Rd	**A**	**8.4**	**0.42**		
Post Rd NB Left	C	34.5	0.02	1	8
Post Rd NB Thru | Thru/Right	B	10.4	0.42	104	248
Donald Ave EB Left/Thru/Right	A	1.1	0.17	0	0
Post Rd SB Left	C	34.5	0.33	26	m42
Post Rd SB Thru | Thru/Right	A	5.2	0.32	0	113
Baywood St at Post Rd	**A**	**0.3**	**0.073**		
Post Rd SB Thru/Left | Thru	A	9.7	0.014	NA	0.0
Baywood St WB Left/Right	C	22.8	0.073	NA	5.0
Evans Ave at TF Green Connector Rd	**A**	**5.4**	**0.66**		
TF Green Connector NB Thru	A	7.0	0.24	22	65
Evans Ave EB Left	A	4.0	0.49	0	12
Evans Ave EB Thru	B	10.6	0.08	5	13
Evans Ave EB Right	A	5.6	0.66	0	9
Evans Ave WB Left	B	10.5	0.07	4	12
Evans Ave WB Right	A	4.0	0.34	0	16

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.
[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

Opening Year No-Build (2026) Condition

The existing traffic volumes were collected in Year 2022. The opening year of the new air cargo facility is currently scheduled for Year 2026. The existing Year 2022 traffic volumes were developed using a general background growth rate of 0.5% per year compounded annually for four years to obtain the No-Build (2026) traffic volume conditions. This 0.5% growth rate over a four-year period was intended to include and account for planned project developments not associated with this proposed project. No physical roadway improvements or signal timing revisions were implemented in this No-Build (2026) analysis scenario.

Opening Year Build Preferred (2026) Condition

Project Description

The project proposes to construct a 140,000 square-foot air cargo facility in an area of the airport that was originally used for long-term parking. The project currently proposes to access the facility using TF Green Connector and Evans Ave (if coming from I-95) or Post Rd and Aviation Ave (if coming from Post Rd). Vehicles exiting the new facility will use TF Green Connector Rd and Evans Ave to access I-95 or Post Rd at Coronado Rd via the airport terminal roadways (if going to Post Rd). Vehicle routes to the proposed site are shown in Figure 11 and Figure 12. The proposed facility is scheduled to open in Year 2026. The existing air cargo facility will no longer be operational upon opening of the proposed facility.

Trip Generation

The new air cargo facility will meet the latent demand of existing shipping operations as well as increase shipping capacity for the future. This is expected to increase employee vehicle trips as well as increase heavy vehicle traffic. The ITE Trip Generation Manual does not have an air cargo facility land use type, and so projected employee trips were calculated based upon square footage of the existing and proposed building. Table 5 and Table 6 show the projected driveway totals based on building square footage and anticipated employee trips only. All trip generation calculations may be found in Appendix C.

Table 5 - Employee Trip Generation (Morning Peak Hour)

Driveway Movement	Morning Peak Hour (veh)	Existing Building (SF)	Vehicles per 1,000 SF	Future Building (SF)	Future Employee Vehicles
Exiting	4	50,000	.08	140,000	11
Entering	8	50,000	.16	140,000	22
Total	12				33

Table 6 - Employee Trip Generation (Afternoon Peak Hour)

Driveway Movement	Afternoon Peak Hour (veh)	Existing Building (SF)	Vehicles per 1,000 SF	Future Building (SF)	Future Employee Vehicles
Exiting	4	50,000	.08	140,000	11
Entering	7	50,000	.14	140,000	20
Total	11				31

Truck traffic is expected to grow based on increased shipping capacity as well as meeting latent shipping demands. Based on projected shipping operation needs and discussions with relevant stakeholders, approximately 77 tractor-trailers are estimated to use the new facility per day. To keep deliveries and downstream operations on schedule, shipping operations typically take place outside of peak hours to avoid significant delays during hours of heavy traffic.

Below in Table 7 are the calculated trucks during the morning and afternoon peak hours based upon Airport Rd ATR data.

Table 7 - Driveway Truck Traffic (Morning/Afternoon Peak Hour)

Driveway Movement	Future Daily Truck Driveway Volumes	Truck Traffic at Morning Peak Hour (%)	Morning Peak Hour Truck Volume	Truck Traffic at Afternoon Peak Hour (%)	Afternoon Peak Hour Truck Volume
Exiting	39	7.6%	3	4.1%	2
Entering	38	11.2%	4	2.2%	1
Total	77		7		3

Trip Distribution

Driveway traffic volumes entering and exiting the air cargo facility were subtracted from the traffic network based on existing traffic patterns. Existing traffic patterns for employees were then maintained and applied to the new air cargo facility driveway volumes. Future truck patterns are expected to change based upon regional demand and planned shipping network improvements. Future truck percentages were estimated in collaboration with various stakeholders. Figure 11 and Figure 12 below show the existing and future vehicle routing of employees and trucks to and from the air cargo facility.

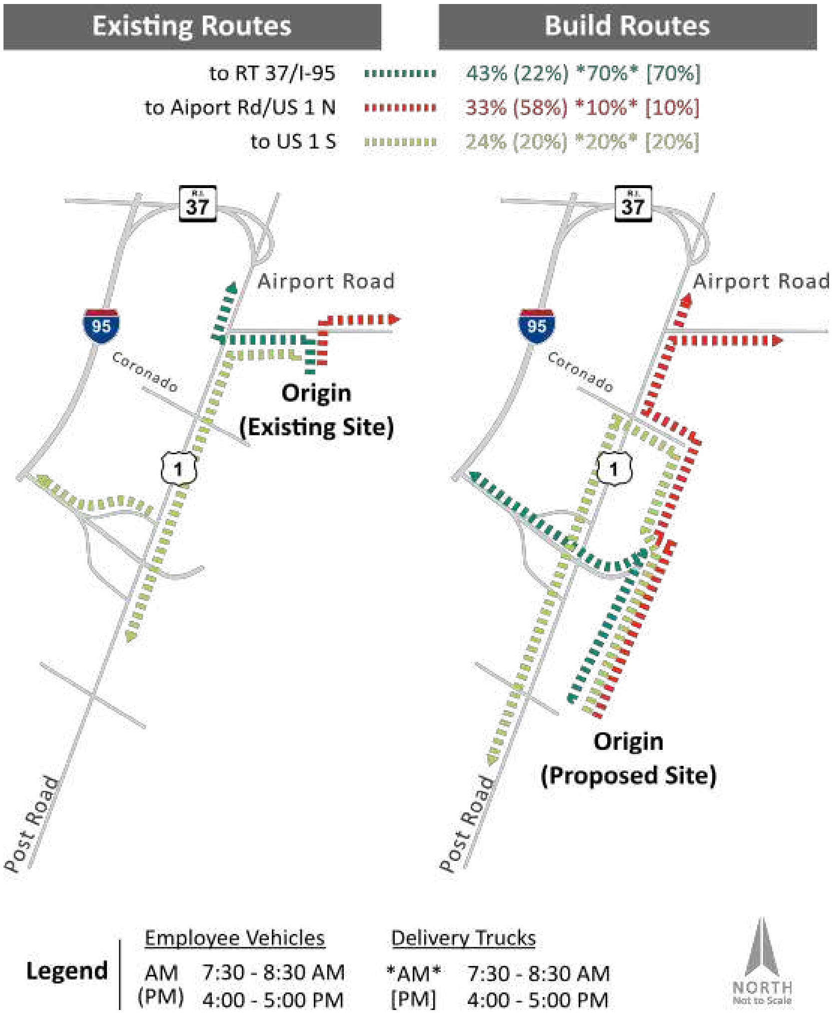

Figure 11 - Driveway Origin Routes

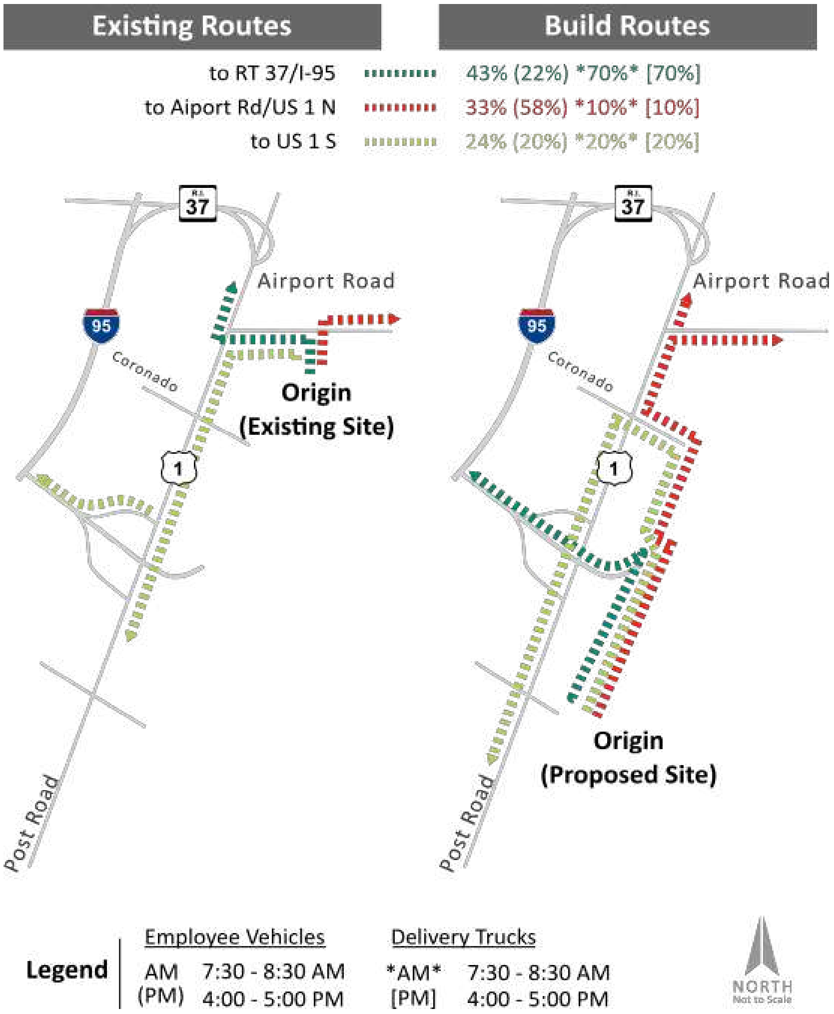

Figure 12 - Driveway Destination Routes

Traffic volume diagrams which show the applied vehicle credits and trip generation to applicable movements are shown in Figure 13 to Figure 18. Heavy vehicle percentages for each intersection were also revised as part of the trip distribution. Trip distribution calculations may be found in Appendix D.

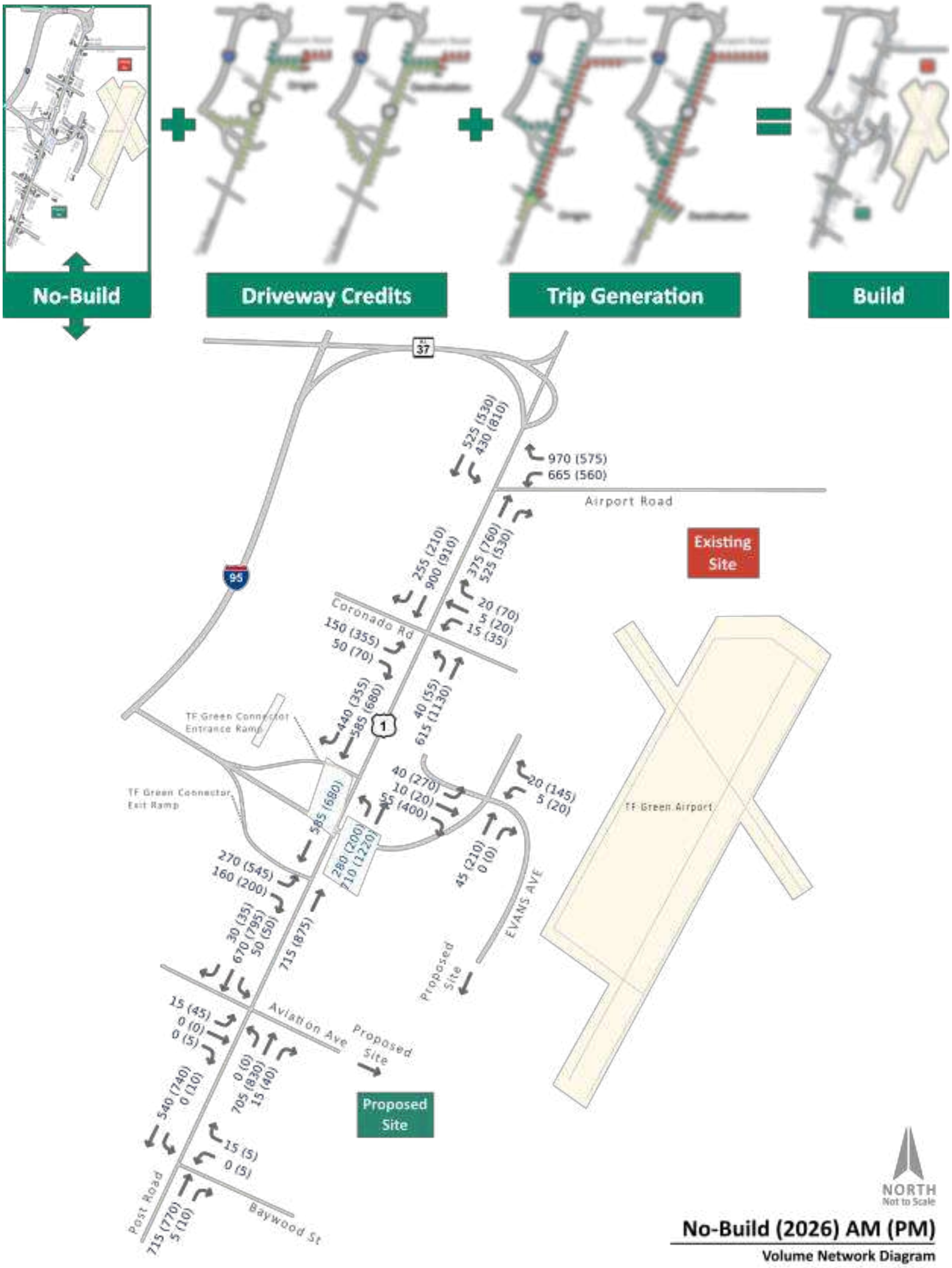

Figure 13 - No-Build (2026) Volume Network Diagram

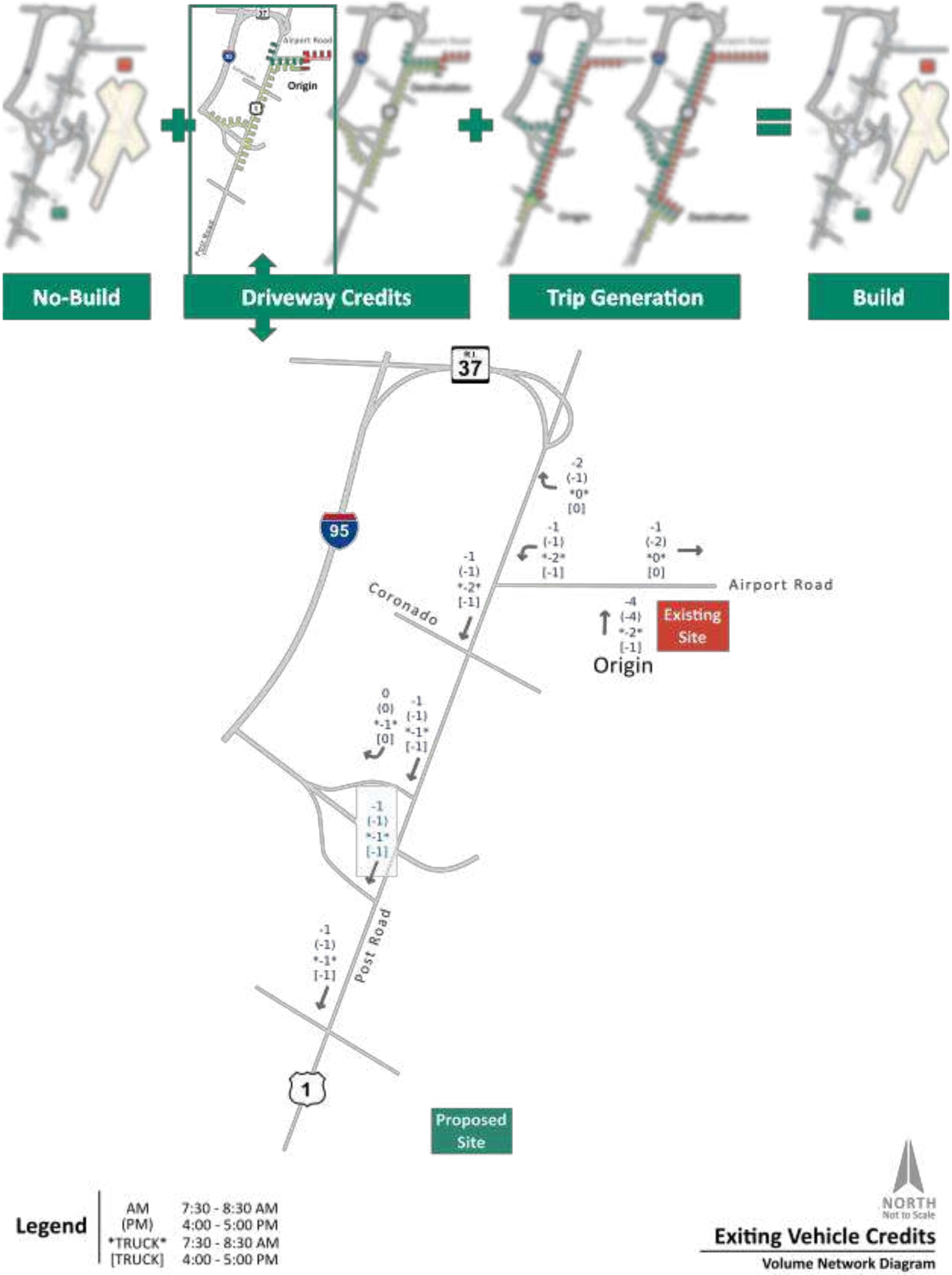

Figure 14 - Applied Existing Exiting Driveway Credits

Figure 15 - Applied Existing Entering Driveway Credits

Figure 16 - Future Driveway Exiting Volume Distribution

Figure 17 - Future Entering Volume Driveway Distribution

APPENDIX J

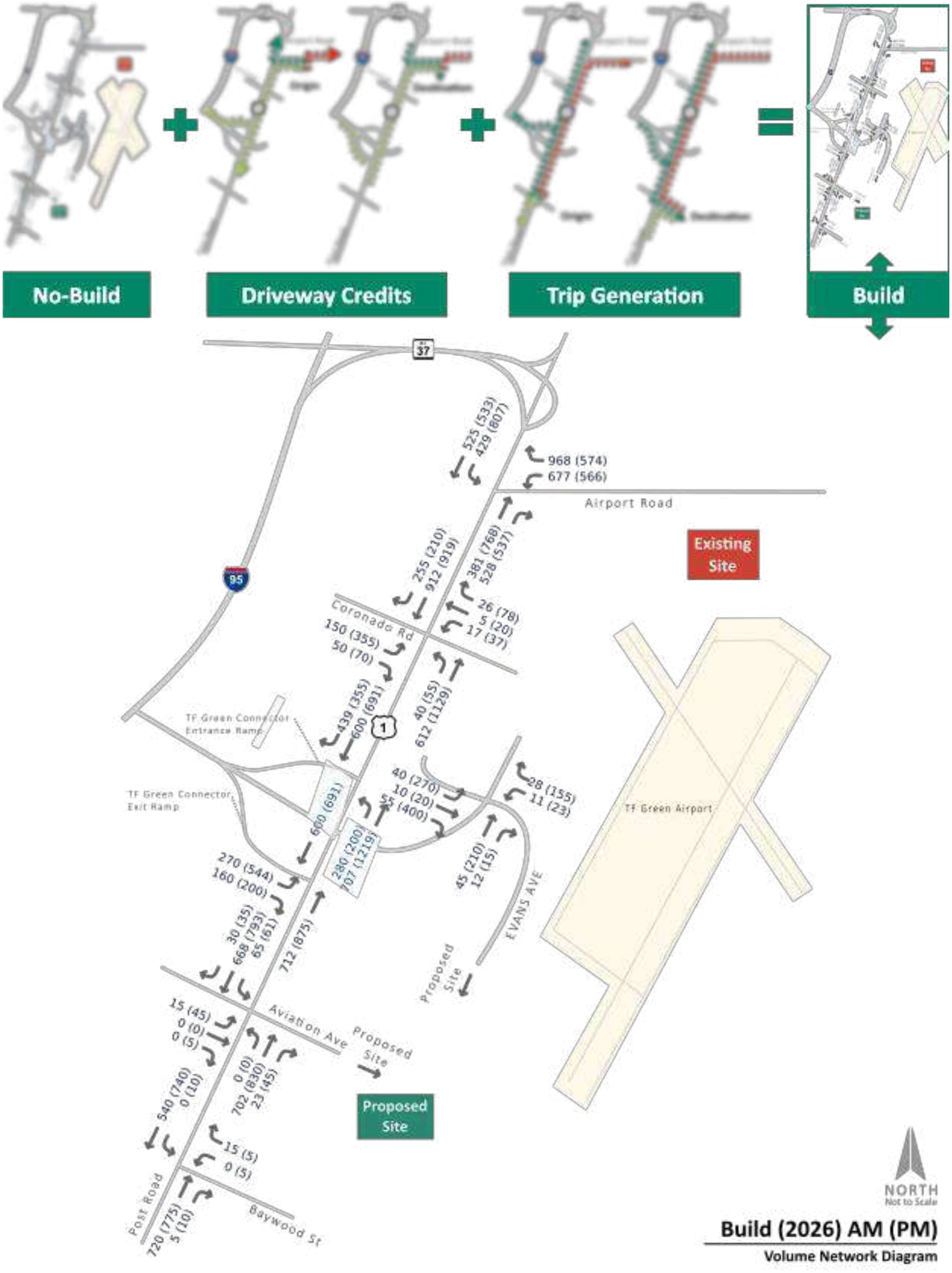

Figure 18 - Build (2026) Volume Network Diagram

Opening Year (2026) Capacity Results

Traffic analysis of the No-Build (2026) and Build Preferred (2026) conditions were analyzed using the same methodology described in the Existing (2022) conditions section. Results comparing the No-Build to the Build Preferred are summarized in Table 8 and Table 9. The full Synchro results are provided in Appendix E.

Table 8 - Opening Year No-Build (2026) vs. Opening Year Build Preferred (2026) AM Capacity Analysis Results

Intersection	Opening Year No-Build (2026)					Opening Year Build Preferred (2026)				
	Morning Peak Hour (7:30 AM – 8:30 AM)					Morning Peak Hour (7:30 AM – 8:30 AM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**29.5**	**0.96**			**C**	**29.7**	**0.96**		
Post Rd NB Thru | Thru	C	30.9	0.52	100	146	C	31.1	0.53	101	148
Post Rd NB Right	B	11.0	0.59	128	230	B	11.0	0.59	129	231
Post Rd SB Left | Left	C	27.1	0.47	103	170	C	27.1	0.46	103	170
Post Rd SB Thru | Thru	D	35.3	0.71	147	206	D	35.3	0.71	147	206
Airport Rd WB Left | Left	C	33.7	0.74	176	#303	C	34.2	0.75	180	#312
Airport Rd WB Right	C	34.2	0.96	401	#898	C	34.2	0.96	402	#897
Coronado Rd/Airport Connector Rd at Post Rd	**B**	**19.7**	**0.82**			**B**	**19.9**	**0.82**		
Post Rd NB Left	D	42.2	0.18	22	64	D	42.6	0.18	22	64
Post Rd NB Thru | Thru	A	8.0	0.31	78	151	A	8.0	0.31	77	152
Coronado Rd EB Left	C	32.2	0.48	72	140	C	32.3	0.47	73	140
Coronado Rd EB Right	A	5.2	0.09	0	22	A	5.2	0.09	0	22
Post Rd SB Thru | Thru/Right	C	24.0	0.82	283	466	C	24.3	0.82	288	477
Airport Connector Rd WB Left	D	46.8	0.13	8	33	D	47.2	0.15	10	35
Airport Connector Rd WB Thru	D	44.8	0.04	3	15	D	45.0	0.04	3	15
Airport Connector Rd WB Right	A	1.1	0.11	0	0	A	1.3	0.13	0	0
Airport Connector Entrance at Post Rd	**A**	**9.6**	**0.61**			**A**	**9.8**	**0.62**		
Post Rd NB Left	B	15.9	0.34	50	210	B	15.7	0.33	50	209
Post Rd NB Thru | Thru	A	0.1	0.23	0	0	A	0.1	0.23	0	0
Post Rd SB Thru | Thru	C	24.9	0.55	142	197	C	25.1	0.56	146	203
Post Rd SB Right	A	0.6	0.33	0	0	A	0.6	0.33	0	0
Airport Connector Exit at Post Rd	**A**	**9.1**	**0.61**			**A**	**9.2**	**0.62**		
Post Rd NB Thru | Thru	A	3.1	0.38	82	16	A	2.9	0.38	82	16
Airport Connector Exit EB Left | Left	C	31.4	0.53	68	95	C	31.4	0.53	68	95
Airport Connector Exit EB Right	B	10.4	0.24	40	74	B	10.4	0.24	40	74
Post Rd SB Thru | Thru	A	6.0	0.61	10	11	A	6.4	0.62	10	16
Donald Ave/Airport Connector at Post Rd	**A**	**7.0**	**0.34**			**A**	**7.5**	**0.4**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	8.4	0.34	44	205	A	8.9	0.35	47	213
Donald Ave EB Left/Thru/Right	C	29.1	0.08	8	21	C	29.1	0.08	8	21
Post Rd SB Left	C	34.4	0.34	28	m52	C	34.9	0.40	36	m66
Post Rd SB Thru | Thru/Right	A	3.1	0.25	0	94	A	3.1	0.25	0	92
Baywood St at Post Rd	**A**	**0.1**	**0.027**			**A**	**0.1**	**0.027**		
Post Rd SB Thru/Left | Thru	A	0	-	NA	0.0	A	0	-	NA	0.0
Baywood St WB Left/Right	B	11.1	0.027	NA	2.5	B	11.1	0.027	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**4.7**	**0.12**			**A**	**4.8**	**0.12**		
TF Green Connector NB Thru	A	4.8	0.04	4	13	A	4.3	0.06	4	14
Evans Ave EB Left	A	4.2	0.08	0	12	A	4.2	0.08	0	12
Evans Ave EB Thru	A	8.8	0.03	1	7	A	8.8	0.03	1	7
Evans Ave EB Right	A	4.0	0.12	0	14	A	4.0	0.12	0	14
Evans Ave WB Left	A	8.6	0.01	1	5	A	8.9	0.03	2	8
Evans Ave WB Right	A	4.0	0.06	0	7	A	4.7	0.08	0	10

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.
[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

Table 9 - Opening Year No-Build (2026) vs. Opening Year Build Preferred (2026) PM Capacity Analysis Results

Intersection	Opening Year No-Build (2026) Afternoon Peak Hour (4:00 PM – 5:00 PM)					Opening Year Build Preferred (2026) Afternoon Peak Hour (4:00 PM – 5:00 PM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**32.9**	**0.95**			**C**	**32.8**	**0.95**		
Post Rd NB Thru | Thru	D	37.7	0.82	233	314	D	37.7	0.82	236	317
Post Rd NB Right	B	14.6	0.65	176	289	B	14.9	0.66	180	295
Post Rd SB Left | Left	D	53.5	0.95	263	#387	D	53.1	0.95	262	#386
Post Rd SB Thru | Thru	C	29.9	0.56	148	207	C	30.0	0.57	149	208
Airport Rd WB Left | Left	C	34.0	0.65	164	234	C	33.9	0.65	167	237
Airport Rd WB Right	B	16.1	0.65	221	356	B	16.2	0.65	221	357
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**25.0**	**0.83**			**C**	**25.2**	**0.83**		
Post Rd NB Left	D	48.9	0.30	36	84	D	49.1	0.30	36	84
Post Rd NB Thru | Thru	B	14.7	0.60	255	342	B	14.7	0.60	256	341
Coronado Rd EB Left	D	43.2	0.81	204	#353	D	43.5	0.81	205	#353
Coronado Rd EB Right	A	9.4	0.11	12	40	A	9.5	0.11	12	40
Post Rd SB Thru | Thru/Right	C	29.2	0.83	342	452	C	29.4	0.83	347	457
Airport Connector Rd WB Left	D	51.5	0.29	23	59	D	52.2	0.31	25	62
Airport Connector Rd WB Thru	D	47.7	0.15	13	40	D	47.8	0.15	13	40
Airport Connector Rd WB Right	B	10.2	0.35	0	29	B	13.1	0.39	0	38
Airport Connector Entrance at Post Rd	**A**	**9.1**	**0.77**			**A**	**9.3**	**0.79**		
Post Rd NB Left	B	11.5	0.22	38	m108	B	11.3	0.22	38	m108
Post Rd NB Thru | Thru	A	0.3	0.38	0	0	A	0.3	0.38	0	0
Post Rd SB Thru | Thru	C	28.9	0.70	170	232	C	29.2	0.71	174	236
Post Rd SB Right	A	0.4	0.25	0	0	A	0.4	0.25	0	0
Airport Connector Exit at Post Rd	**B**	**12.9**	**0.77**			**B**	**13.1**	**0.79**		
Post Rd NB Thru | Thru	A	5.7	0.52	16	20	A	5.5	0.52	16	20
Airport Connector Exit EB Left | Left	C	29.4	0.67	131	186	C	29.4	0.67	131	185
Airport Connector Exit EB Right	B	10.2	0.27	52	91	B	10.2	0.27	52	91
Post Rd SB Thru | Thru	A	9.8	0.77	13	39	B	10.8	0.79	15	#46
Donald Ave/Airport Connector at Post Rd	**A**	**7.5**	**0.41**			**A**	**8.0**	**0.42**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	9.8	0.41	107	255	B	10.2	0.42	111	263
Donald Ave EB Left/Thru/Right	A	1.0	0.16	0	0	A	1.0	0.16	0	0
Post Rd SB Left	C	34.3	0.34	27	m44	C	34.8	0.39	34	m51
Post Rd SB Thru | Thru/Right	A	4.0	0.30	0	106	A	4.0	0.30	0	105
Baywood St at Post Rd	**A**	**0.2**	**0.044**			**A**	**0.2**	**0.045**		
Post Rd SB Thru/Left | Thru	A	9.7	0.014	NA	0.0	A	9.7	0.014	NA	0.0
Baywood St WB Left/Right	C	20.4	0.044	NA	2.5	C	20.4	0.045	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**5.1**	**0.57**			**A**	**5.2**	**0.57**		
TF Green Connector NB Thru	A	6.6	0.23	22	65	A	6.6	0.26	22	68
Evans Ave EB Left	A	3.9	0.42	0	36	A	3.9	0.42	0	36
Evans Ave EB Thru	B	10.7	0.06	4	14	B	10.7	0.06	4	14
Evans Ave EB Right	A	5.0	0.57	0	44	A	5.0	0.57	0	44
Evans Ave WB Left	B	10.6	0.06	4	14	B	10.7	0.07	4	15
Evans Ave WB Right	A	4.2	0.29	0	27	A	4.2	0.31	0	28

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.
[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

All study intersection movements operate at LOS D or better in both the No-Build (2026) and Build Preferred (2026) morning and afternoon peak hours.

- The proposed site access intersections (Evans Ave at TF Green Connector Rd and Post Rd at Aviation Ave) operate at LOS A for both morning and afternoon peak hours.
- The southbound left turn at Post Rd and Airport Rd improves slightly in the Build Preferred (2026) Condition compared to the No-Build (2026) Condition due to the existing driveway traffic no longer making a southbound turn to get to the air cargo facility.

Opening Year Build with Mitigations (2026) Condition Operations Analysis

The project proposes (as the preferred alternative) to utilize the existing roadway network to access the cargo facility. Trips will be completed using the TF Green Connector and Evans Ave (if coming from I-95) or Post Rd and Aviation Ave if coming from Route 1. Exiting vehicles will be able to leave the site via the TF Green Connector (if going to I-95) or via Post Rd and Coronado Rd via the airport terminal roadway (if going to Route 1). This proposed route is circuitous for exiting vehicles and additionally it requires vehicles to pass through terminal airport traffic. For these reasons AECOM evaluated an alternative which allows vehicles to exit to Post Rd via the Post Rd and Aviation Ave intersection. Figure 19 compares the exiting vehicle routes of the Build Preferred Condition to the Build Mitigated Condition.

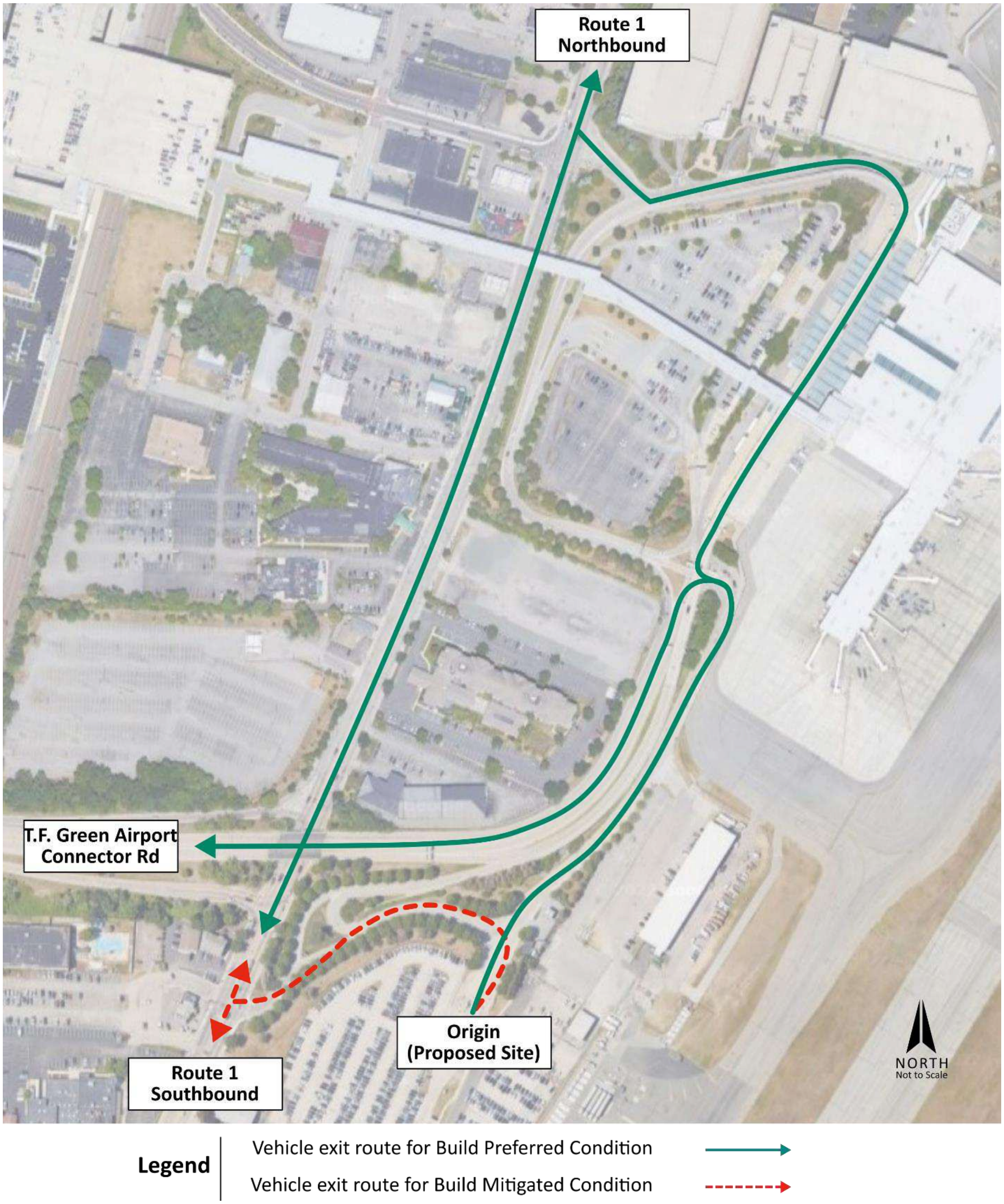

Figure 19 - Build Preferred Exiting Routes compared to Build Mitigated Exiting Routes

This Build Mitigated Condition requires physical modifications to the roadway along Aviation Ave and at the intersection of Post Rd and Aviation Ave. The alternative would add a westbound thru/left/right lane at the intersection of Post Rd and Aviation Ave which will require widening of Aviation Ave as well as an added traffic signal phase to accommodate exiting vehicles. A figure depicting necessary changes is shown in Figure 20.

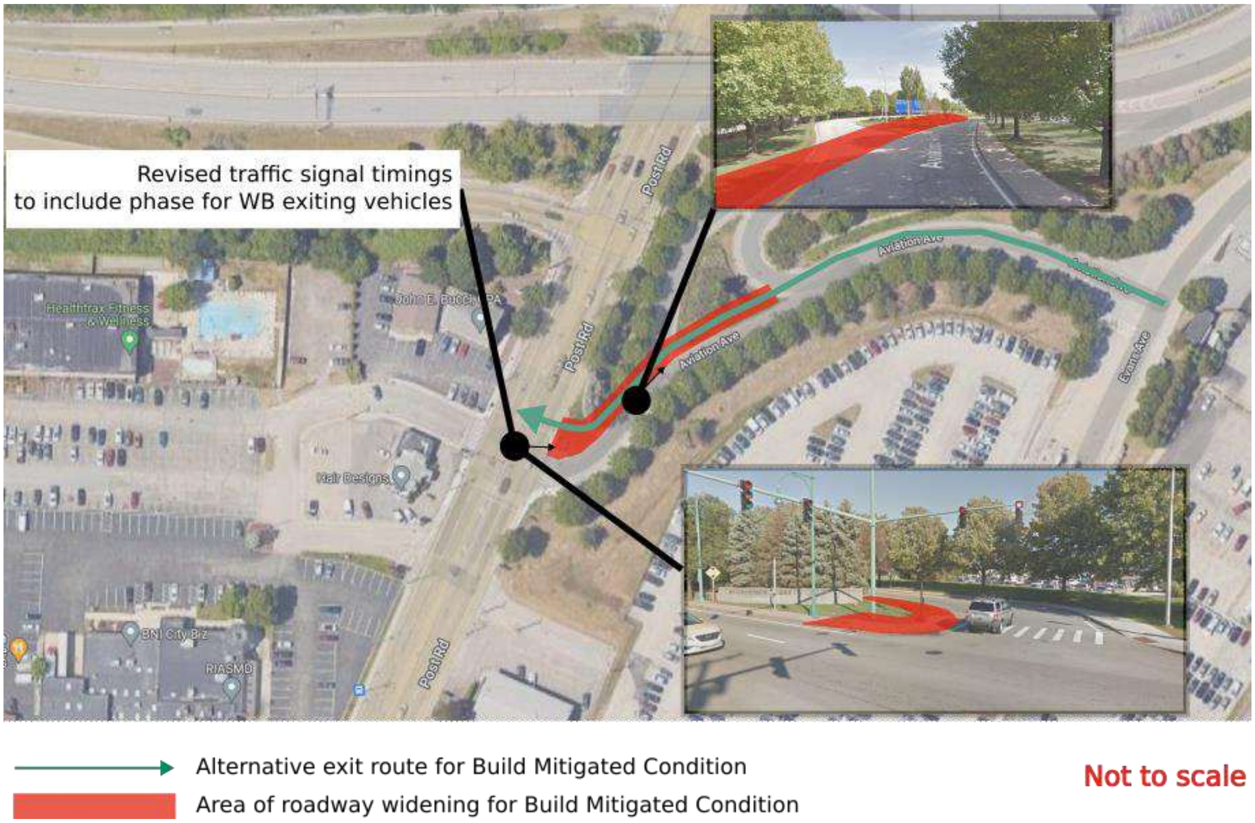

Figure 20 – Build Mitigated Condition Roadway Changes

Traffic results comparing the Build Preferred Condition with the Build Mitigated Condition are shown in Table 10 and Table 11. The results indicate no significant difference in operations when compared to the Build Preferred Condition.

Table 10 - Opening Year Build Preferred (2026) vs. Opening Year Build Mitigated (2026) AM Capacity Analysis Results

Intersection	Opening Year Build Preferred (2026) Morning Peak Hour (7:30 AM – 8:30 AM)					Opening Year Build Mitigated (2026) Morning Peak Hour (7:30 AM – 8:30 AM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**29.7**	**0.96**			**C**	**29.8**	**0.96**		
Post Rd NB Thru | Thru	C	31.1	0.53	101	148	C	30.9	0.52	100	147
Post Rd NB Right	B	11.0	0.59	129	231	B	10.9	0.59	128	230
Post Rd SB Left | Left	C	27.1	0.46	103	170	C	27.1	0.47	104	170
Post Rd SB Thru | Thru	D	35.3	0.71	147	206	D	35.5	0.72	148	207
Airport Rd WB Left | Left	C	34.2	0.75	180	#312	C	34.4	0.75	181	#312
Airport Rd WB Right	C	34.2	0.96	402	#897	C	34.4	0.96	406	#895
Coronado Rd/Airport Connector Rd at Post Rd	**B**	**19.9**	**0.82**			**B**	**19.8**	**0.82**		
Post Rd NB Left	D	42.6	0.18	22	64	D	42.6	0.18	22	64
Post Rd NB Thru | Thru	A	8.0	0.31	77	152	A	8.0	0.31	79	153
Coronado Rd EB Left	C	32.3	0.47	73	140	C	32.4	0.48	73	140
Coronado Rd EB Right	A	5.2	0.09	0	22	A	5.2	0.09	0	22
Post Rd SB Thru | Thru/Right	C	24.3	0.82	288	477	C	24.2	0.82	289	475
Airport Connector Rd WB Left	D	47.2	0.15	10	35	D	47.1	0.13	8	33
Airport Connector Rd WB Thru	D	45.0	0.04	3	15	D	45.0	0.04	3	15
Airport Connector Rd WB Right	A	1.3	0.13	0	0	A	1.1	0.11	0	0
Airport Connector Entrance at Post Rd	**A**	**9.8**	**0.62**			**A**	**9.8**	**0.63**		
Post Rd NB Left	B	15.7	0.33	50	209	B	15.5	0.34	52	218
Post Rd NB Thru | Thru	A	0.1	0.23	0	0	A	0.2	0.23	0	0
Post Rd SB Thru | Thru	C	25.1	0.56	146	203	C	25.4	0.57	146	203
Post Rd SB Right	A	0.6	0.33	0	0	A	0.6	0.33	0	0
Airport Connector Exit at Post Rd	**A**	**9.2**	**0.62**			**A**	**9.3**	**0.63**		
Post Rd NB Thru | Thru	A	2.9	0.38	82	16	A	3.1	0.38	14	18
Airport Connector Exit EB Left | Left	C	31.4	0.53	68	95	C	31.4	0.53	68	95
Airport Connector Exit EB Right	B	10.4	0.24	40	74	B	10.6	0.26	43	79
Post Rd SB Thru | Thru	A	6.4	0.62	10	16	A	6.5	0.63	10	16
Donald Ave/Airport Connector at Post Rd	**A**	**7.5**	**0.4**			**A**	**8.1**	**0.47**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	8.9	0.35	47	213	A	9.5	0.35	50	221
Donald Ave EB Left/Thru/Right	C	29.1	0.08	8	21	C	29.7	0.10	8	21
Post Rd SB Left	C	34.9	0.40	36	m66	D	36.5	0.47	43	m76
Post Rd SB Thru | Thru/Right	A	3.1	0.25	0	92	A	3.1	0.25	0	93
Baywood St at Post Rd	**A**	**0.1**	**0.027**			**A**	**0.1**	**0.027**		
Post Rd SB Thru/Left | Thru	A	0	-	NA	0.0	A	0	-	NA	0.0
Baywood St WB Left/Right	B	11.1	0.027	NA	2.5	B	11.1	0.027	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**4.8**	**0.12**			**A**	**4.7**	**0.12**		
TF Green Connector NB Thru	A	4.3	0.06	4	14	A	4.8	0.04	4	13
Evans Ave EB Left	A	4.2	0.08	0	12	A	4.2	0.08	0	12
Evans Ave EB Thru	A	8.8	0.03	1	7	A	8.8	0.03	1	7
Evans Ave EB Right	A	4.0	0.12	0	14	A	4.0	0.12	0	14
Evans Ave WB Left	A	8.9	0.03	2	8	A	8.6	0.01	1	5
Evans Ave WB Right	A	4.7	0.08	0	10	A	4.0	0.06	0	7

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.
[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

Table 11 - Opening Year Build Preferred (2026) vs. Opening Year Build Mitigated (2026) PM Capacity Analysis Results

Intersection	Opening Year Build Preferred (2026) Afternoon Peak Hour (4:00 PM – 5:00 PM)					Opening Year Build Mitigated (2026) Afternoon Peak Hour (4:00 PM – 5:00 PM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**32.8**	**0.95**			**C**	**29.8**	**0.96**		
Post Rd NB Thru | Thru	D	37.7	0.82	236	317	C	30.9	0.52	100	147
Post Rd NB Right	B	14.9	0.66	180	295	B	10.9	0.59	128	230
Post Rd SB Left | Left	D	53.1	0.95	262	#386	C	27.1	0.47	104	170
Post Rd SB Thru | Thru	C	30.0	0.57	149	208	D	35.5	0.72	148	207
Airport Rd WB Left | Left	C	33.9	0.65	167	237	C	34.4	0.75	181	#312
Airport Rd WB Right	B	16.2	0.65	221	357	C	34.4	0.96	406	#895
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**25.2**	**0.83**			**B**	**19.8**	**0.82**		
Post Rd NB Left	D	49.1	0.30	36	84	D	42.6	0.18	22	64
Post Rd NB Thru | Thru	B	14.7	0.60	256	341	A	8.0	0.31	79	153
Coronado Rd EB Left	D	43.5	0.81	205	#353	C	32.4	0.48	73	140
Coronado Rd EB Right	A	9.5	0.11	12	40	A	5.2	0.09	0	22
Post Rd SB Thru | Thru/Right	C	29.4	0.83	347	457	C	24.2	0.82	289	475
Airport Connector Rd WB Left	D	52.2	0.31	25	62	D	47.1	0.13	8	33
Airport Connector Rd WB Thru	D	47.8	0.15	13	40	D	45.0	0.04	3	15
Airport Connector Rd WB Right	B	13.1	0.39	0	38	A	1.1	0.11	0	0
Airport Connector Entrance at Post Rd	**A**	**9.3**	**0.79**			**A**	**9.8**	**0.63**		
Post Rd NB Left	B	11.3	0.22	38	m108	B	15.5	0.34	52	218
Post Rd NB Thru | Thru	A	0.3	0.38	0	0	A	0.2	0.23	0	0
Post Rd SB Thru | Thru	C	29.2	0.71	174	236	C	25.4	0.57	146	203
Post Rd SB Right	A	0.4	0.25	0	0	A	0.6	0.33	0	0
Airport Connector Exit at Post Rd	**B**	**13.1**	**0.79**			**A**	**9.3**	**0.63**		
Post Rd NB Thru | Thru	A	5.5	0.52	16	20	A	3.1	0.38	14	18
Airport Connector Exit EB Left | Left	C	29.4	0.67	131	185	C	31.4	0.53	68	95
Airport Connector Exit EB Right	B	10.2	0.27	52	91	B	10.6	0.26	43	79
Post Rd SB Thru | Thru	B	10.8	0.79	15	#46	A	6.5	0.63	10	16
Donald Ave/Airport Connector at Post Rd	**A**	**8.0**	**0.42**			**A**	**8.1**	**0.47**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	B	10.2	0.42	111	263	A	9.5	0.35	50	221
Donald Ave EB Left/Thru/Right	A	1.0	0.16	0	0	C	29.7	0.10	8	21
Post Rd SB Left	C	34.8	0.39	34	m51	D	36.5	0.47	43	m76
Post Rd SB Thru | Thru/Right	A	4.0	0.30	0	105	A	3.1	0.25	0	93
Baywood St at Post Rd	**A**	**0.2**	**0.045**			**A**	**0.1**	**0.027**		
Post Rd SB Thru/Left | Thru	A	9.7	0.014	NA	0.0	A	0	-	NA	0.0
Baywood St WB Left/Right	C	20.4	0.045	NA	2.5	B	11.1	0.027	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**5.2**	**0.57**			**A**	**5.1**	**0.57**		
TF Green Connector NB Thru	A	6.6	0.26	22	68	A	6.6	0.23	22	65
Evans Ave EB Left	A	3.9	0.42	0	36	A	3.9	0.42	0	36
Evans Ave EB Thru	B	10.7	0.06	4	14	B	10.7	0.06	4	14
Evans Ave EB Right	A	5.0	0.57	0	44	A	5.0	0.57	0	44
Evans Ave WB Left	B	10.7	0.07	4	15	B	10.6	0.06	4	14
Evans Ave WB Right	A	4.2	0.31	0	28	A	4.2	0.29	0	27

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:

NA - Results not reported or available.

[XXXX] - Movement is only available in the build condition.

~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

- 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles

m - Volume for the 95th percentile queue is metered by upstream signal.

Opening year + 5 No-Build (2031) Condition

The No-Build (2031) traffic volumes (also known as “opening year + 5 years no-build”) were developed using a general background growth rate of 0.5% per year compounded annually for an additional five years to obtain the No-Build (2031) traffic volumes. This 0.5% annual growth rate over a five-year period was also intended to include and account for planned project developments not associated with this proposed project. No physical roadway improvements or signal timing revisions were implemented in this No-Build (2031) analysis scenario.

Opening year + 5 Build Preferred (2031) Condition

The Build Preferred (2031) traffic volumes (also known as “opening year + 5 years build”) were developed by applying a traffic growth rate of 0.5% per year compounded annually for five years on top of the forecasted traffic volumes used in the Build Preferred (2026) model. No physical roadway improvements or signal timing revisions were implemented as part of this model.

Opening Year + 5 (2031) Capacity Results

Traffic analysis of the No-Build (2031) and Build Preferred (2031) conditions were completed using the same methodology described in the Existing (2022) conditions section. Results comparing the No-Build to the Build Preferred are summarized in Table 12 and Table 13. The full Synchro results are provided in Appendix F.

Table 12 – Opening Year + 5 No-Build (2031) vs. Opening Year + 5 Build Preferred (2031) AM Capacity Analysis Results

Intersection	Opening Year No-Build (2031) Morning Peak Hour (7:30 AM – 8:30 AM)					Opening Year Build Preferred (2031) Morning Peak Hour (7:30 AM – 8:30 AM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**31.7**	**0.99**			**C**	**31.9**	**0.99**		
Post Rd NB Thru | Thru	C	31.0	0.53	102	150	C	31.2	0.54	104	153
Post Rd NB Right	B	11.5	0.61	137	244	B	11.6	0.61	139	246
Post Rd SB Left | Left	C	27.4	0.48	107	174	C	27.4	0.48	107	174
Post Rd SB Thru | Thru	D	35.6	0.72	151	212	D	35.6	0.72	151	212
Airport Rd WB Left | Left	C	34.7	0.76	183	#315	D	35.2	0.77	187	#325
Airport Rd WB Right	D	40.9	0.99	448	#937	D	41.0	0.99	450	#937
Coronado Rd/Airport Connector Rd at Post Rd	**B**	**19.9**	**0.82**			**C**	**20.2**	**0.82**		
Post Rd NB Left	D	43.1	0.20	23	66	D	43.4	0.20	24	67
Post Rd NB Thru | Thru	A	8.0	0.32	82	156	A	8.1	0.32	82	157
Coronado Rd EB Left	C	33.1	0.49	77	143	C	33.0	0.49	77	143
Coronado Rd EB Right	A	5.4	0.09	0	23	A	5.8	0.09	1	24
Post Rd SB Thru | Thru/Right	C	24.3	0.82	298	485	C	24.6	0.82	304	497
Airport Connector Rd WB Left	D	47.5	0.14	9	33	D	47.9	0.16	10	35
Airport Connector Rd WB Thru	D	45.4	0.04	3	15	D	45.4	0.04	3	15
Airport Connector Rd WB Right	A	1.2	0.12	0	0	A	1.4	0.14	0	0
Airport Connector Entrance at Post Rd	**A**	**9.7**	**0.63**			**A**	**9.9**	**0.65**		
Post Rd NB Left	B	15.7	0.34	52	218	B	15.5	0.34	52	216
Post Rd NB Thru | Thru	A	0.2	0.23	0	0	A	0.2	0.23	0	0
Post Rd SB Thru | Thru	C	25.4	0.57	146	203	C	25.7	0.58	151	207
Post Rd SB Right	A	0.6	0.33	0	0	A	0.6	0.33	0	0
Airport Connector Exit at Post Rd	**A**	**9.3**	**0.63**			**A**	**9.4**	**0.65**		
Post Rd NB Thru | Thru	A	3.2	0.39	86	17	A	3.0	0.39	85	17
Airport Connector Exit EB Left | Left	C	31.1	0.53	70	95	C	31.1	0.53	70	95
Airport Connector Exit EB Right	B	10.3	0.24	41	75	B	10.3	0.24	41	75
Post Rd SB Thru | Thru	A	6.5	0.63	10	16	A	7.0	0.65	10	21
Donald Ave/Airport Connector at Post Rd	**A**	**7.0**	**0.34**			**A**	**7.6**	**0.41**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	8.5	0.34	45	212	A	9.0	0.36	49	221
Donald Ave EB Left/Thru/Right	C	29.1	0.08	8	21	C	29.1	0.08	8	21
Post Rd SB Left	C	34.4	0.34	28	m51	C	34.8	0.41	37	m65
Post Rd SB Thru | Thru/Right	A	3.1	0.26	0	95	A	3.1	0.26	0	93
Baywood St at Post Rd	**A**	**0.1**	**0.027**			**A**	**0.1**	**0.027**		
Post Rd SB Thru/Left | Thru	A	0	-	NA	0.0	A	0	-	NA	0.0
Baywood St WB Left/Right	B	11.2	0.027	NA	2.5	B	11.2	0.027	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**4.7**	**0.12**			**A**	**4.7**	**0.12**		
TF Green Connector NB Thru	A	4.8	0.04	4	13	A	4.3	0.06	4	14
Evans Ave EB Left	A	4.1	0.08	0	12	A	4.1	0.08	0	12
Evans Ave EB Thru	A	8.8	0.03	1	7	A	8.8	0.03	1	7
Evans Ave EB Right	A	4.0	0.12	0	14	A	4.0	0.12	0	14
Evans Ave WB Left	A	8.6	0.01	1	5	A	8.9	0.03	2	8
Evans Ave WB Right	A	4.1	0.06	0	8	A	4.8	0.08	0	10

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:
NA - Results not reported or available.
[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

Table 13 - Opening Year + 5 No-Build (2031) vs. Opening Year + 5 Build Preferred (2031) PM Capacity Analysis Results

Intersection	Opening Year No-Build (2031)					Opening Year Build Preferred (2031)				
	Afternoon Peak Hour (4:00 PM – 5:00 PM)					Afternoon Peak Hour (4:00 PM – 5:00 PM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**34.4**	**0.97**			**C**	**34.2**	**0.97**		
Post Rd NB Thru | Thru	D	38.3	0.83	241	324	D	38.2	0.83	243	326
Post Rd NB Right	B	15.2	0.66	184	301	B	15.5	0.67	188	309
Post Rd SB Left | Left	E	58.1	0.97	276	#403	E	57.6	0.97	275	#400
Post Rd SB Thru | Thru	C	30.0	0.57	153	212	C	30.1	0.58	154	214
Airport Rd WB Left | Left	C	34.8	0.67	172	241	C	34.7	0.67	174	243
Airport Rd WB Right	B	17.0	0.67	238	375	B	17.0	0.67	237	373
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**25.7**	**0.84**			**C**	**25.9**	**0.84**		
Post Rd NB Left	D	49.8	0.31	38	85	D	50.0	0.31	38	85
Post Rd NB Thru | Thru	B	15.0	0.61	266	355	B	15.0	0.61	267	355
Coronado Rd EB Left	D	45.7	0.83	219	#374	D	45.9	0.83	220	#374
Coronado Rd EB Right	A	9.8	0.12	13	42	A	9.8	0.12	13	42
Post Rd SB Thru | Thru/Right	C	29.6	0.84	357	469	C	29.9	0.84	362	476
Airport Connector Rd WB Left	D	52.5	0.30	25	61	D	53.1	0.32	26	63
Airport Connector Rd WB Thru	D	48.4	0.15	14	41	D	48.4	0.15	15	41
Airport Connector Rd WB Right	B	11.0	0.36	0	31	B	13.8	0.40	0	40
Airport Connector Entrance at Post Rd	**A**	**9.3**	**0.79**			**A**	**9.5**	**0.82**		
Post Rd NB Left	B	11.7	0.22	40	m109	B	11.5	0.22	40	m109
Post Rd NB Thru | Thru	A	0.3	0.39	0	0	A	0.3	0.39	0	0
Post Rd SB Thru | Thru	C	29.4	0.71	176	239	C	29.8	0.73	180	244
Post Rd SB Right	A	0.4	0.26	0	0	A	0.4	0.26	0	0
Airport Connector Exit at Post Rd	**B**	**13.3**	**0.79**			**B**	**13.6**	**0.82**		
Post Rd NB Thru | Thru	A	5.8	0.54	16	20	A	5.6	0.54	16	20
Airport Connector Exit EB Left | Left	C	29.8	0.69	136	192	C	29.8	0.69	136	191
Airport Connector Exit EB Right	B	10.2	0.28	53	93	B	10.2	0.28	53	93
Post Rd SB Thru | Thru	B	10.6	0.79	14	#46	B	11.8	0.82	16	#58
Donald Ave/Airport Connector at Post Rd	**A**	**7.6**	**0.42**			**A**	**8.2**	**0.43**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	10.0	0.42	111	265	B	10.5	0.43	115	275
Donald Ave EB Left/Thru/Right	A	1.0	0.16	0	0	A	1.0	0.16	0	0
Post Rd SB Left	C	34.2	0.34	28	m44	C	34.9	0.40	36	m54
Post Rd SB Thru | Thru/Right	A	4.0	0.31	0	108	A	4.1	0.31	0	107
Baywood St at Post Rd	**A**	**0.2**	**0.046**			**A**	**0.2**	**0.047**		
Post Rd SB Thru/Left | Thru	A	9.7	0.014	NA	0.0	A	9.8	0.014	NA	0.0
Baywood St WB Left/Right	C	21	0.046	NA	2.5	C	21.2	0.047	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**5.2**	**0.58**			**A**	**5.2**	**0.58**		
TF Green Connector NB Thru	A	6.7	0.24	22	66	A	6.6	0.26	23	69
Evans Ave EB Left	A	3.9	0.42	0	36	A	3.9	0.42	0	36
Evans Ave EB Thru	B	10.7	0.06	4	15	B	10.7	0.06	4	15
Evans Ave EB Right	A	5.0	0.58	0	44	A	5.0	0.58	0	44
Evans Ave WB Left	B	10.7	0.06	4	15	B	10.8	0.07	4	16
Evans Ave WB Right	A	4.1	0.30	0	27	A	4.2	0.31	0	28

Notes:

1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:

NA - Results not reported or available.

[XXXX] - Movement is only available in the build condition.

~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

\# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles

m - Volume for the 95th percentile queue is metered by upstream signal.

All study intersection movements operate at LOS D or better in the No-Build (2031) Condition except for the following movements:

- The southbound left movement at the Post Rd and Airport Rd intersection operates at LOS E in the afternoon peak hour. This movement changes from LOS D to LOS E between the Existing (2022) Condition and the No-Build (2031) Condition.

All study intersection movements operate at LOS D or better and do not degrade in LOS between No-Build (2031) Condition and Build Preferred (2031) Condition except for the following:

- The southbound left movement at the Post Rd and Airport Rd intersection operates at LOS E in the afternoon peak hour. This movement does not change between the No-Build (2031) Condition and the Build Preferred (2031) Condition *which indicates this LOS E is not due to project related trips*.

Opening year + 5 Build with Mitigations (2031) Condition Operations Analysis

Changes as made in the Build Mitigated Alternative are described in the Opening Year Build with Mitigations (2026) Condition Operations Analysis section. Results comparing the Build Preferred Condition to the Build Mitigated Condition are shown in Table 14 and Table 15.

The results indicate no significant difference in operations when compared to the Build Preferred Condition. The Build Mitigated Condition provides no significant improvement to intersection operations over the Build Preferred Condition. The Build Mitigated Condition requires potentially costly physical modifications to the roadway as well as the possibility to disrupt a driver’s sense of arrival to the airport when entering Aviation Ave. The driver’s attention when entering an airport should be on wayfinding to the appropriate roadways, the addition of another lane on Aviation Ave means a driver must both focus on which direction to take while finding an acceptable gap in traffic to make a turn.

Table 14 - Opening Year Build Preferred (2031) vs. Opening Year Build Mitigated (2031) AM Capacity Analysis Results

Intersection	Opening Year Build Preferred (2031) Morning Peak Hour (7:30 AM – 8:30 AM)					Opening Year Build Mitigated (2031) Morning Peak Hour (7:30 AM – 8:30 AM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**31.9**	**0.99**			**C**	**32.0**	**0.99**		
Post Rd NB Thru | Thru	C	31.2	0.54	104	153	C	31.0	0.53	103	151
Post Rd NB Right	B	11.6	0.61	139	246	B	11.5	0.61	138	244
Post Rd SB Left | Left	C	27.4	0.48	107	174	C	27.5	0.48	107	174
Post Rd SB Thru | Thru	D	35.6	0.72	151	212	D	35.7	0.73	152	213
Airport Rd WB Left | Left	D	35.2	0.77	187	#325	D	35.4	0.77	188	#326
Airport Rd WB Right	D	41.0	0.99	450	#937	D	41.2	0.99	452	#936
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**20.2**	**0.82**			**C**	**20.1**	**0.82**		
Post Rd NB Left	D	43.4	0.20	24	67	D	43.3	0.20	24	66
Post Rd NB Thru | Thru	A	8.1	0.32	82	157	A	8.0	0.32	83	157
Coronado Rd EB Left	C	33.0	0.49	77	143	C	33.1	0.49	77	143
Coronado Rd EB Right	A	5.8	0.09	1	24	A	6.0	0.09	1	24
Post Rd SB Thru | Thru/Right	C	24.6	0.82	304	497	C	24.6	0.82	305	496
Airport Connector Rd WB Left	D	47.9	0.16	10	35	D	47.7	0.14	9	33
Airport Connector Rd WB Thru	D	45.4	0.04	3	15	D	45.6	0.04	3	15
Airport Connector Rd WB Right	A	1.4	0.14	0	0	A	1.1	0.11	0	0
Airport Connector Entrance at Post Rd	**A**	**9.9**	**0.65**			**A**	**10.0**	**0.65**		
Post Rd NB Left	B	15.5	0.34	52	216	B	15.8	0.35	53	221
Post Rd NB Thru | Thru	A	0.2	0.23	0	0	A	0.2	0.24	0	0
Post Rd SB Thru | Thru	C	25.7	0.58	151	207	C	25.7	0.58	151	207
Post Rd SB Right	A	0.6	0.33	0	0	A	0.6	0.33	0	0
Airport Connector Exit at Post Rd	**A**	**9.4**	**0.65**			**A**	**9.4**	**0.65**		
Post Rd NB Thru | Thru	A	3.0	0.39	85	17	A	3.2	0.40	15	18
Airport Connector Exit EB Left | Left	C	31.1	0.53	70	95	C	30.8	0.53	70	95
Airport Connector Exit EB Right	B	10.3	0.24	41	75	B	10.7	0.27	44	81
Post Rd SB Thru | Thru	A	7.0	0.65	10	21	A	7.0	0.65	10	21
Donald Ave/Airport Connector at Post Rd	**A**	**7.6**	**0.41**			**A**	**8.1**	**0.48**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	A	9.0	0.36	49	221	A	9.7	0.36	53	228
Donald Ave EB Left/Thru/Right	C	29.1	0.08	8	21	C	29.7	0.10	8	21
Post Rd SB Left	C	34.8	0.41	37	m65	D	36.6	0.48	44	m75
Post Rd SB Thru | Thru/Right	A	3.1	0.26	0	93	A	3.1	0.26	0	94
Baywood St at Post Rd	**A**	**0.1**	**0.027**			**A**	**0.1**	**0.027**		
Post Rd SB Thru/Left | Thru	A	0	-	NA	0.0	A	0	-	NA	0.0
Baywood St WB Left/Right	B	11.2	0.027	NA	2.5	B	11.2	0.027	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**4.7**	**0.12**			**A**	**4.7**	**0.12**		
TF Green Connector NB Thru	A	4.3	0.06	4	14	A	4.8	0.04	4	13
Evans Ave EB Left	A	4.1	0.08	0	12	A	4.1	0.08	0	12
Evans Ave EB Thru	A	8.8	0.03	1	7	A	8.8	0.03	1	7
Evans Ave EB Right	A	4.0	0.12	0	14	A	4.0	0.12	0	14
Evans Ave WB Left	A	8.9	0.03	2	8	A	8.6	0.01	1	5
Evans Ave WB Right	A	4.8	0.08	0	10	A	4.1	0.06	0	8

Notes:

1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
4. Queue lengths for unsignalized intersections are based on a 25' vehicle length.

Symbols:

NA - Results not reported or available.

[XXXX] - Movement is only available in the build condition.

~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

- 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles

m - Volume for the 95th percentile queue is metered by upstream signal.

Table 15 - Opening Year Build Preferred (2031) vs. Opening Year Build Mitigated (2031) PM Capacity Analysis Results

Intersection	Opening Year Build Preferred (2031) Afternoon Peak Hour (4:00 PM – 5:00 PM)					Opening Year Build Mitigated (2031) Afternoon Peak Hour (4:00 PM – 5:00 PM)				
	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)	LOS	Delay (s)	V/C	50% Queue Length (ft)	95% Queue Length (ft)
Airport Rd at Post Rd	**C**	**34.2**	**0.97**			**C**	**34.3**	**0.97**		
Post Rd NB Thru | Thru	D	38.2	0.83	243	326	D	38.3	0.83	242	325
Post Rd NB Right	B	15.5	0.67	188	309	B	15.4	0.67	187	308
Post Rd SB Left | Left	E	57.6	0.97	275	#400	E	57.8	0.97	275	#400
Post Rd SB Thru | Thru	C	30.1	0.58	154	214	C	30.1	0.57	154	214
Airport Rd WB Left | Left	C	34.7	0.67	174	243	D	35.1	0.68	175	244
Airport Rd WB Right	B	17.0	0.67	237	373	B	17.0	0.67	238	373
Coronado Rd/Airport Connector Rd at Post Rd	**C**	**25.9**	**0.84**			**C**	**25.8**	**0.84**		
Post Rd NB Left	D	50.0	0.31	38	85	D	49.9	0.31	38	85
Post Rd NB Thru | Thru	B	15.0	0.61	267	355	B	15.0	0.62	268	357
Coronado Rd EB Left	D	45.9	0.83	220	#374	D	46.0	0.83	220	#374
Coronado Rd EB Right	A	9.8	0.12	13	42	A	9.8	0.12	13	42
Post Rd SB Thru | Thru/Right	C	29.9	0.84	362	476	C	29.9	0.84	362	476
Airport Connector Rd WB Left	D	53.1	0.32	26	63	D	52.4	0.30	25	61
Airport Connector Rd WB Thru	D	48.4	0.15	15	41	D	48.4	0.16	14	41
Airport Connector Rd WB Right	B	13.8	0.40	0	40	B	11.0	0.37	0	31
Airport Connector Entrance at Post Rd	**A**	**9.5**	**0.82**			**A**	**9.4**	**0.81**		
Post Rd NB Left	B	11.5	0.22	40	m109	B	11.3	0.22	41	m104
Post Rd NB Thru | Thru	A	0.3	0.39	0	0	A	0.3	0.39	0	0
Post Rd SB Thru | Thru	C	29.8	0.73	180	244	C	29.7	0.72	179	243
Post Rd SB Right	A	0.4	0.26	0	0	A	0.4	0.26	0	0
Airport Connector Exit at Post Rd	**B**	**13.6**	**0.82**			**B**	**13.6**	**0.81**		
Post Rd NB Thru | Thru	A	5.6	0.54	16	20	A	6.0	0.54	18	28
Airport Connector Exit EB Left | Left	C	29.8	0.69	136	191	C	29.8	0.69	136	191
Airport Connector Exit EB Right	B	10.2	0.28	53	93	B	10.5	0.30	58	100
Post Rd SB Thru | Thru	B	11.8	0.82	16	#58	B	11.6	0.81	15	#57
Donald Ave/Airport Connector at Post Rd	**A**	**8.2**	**0.43**			**A**	**8.7**	**0.48**		
Post Rd NB Left	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Post Rd NB Thru | Thru/Right	B	10.5	0.43	115	275	B	11.2	0.44	121	285
Donald Ave EB Left/Thru/Right	A	1.0	0.16	0	0	A	1.4	0.18	0	0
Post Rd SB Left	C	34.9	0.40	36	m54	D	36.3	0.48	43	m64
Post Rd SB Thru | Thru/Right	A	4.1	0.31	0	107	A	4.1	0.31	0	110
Baywood St at Post Rd	**A**	**0.2**	**0.047**			**A**	**0.2**	**0.047**		
Post Rd SB Thru/Left | Thru	A	9.8	0.014	NA	0.0	A	9.8	0.014	NA	0.0
Baywood St WB Left/Right	C	21.2	0.047	NA	2.5	C	21.2	0.047	NA	2.5
Evans Ave at TF Green Connector Rd	**A**	**5.2**	**0.58**			**A**	**5.2**	**0.58**		
TF Green Connector NB Thru	A	6.6	0.26	23	69	A	6.7	0.24	22	66
Evans Ave EB Left	A	3.9	0.42	0	36	A	3.9	0.42	0	36
Evans Ave EB Thru	B	10.7	0.06	4	15	B	10.7	0.06	4	15
Evans Ave EB Right	A	5.0	0.58	0	44	A	5.0	0.58	0	44
Evans Ave WB Left	B	10.8	0.07	4	16	B	10.7	0.06	4	15
Evans Ave WB Right	A	4.2	0.31	0	28	A	4.1	0.30	0	27

Notes:
1. Synchro version 11.1.2.9 was used to calculate results.
2. Signalized intersection results are based on the Lanes, Volumes, and Timings report from Synchro.
3. Unsignalized intersection results are based on the HCM 6 reports.
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Symbols:
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[XXXX] - Movement is only available in the build condition.
~ - Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
# - 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles
m - Volume for the 95th percentile queue is metered by upstream signal.

Conclusions and Recommendations

AECOM performed a traffic analysis study to determine the potential traffic impacts of the relocation and increased size of an air cargo facility at the southern portion of TF Green Airport. The air cargo facility is expected to use the intersection of TF Green Airport Connector Rd at Evans Ave (if coming from I-95) or Post Rd and Aviation Ave (if coming from Post Rd) as access points for the new facility.

Traffic analysis was performed at six signalized intersections along Post Rd as well as at TF Green Connector Rd and Evans Ave. The results of the analysis indicate that the relocation and increased size of the air cargo facility will have no significant traffic related impacts on the surrounding roadway network. The Build Preferred Condition requires no physical roadway improvements while the Build Mitigated Condition provides no significant improvement to operations and requires potentially costly physical roadway improvements. **For those reasons the Build Preferred Condition is the recommended alternative.**

AECOM concludes that the proposed air cargo facility relocation will have minimal impacts on the traffic capacity within the study area and no traffic mitigation measures are proposed as part of this project. The southbound left turn movement at the intersection of Post Rd and Airport Rd operates at LOS E in the afternoon peak hour in year 2031 (with and without the proposed project) traffic conditions (see Table 13 for full results) and should be monitored over time. Revised signal timings should be implemented as needed to mitigate delays.

Appendices provided under separate cover and available upon request.

APPENDIX K

Water Resources

APPENDIX K

Technical Memorandum

To: AECOM
10 Orms Street
Providence, RI 02904

Date: 12/22/2022

Project #: 73330.00

From: Ashley Cunha, PE

Re: Water Resources
South Cargo Facility
T.F. Green International Airport
Rhode Island Airport Corporation

Water Resources

In accordance with Federal Aviation Administration (FAA) Order 1050.1F *Environmental Impacts: Policies and Procedures*, this section describes water resources that are important in providing drinking water and supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems and includes wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. The following sections describe regulatory settings, applicable FAA significance thresholds, existing site conditions, environmental consequences, and proposed mitigation measures. Refer to attached Water Resources figures.

Regulatory Setting

Wetlands

The wetlands at the Airport are regulated by federal and state programs including the Clean Water Act (CWA), Executive Order 11990 Protection of Wetlands, the Fish and Wildlife Coordination Act, and the State of Rhode Island's Freshwater Wetland Act[1] administered under the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (250 RICR-150-15-3) by the Rhode Island Department of Environmental Management (RIDEM).

Floodplain

The federal regulatory programs designed to protect floodplains include the National Flood Insurance Act and Executive Order 11988, Floodplain Management. Floodplain is also regulated under the Rhode Island Freshwater Wetlands Act by the RIDEM.

Surface Waters

The federal regulatory programs designed to protect surface waters include CWA, Fish and Wildlife Coordination Act, the Rivers and Harbors Act, and the Safe Drinking Water Act. Authority to implement Section 401 of the CWA and the National Pollution Discharge Elimination System Program, has been delegated to the RIDEM.

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[1] R.I. Gen. Laws §§ 2-1-20, 42-17.1-1 et seq., 42-17.6-1 et seq, 46-23-6, and in accordance with R.I. Gen. Laws § 42-35-1 et seq.

Groundwater

The federal regulatory program designed to protect groundwater is the Safe Drinking Water Act. The state of Rhode Island also has the Groundwater Quality Rules (250 RICR-150-05-3) and the Groundwater Discharge Rules (Rules for the Discharge of Non-Sanitary Wastewater and other Fluid to or Below the Ground Surface) (250-RIRC-150-05-04).

Wild and Scenic Rivers

The Federal regulatory program protecting wild and scenic rivers is the Wild and Scenic Rivers Act administered by the National Park Service.

FAA Significance Threshold

The FAA has established a significance threshold for wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. Wetlands, floodplains, and wild scenic rivers are not in the project area or close to the project and therefore will not be affected. All thresholds are listed below.

A proposed action would have a significant impact when:

Wetlands

- The project adversely affects a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers; or
- substantially alters the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected; or
- Substantially reduces the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public); or
- Adversely affects the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands; or
- Promotes development of secondary activities or services that would cause the circumstances listed above to occur; or
- Is inconsistent with applicable state wetland strategies.

Floodplains

- Notable adverse impacts to existing natural and beneficial floodplain values would result.

Surface Waters

- The project exceeds water quality standards established by federal, state, local, and tribal regulatory agencies; or
- Contaminates public drinking water supply such that public health may be adversely affected.

Groundwater

- The Project would cause groundwater quality to exceed standards established by federal, state, local, and tribal regulatory agencies; or
- Contaminate an aquifer used for public water supply such that public health may be adversely affected.

Existing Conditions

The site consists mostly of the former long-term parking lot (Lot E) and open woodland areas near Field View Drive on properties acquired by the Airport. There is an existing detention basin located to the east of Lot E which collects runoff from the eastern portions of the parking lot.

There are no surface waters, sole source aquifers, public water supplies, wetlands or floodplains within the Project Area. The closest wetlands or surface water features include:

- The headwaters of Three Ponds Brook, approximately 1,500 feet to the west outside of the Airport property;
- An unnamed tributary to Buckeye Brook approximately 2,300 feet to the east of the Project Area within the Airport; and
- Tuscatucket Brook approximately 1,800 feet to the southeast of the Project Area within the Airport.
- Warwick Pond, an approximately 80-acre natural pond, approximately 5,500 feet east of the Project Area off Airport Property.

The Project Area consists of eight sub-watersheds on the airport property. Runoff from these watersheds is collected in existing closed drainage systems that outlet to one of three outfalls. The receiving waterbody for the outfall located to the northeast of the project site discharges into an unnamed tributary which flows into Buckeye Brook downstream from Warwick Pond. The remaining two outfalls are in the southeast and discharge into Tuscatucket Brook (refer to the attached Water Resources – Study Area figure) and Greenwich Bay. The Project area is also within the Providence/Warwick Groundwater Aquifer; however, this aquifer is not used for local public drinking water.

The existing Project Area is mostly impervious consisting of the parking lot, taxiways, and access roads. Existing stormwater runoff from the project area is treated through modular stormwater treatment systems and an existing detention/infiltration basin before entering the receiving waters. The airport also has a glycol collection and treatment system to minimize the amount of deicing fluid that enters waterways. The remaining project area within the Strawberry Field Drive neighborhood contains catch basins which discharge untreated stormwater runoff to Tuscatucket Brook. No runoff from this Project Area reaches Warwick Pond.

Buckeye Brook, its tributaries and Tuscatucket Brook are impaired and have Total Maximum Daily Loads (TMDLs) which are described in detail in the section below.

Probable Impacts

Impacts to water resources can be direct, such as placement of fill into a wetland, indirect are reasonably foreseeable that may occur later in time or farther removed from the action. Indirect impacts can be short term and related to construction activities such as construction noise or accelerated soil erosion or may be long-term and permanent such as equipment noise during operation of the facility.

Since there are no water resources in the Project Area all impacts would be indirect. The most foreseeable would be the potential for increased soil erosion affecting water quality through increases in turbidity during construction. A Soil Erosion and Sedimentation Control Plan will be put in place during the construction of the Project. This plan will be created in accordance with RIDEM's Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) (Stormwater Rules) Minimum Standard 10 and will limit impacts to the receiving waters.

The new impervious surfaces, including the proposed cargo facilities and associated parking and staging areas, will increase runoff and change hydrologic patterns. The Project's stormwater management system will be designed in accordance with RIDEM’s Stormwater Rules to provide water quality treatment prior to discharging to receiving waters or infiltrated into the groundwater. The Project’s deicing runoff will be conveyed and treated separately from the stormwater management system. Stormwater runoff from the Project will discharge to an unnamed Tributary to Buckeye Brook downstream of Warwick Pond and two outfalls that discharge into Tuscatucket Brook. Buckeye Brook and its tributaries are impaired and have Total Maximum Daily Loads (TMDLs) for Enterococcus and Fecal Coliform developed 2008, and for Benthic-macroinvertebrate diversity, cadmium, copper, iron, and low dissolved oxygen concentrations developed in 2021. Tuscatucket Brook is impaired and has a TMDL for Fecal Coliform developed in 2006.

The stormwater management system for the Project will be designed in accordance with the Stormwater Rules, which requires reduction in peak rates and volumes per Minimum Standard 4: Conveyance and Natural Channel Protection. Reduction of peak rates can be achieved by Best Management Practices (BMPs) such as sand filters, infiltration trenches, subsurface infiltration devices designed to infiltrate stormwater runoff. The proximity of the Project to the Taxiways and Runways prohibit surface water BMPs that continuously detain water for periods greater than 48 hours per FAA AC 150/5200-33C[2].

The Project will also be designed to comply with the Clean Water Act.

Mitigation Measures

Mitigation measures will include water quality treatment of surface water runoff before entering receiving waters or infiltrating into groundwater by utilizing stormwater Best Management Practices such as sand filters, infiltration trenches, and subsurface infiltration devices. Furthermore, a Soil Erosion and Sedimentation Control Plan will be put in place during the construction of the Project to mitigate any potential impacts to receiving waters. A Long-Term Stormwater Operation and Maintenance plan will also be established in accordance with the Stormwater Rules which includes pollution prevention and source control.

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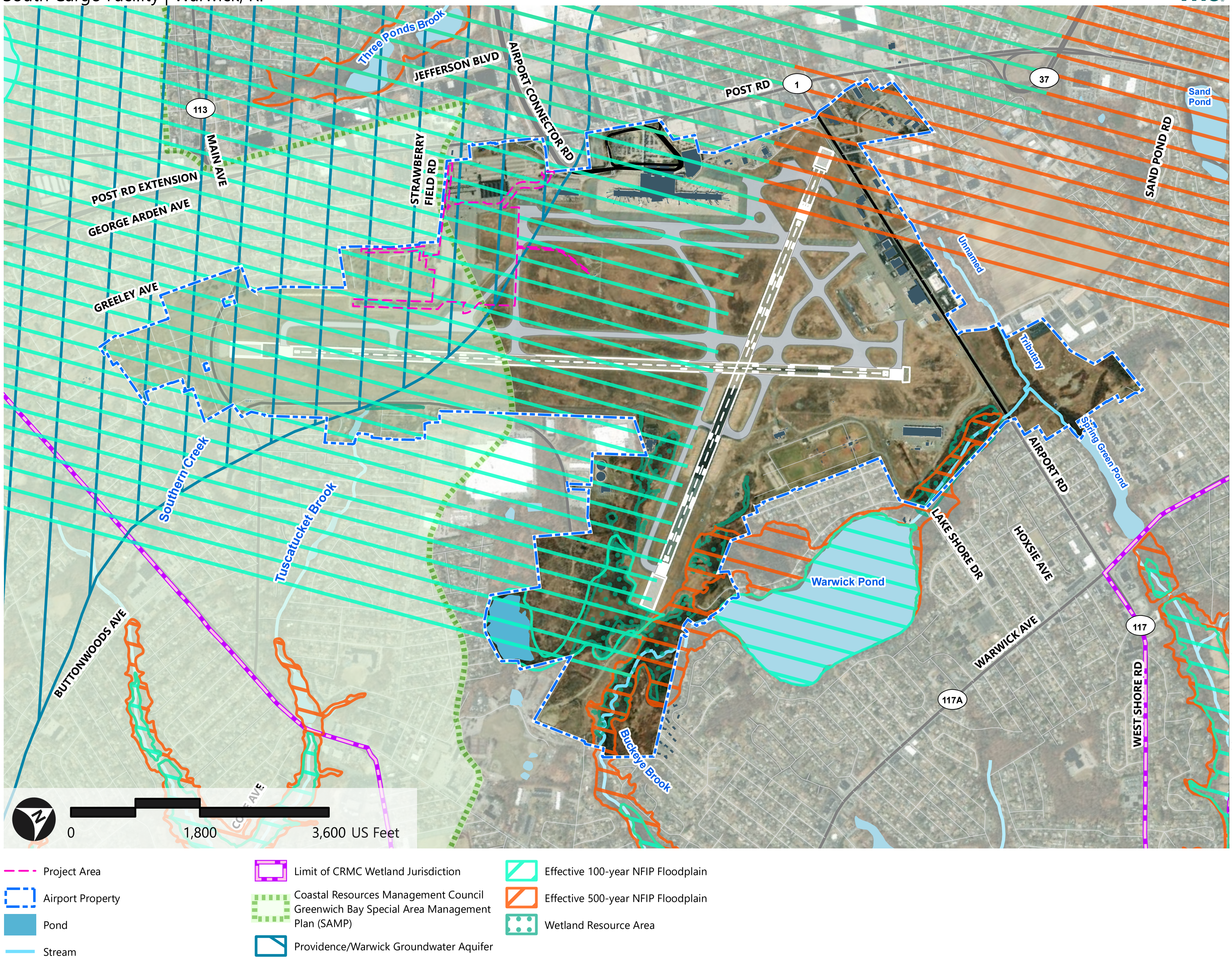
[2] FAA 150/5200-33C - Hazardous Wildlife Attractants on or near Airports Date Issued February 21, 2020

[3] RIAC updated the T. F. Green Airport Master Plan in 2017.

APPENDIX K

Water Resources - Study Area

South Cargo Facility | Warwick, RI



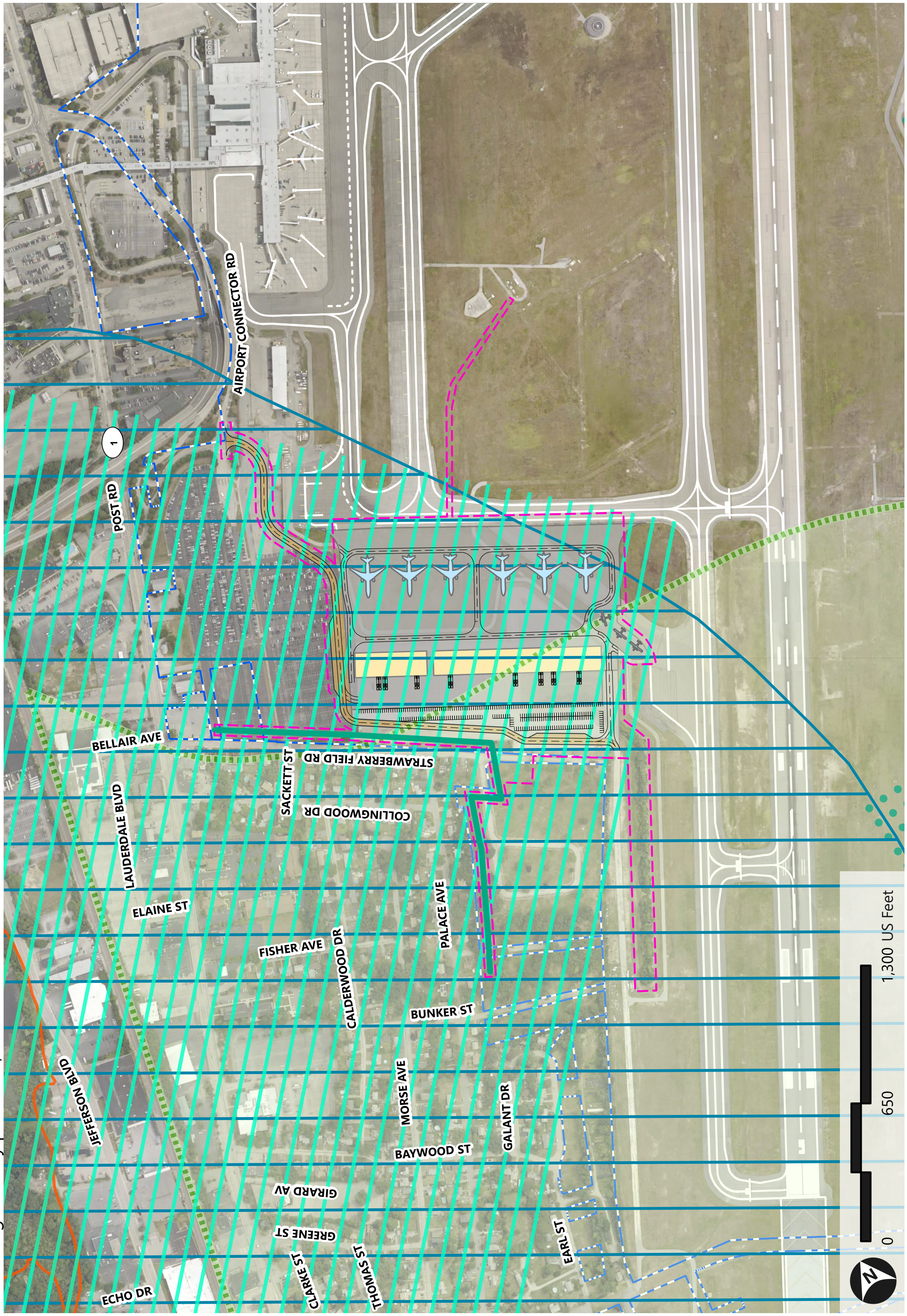
Source: RIGIS, VHB

Path: \\vhb\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (zconner, 12/14/2022)

APPENDIX K

Water Resources - Project Area

South Cargo Facility | Warwick, RI



Project Area

Property Line

Coastal Resources Management Council Greenwich Bay Special Area Management Plan (SAMP)

Effective 500-year NFIP Floodplain

Providence/Warwick Groundwater Aquifer

Source: RIGIS, VHB

Path: \\vhb\gis\proj\Providence\73330.00\Project\PVD TF Green Figure.aprx (zconner, 12/14/2022)

APPENDIX L

Public and Agency Involvement

APPENDIX L

Rhode Island
T. F. Green International Airport

Public Information Open House

Please join the Rhode Island Airport Corporation (RIAC) at an Open House to learn about the South Cargo Project.

About the Project

- This Project is the next step in implementing the FAA-approved PVD Master Plan, a 20-year plan which outlines improvements to meet changing demands at the airport. Similar to when the PVD Master Plan was developed, community involvement will continue to play a crucial role in the Project's success.
- The proposed project will be constructed partially on Parking Lot E, with access from Evans Avenue.
- The proposed project is expected to increase daily air cargo arrivals by 1-2 flights per day.
- Studies are underway to determine traffic, visual, and noise impacts.

Want to learn more? Join us at the Open House to view a conceptual plan for the project.

Where

Municipal Annex, Community Room
65 Centerville Road
Warwick, RI 02886

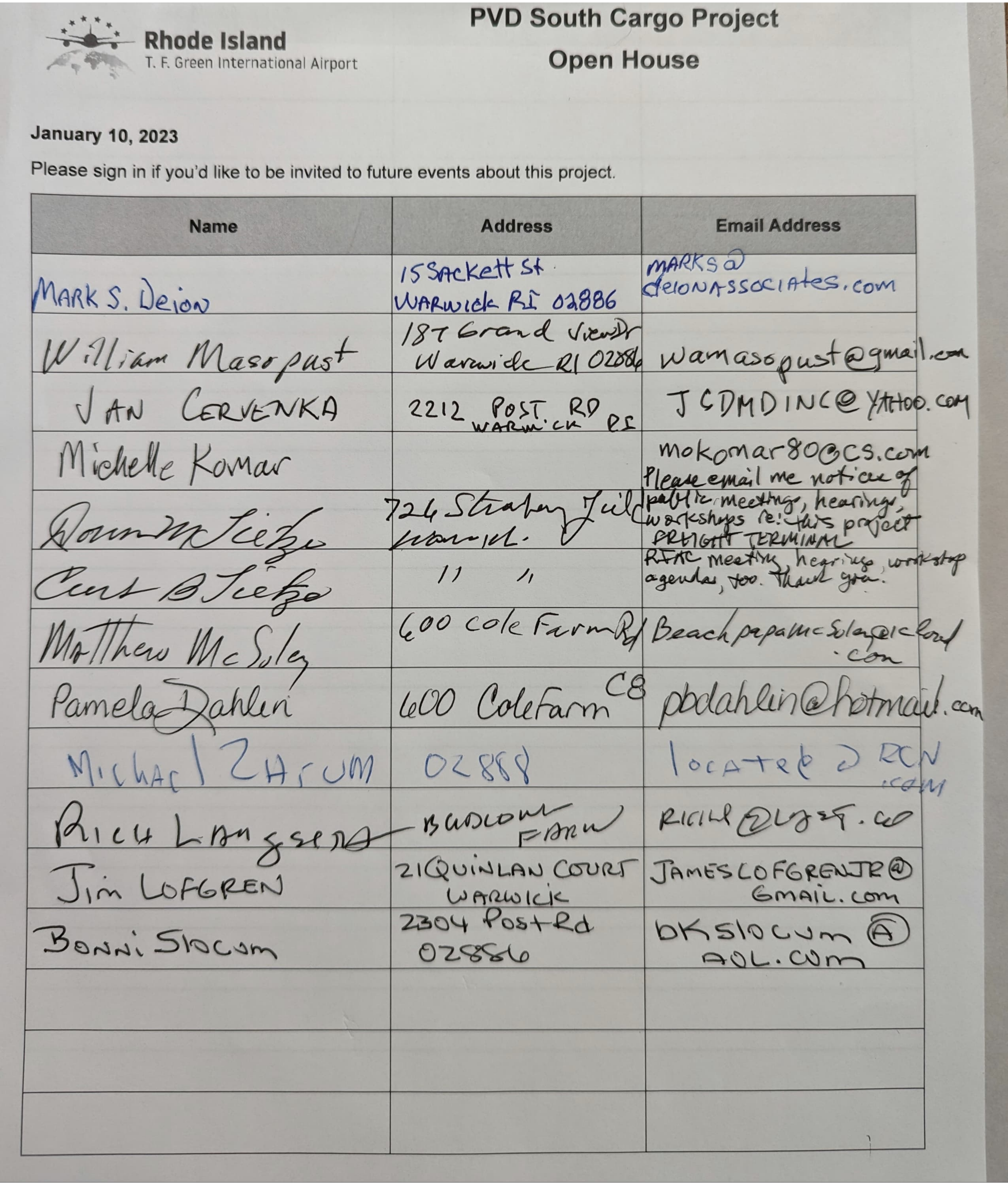
When

Tuesday, January 10, 2023
4:00-7:00pm

Visit our website: https://www.flyri.com/riac/improvement/

For more information, contact: PVDSouthCargo@vhb.com

APPENDIX L



Rhode Island
T. F. Green International Airport

PVD South Cargo Project
Open House

January 10, 2023

Please sign in if you'd like to be invited to future events about this project.

Name	Address	Email Address
Mark S. Deion	15 Sackett St Warwick RI 02886	MARKS@ deionassociates.com
William Masopust	187 Grand View Dr Warwick RI 02886	wamasopust@gmail.com
JAN CERVENKA	2212 POST RD WARWICK RI	JCDMDINC@YAHOO.COM
Michelle Komar		mokomar80@cs.com Please email me notice of
Donna M Ciezko	724 Strawberry Field Warwick.	public meetings, hearings, workshops re: this project FREIGHT TERMINAL
Curt B Ciezko	" "	RIAC meeting, hearings, workshop agendas, too. Thank you.
Matthew McSoley	600 Cole Farm Rd	Beachpapamcsoley@icloud.com
Pamela Dahlin	600 ColeFarm C8	pbdahlin@hotmail.com
Michael Zharum	02888	located@RCN.com
Rich Langseth	BUDLONG FARM	RICH@LZEF.CO
Jim LOFGREN	21 QUINLAN COURT WARWICK	JAMESLOFGRENJR@GMAIL.COM
BONNI SLOCUM	2304 Post Rd 02886	bKslocum@AOL.COM

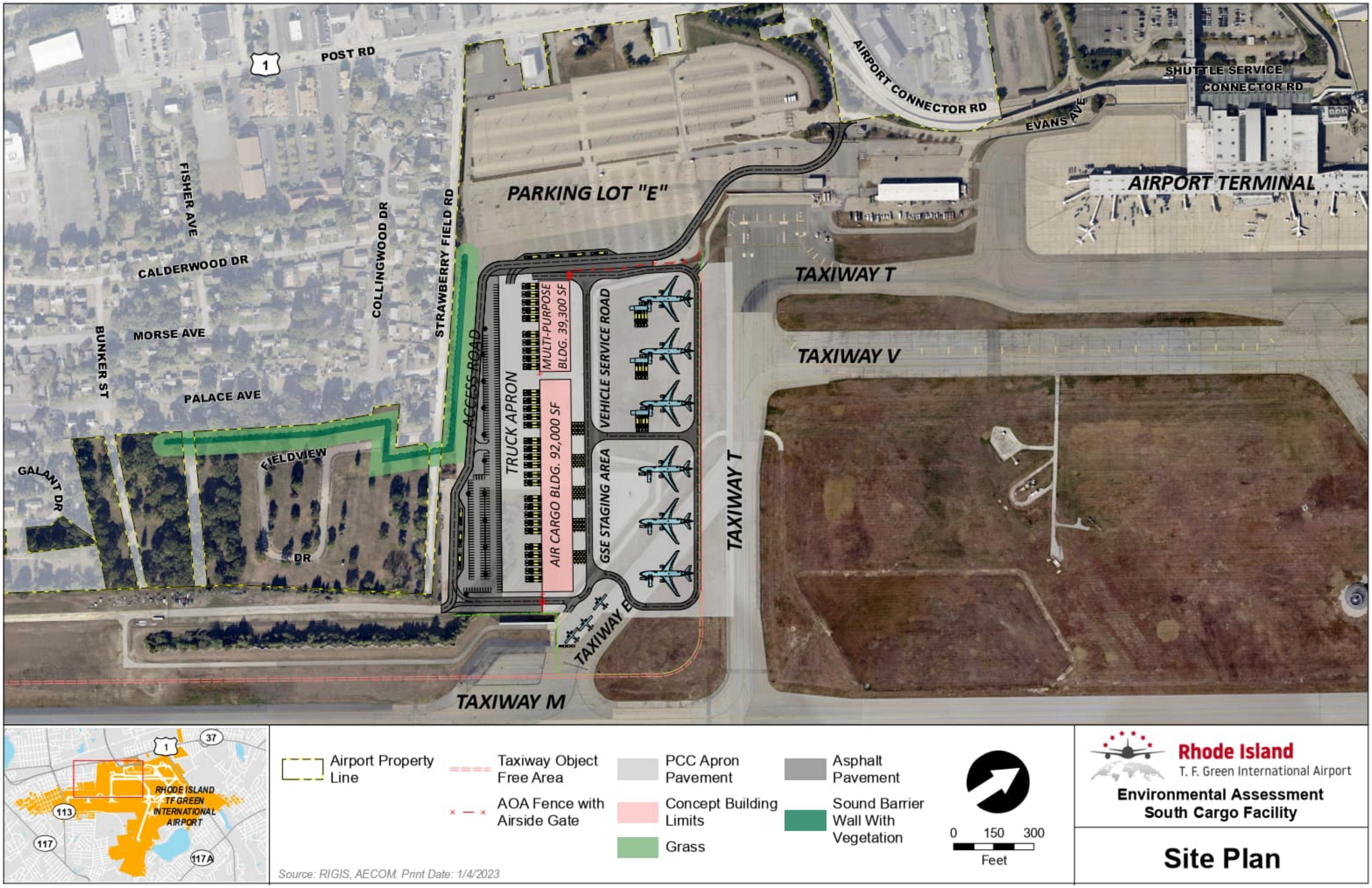
Airport Property Line

Source: RIGIS, AECOM. Print Date: 12/21/2022

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Vicinity Map



Source: RIGIS, AECOM. Print Date: 1/4/2023

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Site Plan

- AIR QUALITY
- BIOTIC RESOURCES
- CULTURAL RESOURCES
- NOISE
- TRAFFIC AND TRANSPORTATION
- VISUAL EFFECTS
- WATER RESOURCES

Technical Studies Underway

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Birdseye View: Proposed Cargo Site

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Section View: Project Site / Strawberry Field Road

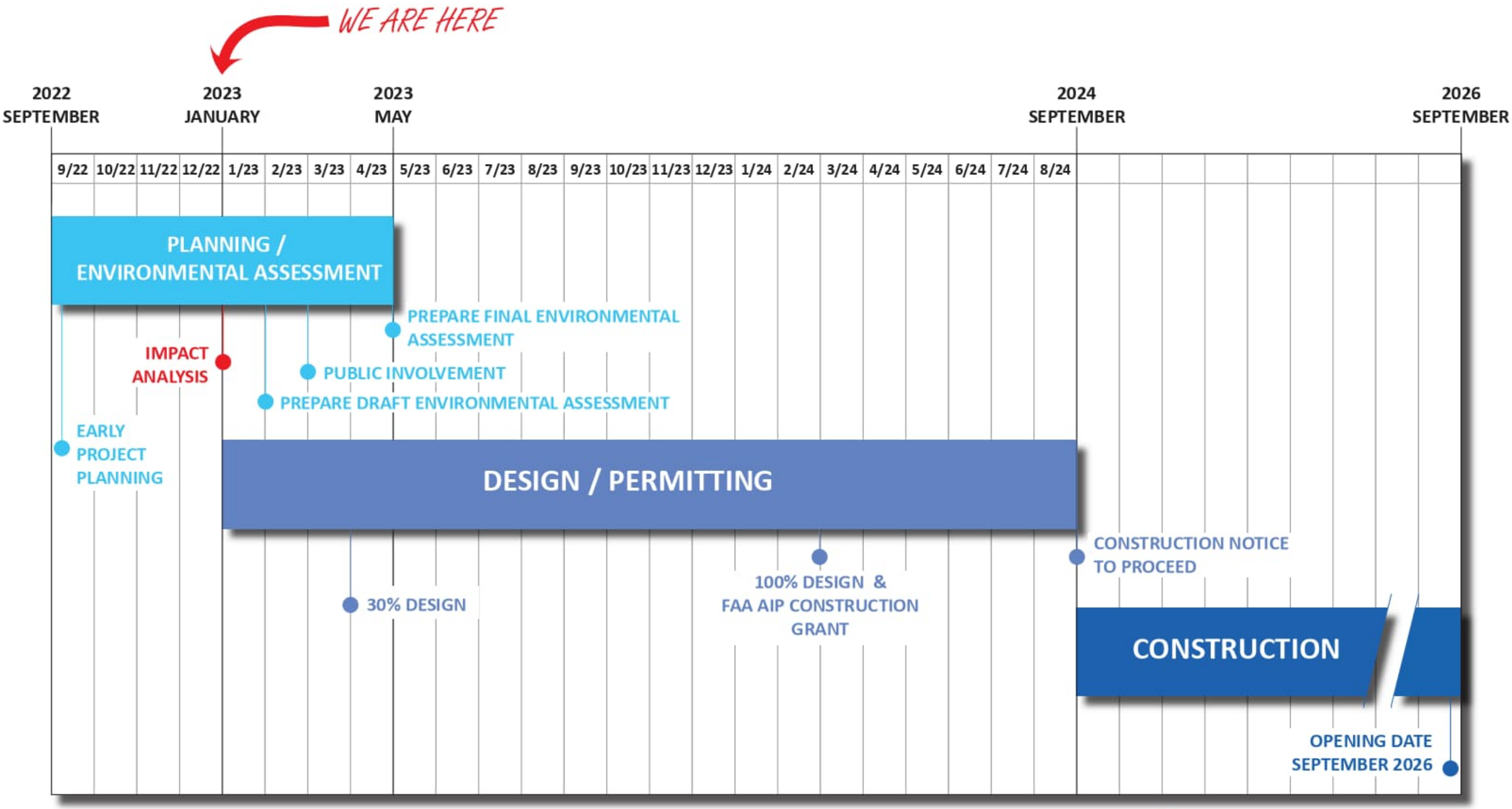
Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Strawberry Field Road at Fieldview Drive

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility



WE ARE HERE

2022 SEPTEMBER

2023 JANUARY

2023 MAY

2024 SEPTEMBER

2026 SEPTEMBER

9/22 10/22 11/22 12/22 1/23 2/23 3/23 4/23 5/23 6/23 7/23 8/23 9/23 10/23 11/23 12/23 1/24 2/24 3/24 4/24 5/24 6/24 7/24 8/24

PLANNING / ENVIRONMENTAL ASSESSMENT

PREPARE FINAL ENVIRONMENTAL ASSESSMENT

IMPACT ANALYSIS

PUBLIC INVOLVEMENT

PREPARE DRAFT ENVIRONMENTAL ASSESSMENT

EARLY PROJECT PLANNING

DESIGN / PERMITTING

CONSTRUCTION NOTICE TO PROCEED

100% DESIGN & FAA AIP CONSTRUCTION GRANT

30% DESIGN

CONSTRUCTION

OPENING DATE SEPTEMBER 2026

Project Timeline

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

APPENDIX L

EXECUTIVE CHAMBER

1642-1931

CITY OF WARWICK

FRANK J. PICOZZI
MAYOR

February 23, 2023

Mr. Iftikar Ahmad, President & CEO
Rhode Island Airport Corporation
2000 Post Road
Warwick, RI 02886

RE: Air Cargo Facility

Dear Mr. Ahmad:

I write today in regard to the Rhode Island Airport Corporation's Master Plan and the proposed construction of a cargo facility to meet RIAC's stated future needs at the airport.

As you are aware, the City has remained steadfast in its position that any components of the Master Plan should not and will not adversely affect the surrounding neighborhood, particularly as it pertains to noise resulting from operations, visual blight, and ground-level light emissions. At present, area residents are already subjected to the sight of a vacant parking lot and aviation-related buildings visible through a chain link fence separating the neighborhood and airport.

As you are also aware, RIAC has proposed the construction of a nine-foot (9') screen wall placed atop a six-foot (6') landscape berm to serve as a visual screen and to help reduce noise resulting from the cargo facility. The City has been provided information relative to a noise analysis/model that was completed for the proposed wall/berm, and believes that the stated noise reduction resulting from its construction would significantly alleviate its concerns relative to construction of the proposed cargo facility.

Despite this, due to initial indications that the proposed cargo facility would not expose any homes to a day-night average sound level (DNL) of 65 dB or higher, the City remains extremely concerned that costs associated with construction of the proposed wall/berm would not meet the Federal Aviation Administration's (FAA) requirements for approval to fund this very necessary and vital component of construction for the benefit, and protection of, the residents living in the neighborhood to the southwest, across Strawberry Field Road. In fact, the maximum permissible noise level by City Ordinance (Section 40-13) is 60 DNL at the property line. The environmental barrier, therefore is a critical project component to maintain consistency with local regulations.

Therefore, the City requests that RIAC continue its stated advocacy for construction of the wall/berm, and must insist that its costs be fully funded as part of construction of the proposed cargo facility.

I thank you for your continued attention to this matter. The City looks forward to commenting on the Environmental Assessment, which we understand is available for review in coming weeks.

Respectfully,

Frank J. Picozzi
Mayor

Rhode Island
T. F. Green International Airport

Public Meeting

Please join the Rhode Island Airport Corporation (RIAC) at a Public Meeting to review the Draft Environmental Assessment for the South Cargo Project.

About the Project

- This Project is the next step in implementing the FAA-approved PVD Master Plan, a 20-year plan which outlines improvements to meet changing demands at the airport. Similar to when the PVD Master Plan was developed, community involvement will continue to play a crucial role in the Project's success.
- The proposed project will be constructed partially on Parking Lot E, with access from Evans Avenue.
- The proposed project is expected to increase daily air cargo arrivals by 1-2 flights per day.
- Studies have been completed to determine traffic, visual, and noise impacts.

Want to learn more? Join us at the Public Meeting to view conceptual plans and results from the Draft Environmental Assessment.

Where

Municipal Annex, Community Room
65 Centerville Road
Warwick, RI 02886

When

Thursday, April 20, 2023
4:00-7:00pm

Public Comments will be received March 31–May 1, 2023 through any of the following:

- **Email:** PVDSouthCargo@aecom.com
- **Postal Mail:** PVD South Cargo Facility Project, c/o AECOM, 1635 Market Street, Suite 1000, Philadelphia, PA 19103
- **At the Public Meeting**

Visit our website to view the Draft Environmental Assessment: https://www.flyri.com/riac/improvement/. A print copy is also available for review at the Warwick Public Library on Sandy Lane.

For more information, contact: PVDSouthCargo@aecom.com

Warwick (/)
BEACON
warwickonline.com

MAIN MENU

Public Notice

Posted Wednesday, March 29, 2023 7:00 pm

Notice of Availability of the Draft Environmental Assessment for the South Cargo Facility at Rhode Island T. F. Green International Airport

This notice is to advise the public of the availability of the Draft Environmental Assessment and that a public meeting will be held. The Rhode Island Airport Corporation (RIAC) and AECOM have prepared a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed South Cargo Facility planned for Rhode Island T. F. Green International Airport located in Warwick, RI. The proposed project entails redevelopment of a portion of Parking Lot E to accommodate a new air cargo facility. The project would relocate existing FedEx and UPS cargo operations from their current location on the north side of the Airport to a new, larger, more efficient, and safer facility that would be constructed on the south side of the Airport.

An EA, under the National Environmental Policy Act (NEPA), is a concise public document that provides sufficient information and analysis for determining whether the Federal Aviation Administration (FAA) should issue a Finding of No Significant Impact (FONSI) or request additional review to further analyze the proposed project and its alternatives. It is designed to help public officials make decisions that are based on an understanding of the potential human and physical environmental consequences of the proposed project.

The Draft EA report is available for a 30-day public review and comment period. The document may be viewed at the Warwick Public Library, 600 Sandy Lane, Warwick, RI 02889. The document may also be viewed online at https://www.flyri.com/riac/improvement/. Public comments received on the project will be submitted to the FAA for consideration and included in the Final EA. Public comments will be accepted in writing or via email until
5:00 pm Monday, May 1, 2023.

Comment submitted by e-mail should be sent to PVDSouthCargo@aecom.com (mailto:PVDSouthCargo@aecom.com). Comments submitted in writing should be mailed to:

PVD South Cargo Facility Project
c/o AECOM
1635 Market Street
Suite 1000
Philadelphia, PA 19103

Comments on the Draft EA will also be received at a Public Meeting scheduled for Thursday, April 20, 2023 at the Municipal Annex, Community Room, 65 Centerville Road, Warwick RI 02886 from 4:00 pm to 7:00 pm. The open-house style meeting will provide an opportunity for all individuals to engage and participate fully in reviewing project materials, asking questions, and leaving comments. To request an accommodation or for inquiries about accessibility, please contact Dawn Mineker, Vice President, Engineering & Architecture, RIAC, 401-691-2417.

Rhode Island
T. F. Green International Airport

PVD South Cargo Facility
Draft Environmental Assessment
Public Meeting
Sign-in Sheet

April 20, 2023

Name	Address	Email Address
Neil & Nancy Landes	15 Parkway Dr.	curvesww@msn.com
Roger Durand	60 Black Creek Ln	
DONALD FIFE	84 GILLOOLY DR.	N/A NO COMPUTER
MICHAEL ALMEIDA	38 GEORGE ARDEN	ALMEIDA.MICHAEL64@GMAIL.COM
[redacted]	[redacted]	[redacted]
Ron & Kim Hawkins	47 BOWMAN DR.	Khawk55@verizon.NET
Barbara C. Dwyer	48 Bowman Drive	barbara.dwyer4@verizon.net
Michele Hanson	4 Bowman Dr	Michele.Hanson500@Gmail.Com
Bruce Hanson	6 Bowman DR.	
John Howell	Beacon	Johnh@Rhodybeat.com
Michelle Komar	80 AUDUBON ROAD WARWICK, RI	mokomar80@cs.com (did not get Flyer)
Rich Langseth	Budlong Farm	Richard@langseth.com

Name	Address	Email Address
Barry D Cook	109 NAMQUID Dr	WARWICK TPke [illegible]
RANDY & JEANNE JRR	120 STANMORE Rd.	WArwick [illegible]
Kathleen Schofils	1253 [illegible] Rd.	02886
Michael Zarum		
Bonni Slocum		
Jim LOFGREN	21 QUINLAN COURT WARWICK	JAMESLOFGRENJR@ GMAIL.COM
Tim Howe	33 Elite DR WARWICK, RI	Howe.Ward3@ gmail.com
Ron LANGLAIS	60 PALACE AVE	
JoAnn Langseth	170 Budlong Farm Rd.	
STAN SNYZYK	790 STRAWBERRY Fld Rd WARWICK	02886
Doreen Paola	207 Fairfax DR Warwick RI 02888	

APPENDIX L

Public Information Open House Board
Public Meeting Board

Airport Property Line

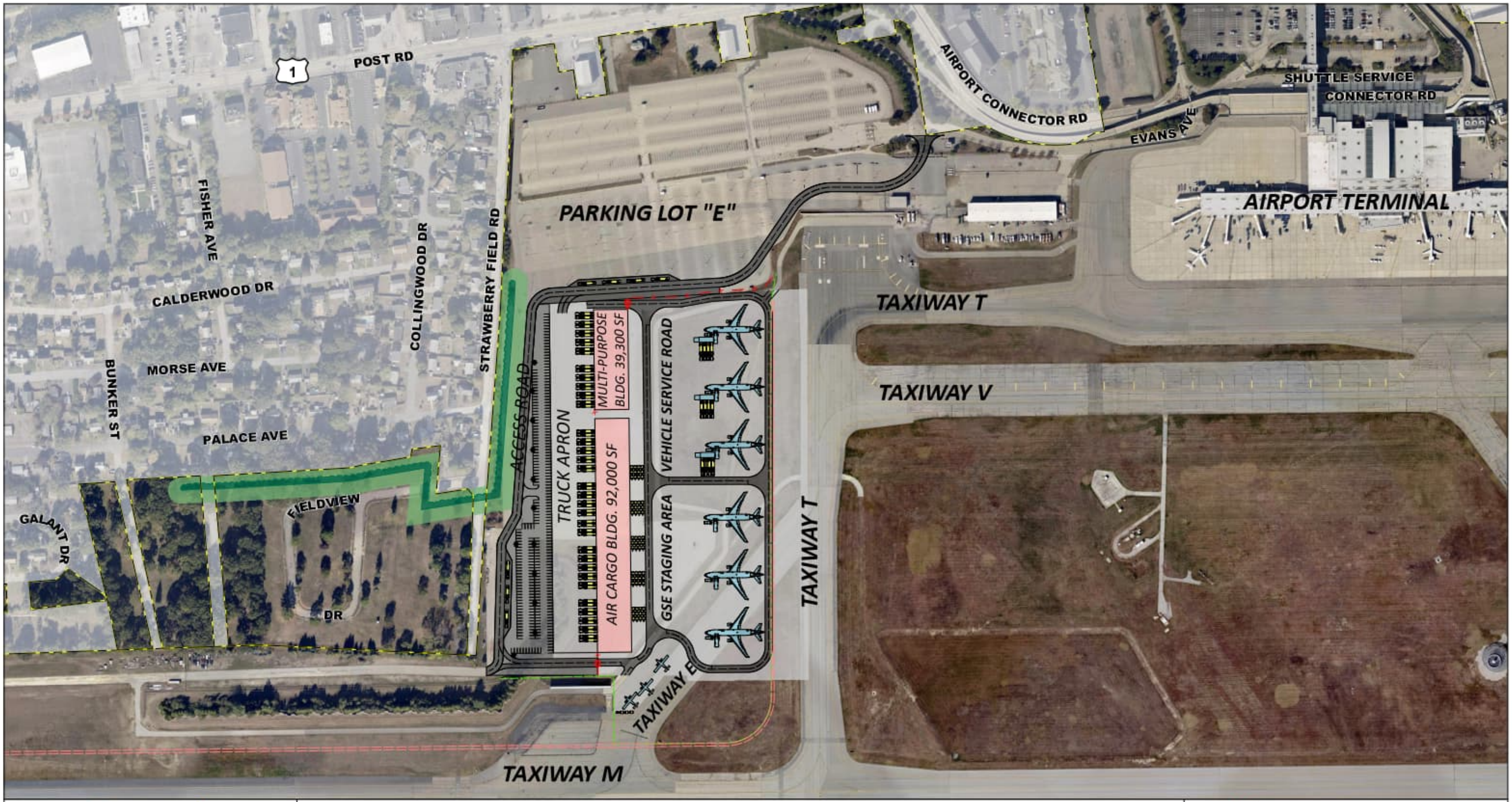
Source: RIGIS, AECOM. Print Date: 12/21/2022

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Vicinity Map

Public Information Open House Board
Public Meeting Board



- ▭ Airport Property Line
- ▭ Taxiway Object Free Area
- × — × AOA Fence with Airside Gate
- ▭ PCC Apron Pavement
- 🟥 Concept Building Limits
- 🟩 Grass
- ▭ Asphalt Pavement
- 🟩 Sound Barrier Wall With Vegetation

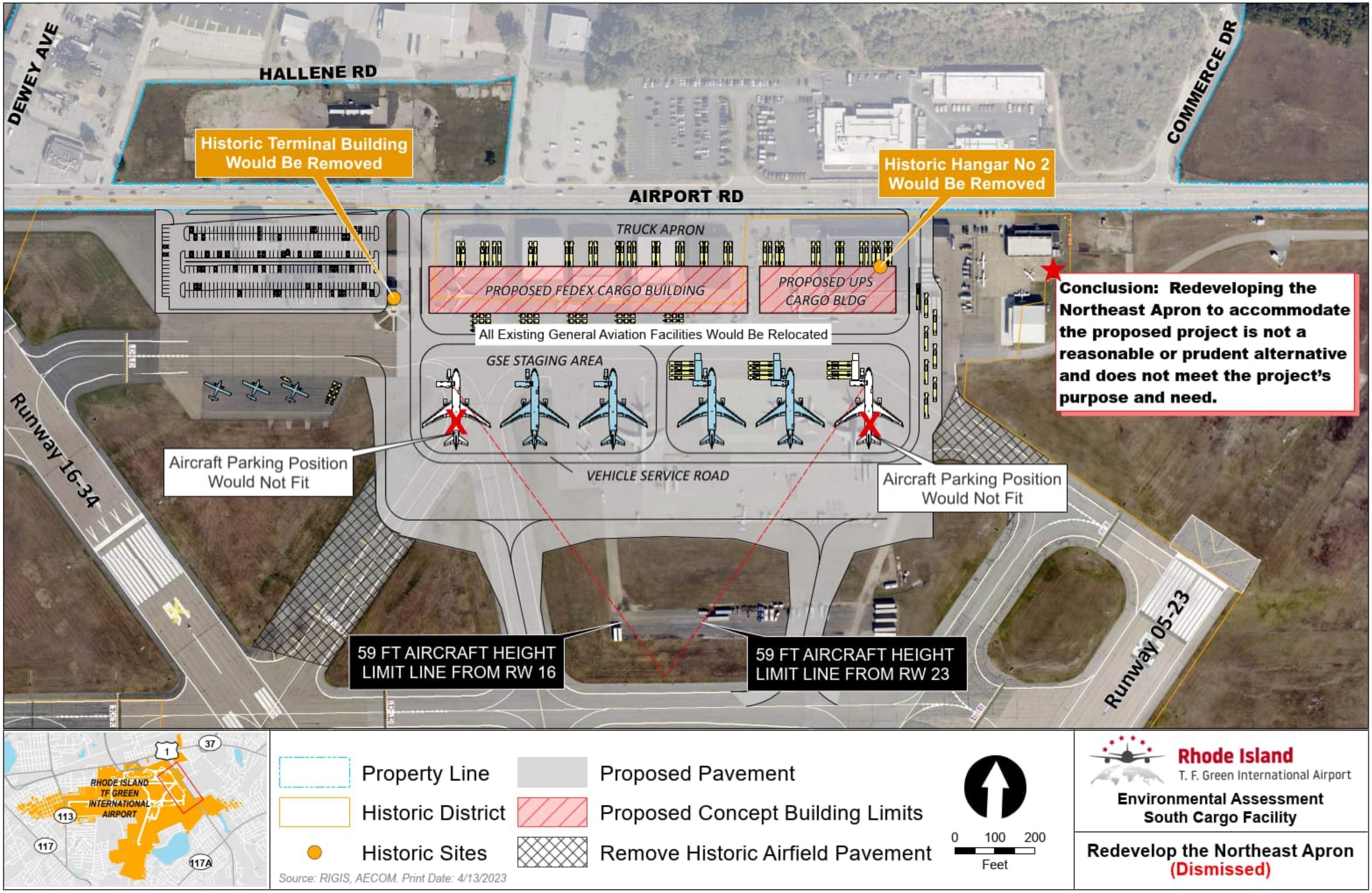
0 150 300
Feet

Source: RIGIS, AECOM. Print Date: 1/4/2023

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Site Plan



Conclusion: **Redeveloping the Northeast Apron to accommodate the proposed project is not a reasonable or prudent alternative and does not meet the project's purpose and need.**

⬚	Property Line	▭	Proposed Pavement
▭	Historic District	▨	Proposed Concept Building Limits
●	Historic Sites	▦	Remove Historic Airfield Pavement

Source: RIGIS, AECOM. Print Date: 4/13/2023

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Redevelop the Northeast Apron
(Dismissed)

Analysis shows insignificant impact to Air Quality


Source: AECOM

Emissions from Construction

Emissions (in Tons per Year)

2024 Project Construction	CO	VOC [a]	NO_2 [a]	SO_2	PM_{10}	$PM_{2.5}$
Vehicles and Equipment [b]	29.4	2.08	7.71	0.074	3.04	0.36
Significance Threshold	100	100	100	100	100	100
Emissions Below Significance Threshold	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Abbreviations

CO = Carbon Monoxide

VOC = Volatile Organic Compounds

NO_2 = Nitrogen Dioxide

SO_2 = Sulfur Dioxide

PM_{10} = Particle Pollution (less than 10 micrometers in diameter)

$PM_{2.5}$ = Particle Pollution (less than 2.5 micrometers in diameter)

Notes

(a) Following standard industry practice, ozone was evaluated by estimating ozone precursors NO_2 and VOCs.

(b) Total emissions inventory for all demolition and construction activities.

(c) 2026 net operational emissions (i.e., Proposed Action minus No Action).

Source: Table 5-2 in the Draft Environmental Assessment


Source: RIAC

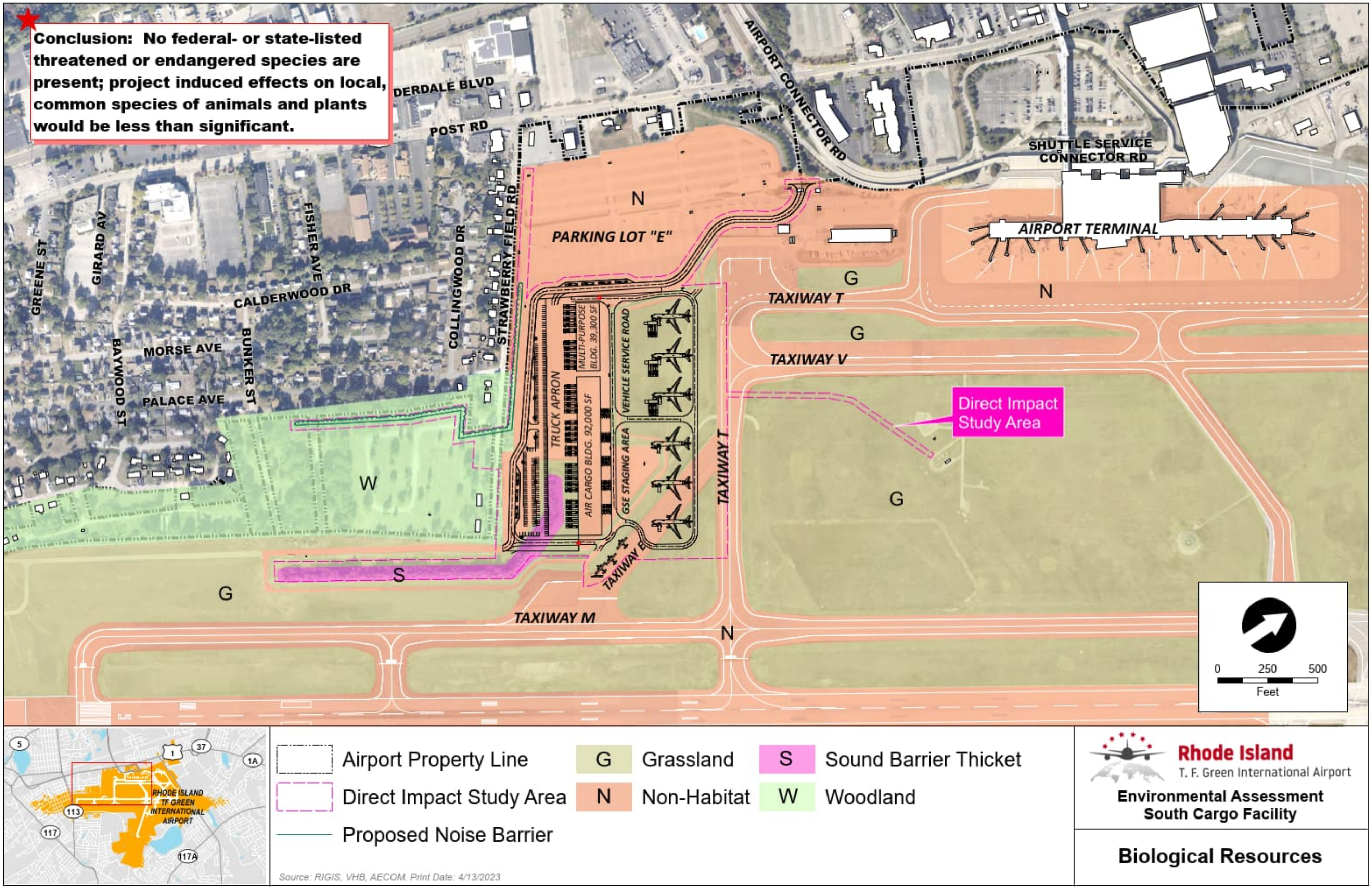
Emissions from Operations

Emissions (in Tons per Year)

2026 Project Operations	CO	VOC [a]	NO_2 [a]	SO_2	PM_{10}	$PM_{2.5}$
Aircraft	326.7	43.38	211.42	20.27	2.02	2.02
Auxiliary Power Units	12.48	0.94	8.97	1.31	1.23	1.23
Ground Service Equipment	42.05	1.59	3.8	0.03	0.25	0.23
Vehicles on Roadways	1.53	0.09	2.77	0.00	0.04	0.04
Subtotal With Project	**382.76**	**46.00**	**226.96**	**21.61**	**3.54**	**3.52**
No Project Alternative	**338.29**	**32.1**	**198.76**	**19.76**	**3.21**	**3.19**
Net Difference [c]	**44.47**	**13.9**	**28.2**	**1.85**	**0.33**	**0.33**
Significance Threshold	**100**	**100**	**100**	**100**	**100**	**100**
Emissions Below Significance Threshold	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

★ **Conclusion: The results of the air quality analysis indicate that the incremental increase in air emissions caused by construction and operation of the proposed project would be of no significance.**

Air Quality



Conclusion: No federal- or state-listed threatened or endangered species are present; project induced effects on local, common species of animals and plants would be less than significant.

Airport Property Line

Direct Impact Study Area

Proposed Noise Barrier

G Grassland

N Non-Habitat

S Sound Barrier Thicket

W Woodland

Source: RIGIS, VHB, AECOM. Print Date: 4/13/2023

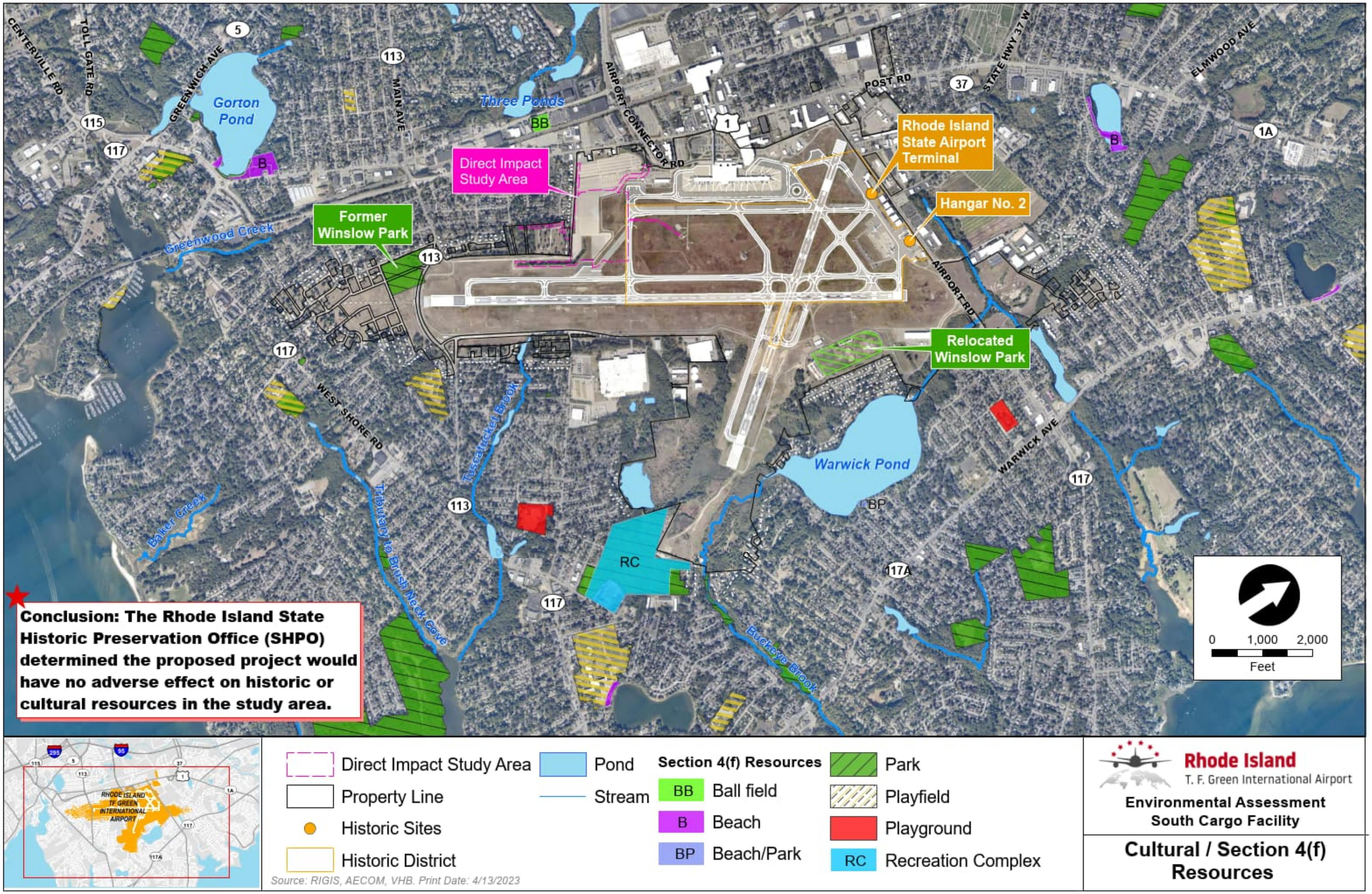
Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Biological Resources

APPENDIX L

Public Meeting Board



Conclusion: The Rhode Island State Historic Preservation Office (SHPO) determined the proposed project would have no adverse effect on historic or cultural resources in the study area.

- ▭ Direct Impact Study Area
- ▭ Property Line
- ● Historic Sites
- ▭ Historic District
- 🟦 Pond
- — Stream

Section 4(f) Resources

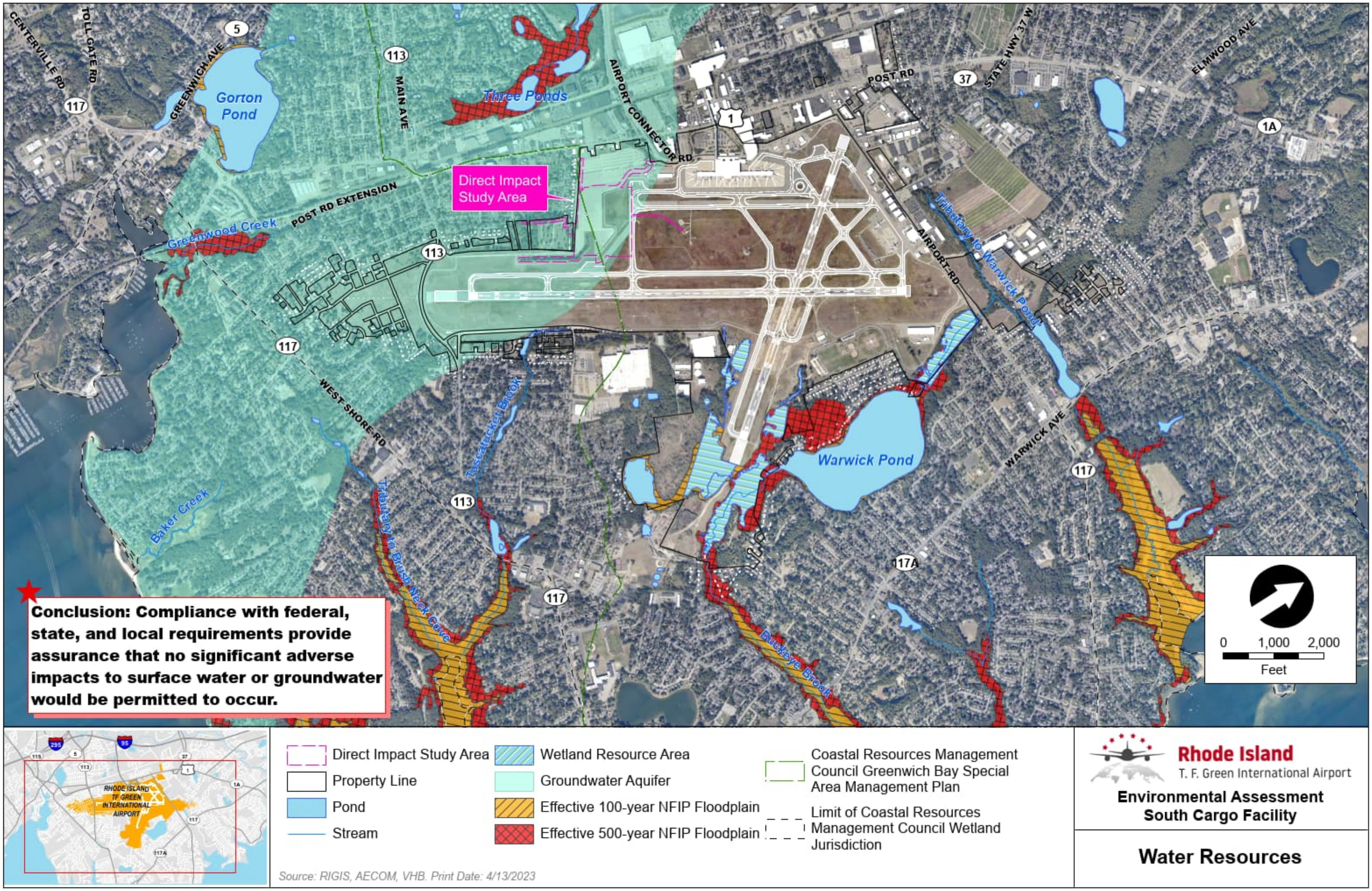
- BB Ball field
- B Beach
- BP Beach/Park
- ▨ Park
- ▨ Playfield
- 🟥 Playground
- RC Recreation Complex

Source: RIGIS, AECOM, VHB. Print Date: 4/13/2023

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Cultural / Section 4(f) Resources



★ **Conclusion: Compliance with federal, state, and local requirements provide assurance that no significant adverse impacts to surface water or groundwater would be permitted to occur.**

- ▭ Direct Impact Study Area
- ☐ Property Line
- 🟦 Pond
- — Stream
- ▨ Wetland Resource Area
- ▭ Groundwater Aquifer
- ▨ Effective 100-year NFIP Floodplain
- ▩ Effective 500-year NFIP Floodplain
- ▭ Coastal Resources Management Council Greenwich Bay Special Area Management Plan
- ▭ Limit of Coastal Resources Management Council Wetland Jurisdiction

Source: RIGIS, AECOM, VHB. Print Date: 4/13/2023

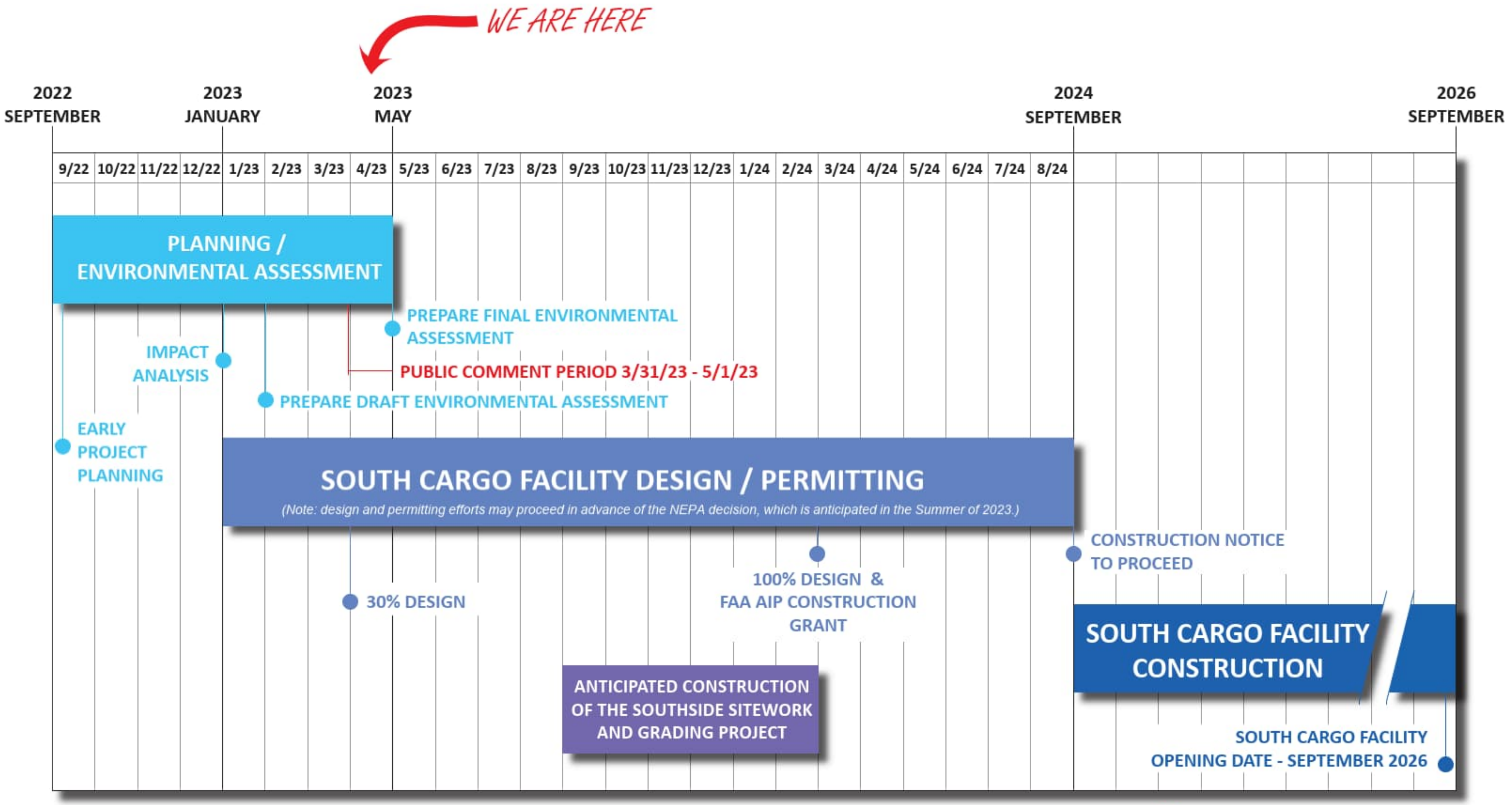
Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Water Resources

APPENDIX L

Public Meeting Board



WE ARE HERE

2022 SEPTEMBER

2023 JANUARY

2023 MAY

2024 SEPTEMBER

2026 SEPTEMBER

9/22 | 10/22 | 11/22 | 12/22 | 1/23 | 2/23 | 3/23 | 4/23 | 5/23 | 6/23 | 7/23 | 8/23 | 9/23 | 10/23 | 11/23 | 12/23 | 1/24 | 2/24 | 3/24 | 4/24 | 5/24 | 6/24 | 7/24 | 8/24

PLANNING / ENVIRONMENTAL ASSESSMENT

PREPARE FINAL ENVIRONMENTAL ASSESSMENT

IMPACT ANALYSIS

PUBLIC COMMENT PERIOD 3/31/23 - 5/1/23

PREPARE DRAFT ENVIRONMENTAL ASSESSMENT

EARLY PROJECT PLANNING

SOUTH CARGO FACILITY DESIGN / PERMITTING

(Note: design and permitting efforts may proceed in advance of the NEPA decision, which is anticipated in the Summer of 2023.)

CONSTRUCTION NOTICE TO PROCEED

100% DESIGN & FAA AIP CONSTRUCTION GRANT

30% DESIGN

SOUTH CARGO FACILITY CONSTRUCTION

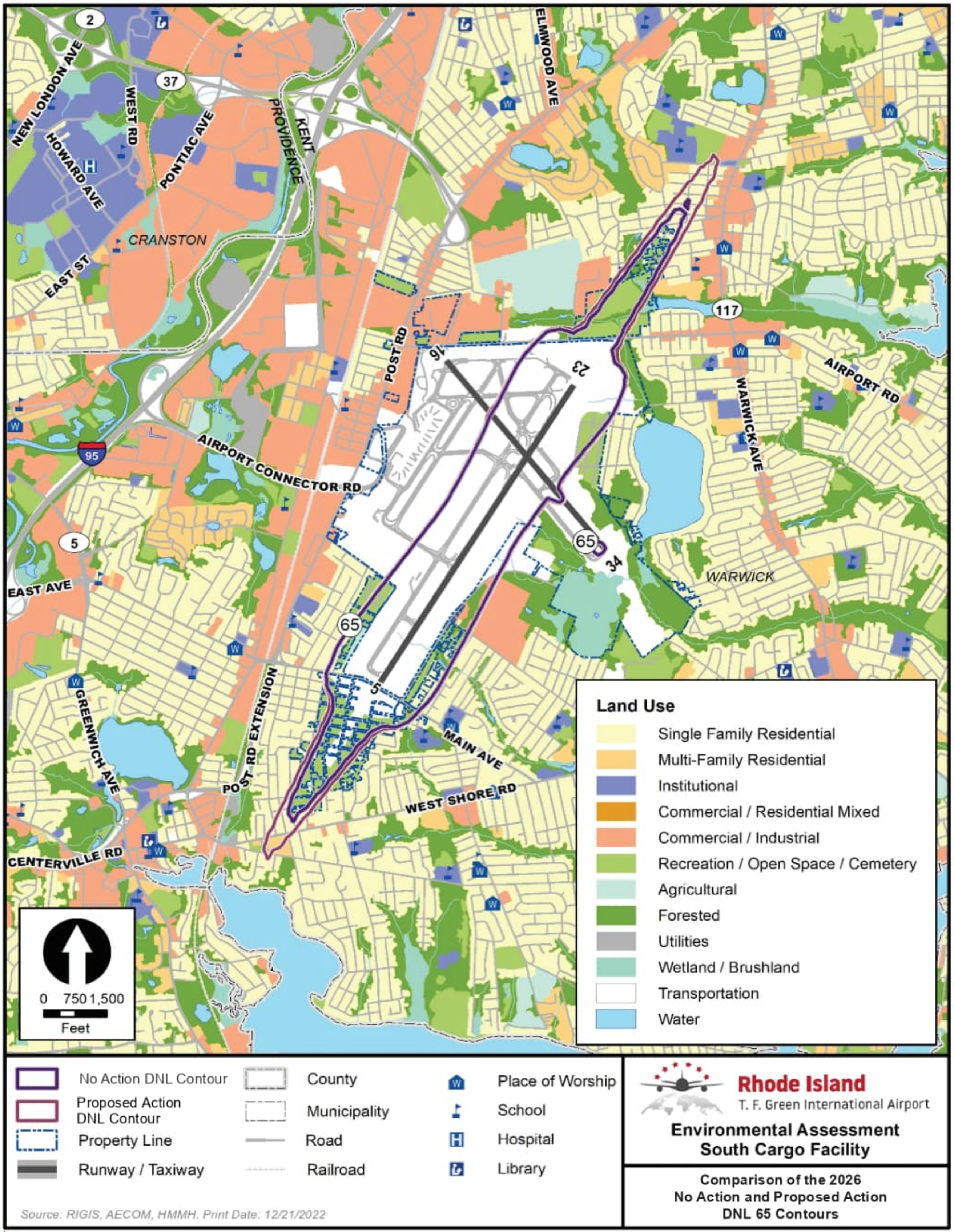
ANTICIPATED CONSTRUCTION OF THE SOUTHSIDE SITEWORK AND GRADING PROJECT

SOUTH CARGO FACILITY OPENING DATE - SEPTEMBER 2026

Project Timeline

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

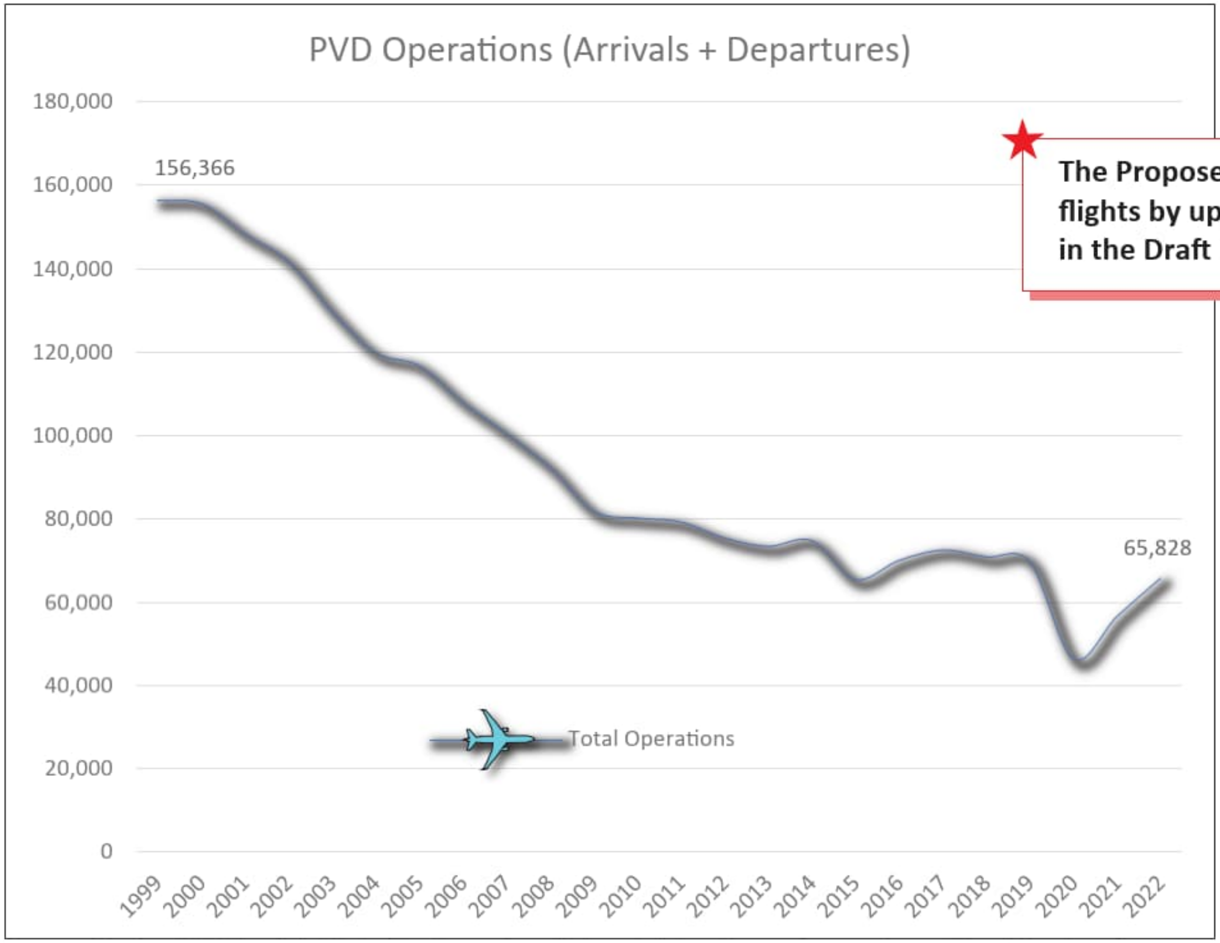


Environmental Assessment
South Cargo Facility

Comparison of the 2026
No Action and Proposed Action
DNL 65 Contours

Source: RIGIS, AECOM, HMMH. Print Date: 12/21/2022

Conclusion: The results of the noise analysis indicate that the incremental increase in noise caused by construction and operation of the proposed project would be less than significant, and that ground operations noise along Strawberry Field Road would be reduced by construction of the noise barrier wall.



The Proposed Action will increase flights by up to 2 per day (as stated in the Draft EA, section 3.1.3.).

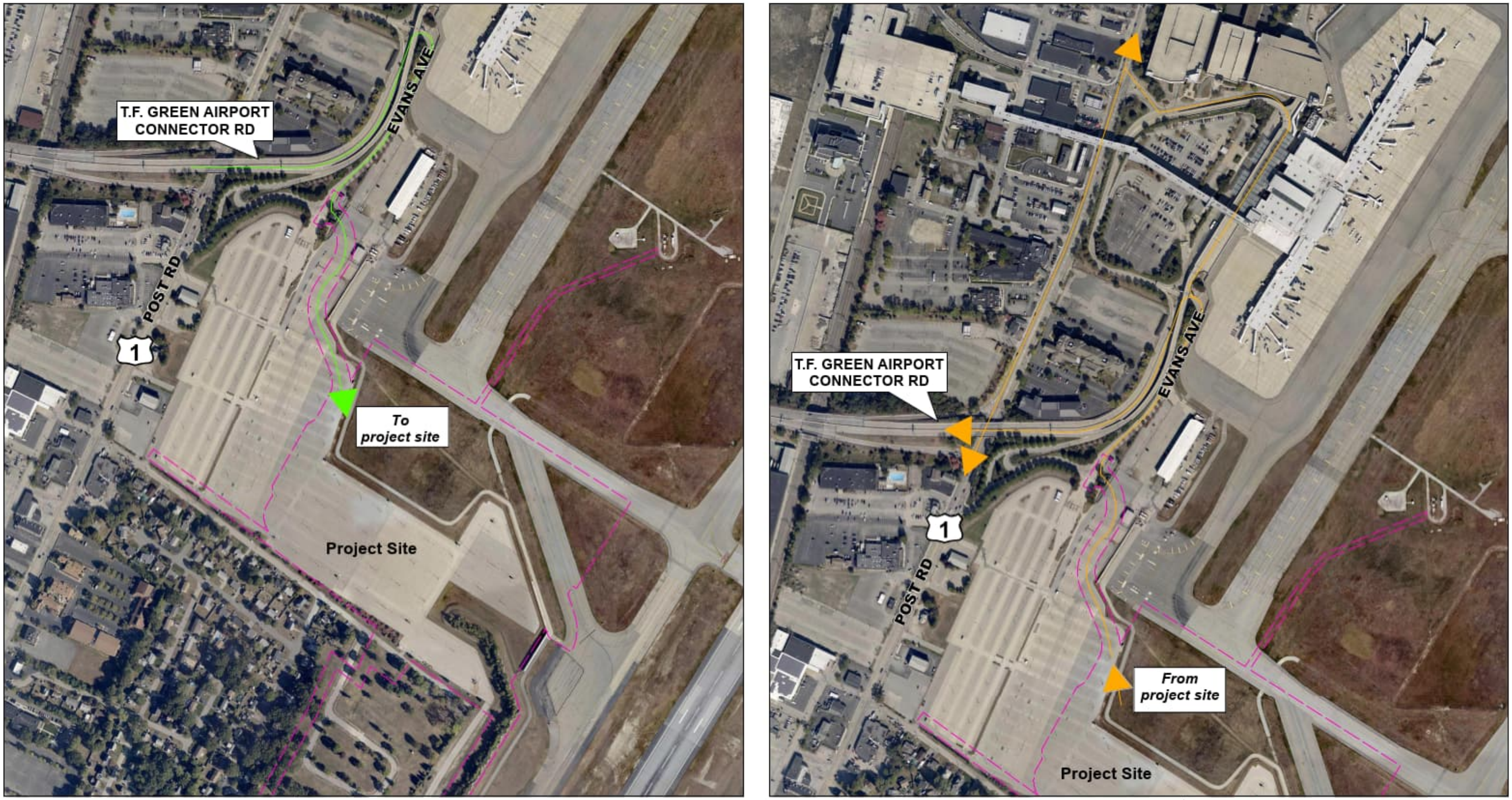
Source: Federal Aviation Administration Operations Network (https://aspm.faa.gov/opsnet/sys/Airport.asp)

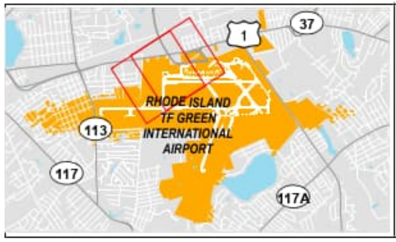
The Operations Network (OPSNET) is the official source of FAA air traffic operations and delay data. Daily Operations Data is available from FY 1990 through present day. Daily Delay Data is available from FY 2000 through present day. Although operations and delay data are available daily, they are not publicly accessible until after the 20th of the next month. Data for this graph was retrieved from OPSNET on April 11, 2023.

PVD Annual Aircraft Operations 1999-2022

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility





- Entering Vehicle Route
- Exiting Vehicle Route
- Direct Impact Study Area

Source: RIGIS, AECOM. Print Date: 4/13/2023

Conclusion: RIDOT has reviewed the results of the traffic impact analysis and determined that the proposed project would not cause or contribute to a significant impact on roadways serving the Airport or the community.

0 200 400
Feet

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Roadway Network / Site Access

Birdseye View: Proposed Cargo Site

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Section View: Project Site / Strawberry Field Road

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Public Information Open House Board
Public Meeting Board

Strawberry Field Road at Fieldview Drive

Rhode Island
T. F. Green International Airport

Environmental Assessment
South Cargo Facility

Page 1

STATE OF RHODE ISLAND

PROCEEDINGS IN RE:

RIAC ENVIRONMENTAL ASSESSMENT PUBLIC MEETING

~~~~~~

April 20, 2023
4:00 p.m.

65 Centerville Road
Warwick, RI 02886

Adam M. Derham, CSR

Page 2

MR. ALMEIDA: My name is Michael Almeida. I live at 38 George Arden Avenue in Warwick on the southwest corner of the airport, approximately four blocks from the -- where the facility is being built now.

I have two questions really. One is that did they consider building this cargo terminal, instead of at its present location where it wants to be built, to Quonset airport; and, if not, why didn't they, and, if they did, why did they turn it down.

Because, to me, if you're gonna make a new cargo airport, why not put it in the industrial complex at Quonset airport where it's already been upgraded, the infrastructure, and it's in an industrial complex where you can appease the residents of Warwick by taking the aircraft cargo out of T.F. Green and putting it in Quonset Point, and it would eliminate, also, the possibility of hazardous materials being shipped on cargo planes and interfering with air travel of regular passengers.

So to me it was a win-win: a safety issue for passenger safety, a residential issue for noise, and a traffic issue because that infrastructure is already built at Quonset, and it's an industrial complex.

Page 3

MS. HANSON: My name's Michele with one "L," yeah, Hanson, H-a-n-s-o-n.

THE STENOGRAPHER: And where do you live?

MS. HANSON: 6 Bowman Drive, Warwick.

Okay. The bottom line is nobody does anything without money. Money is the -- it's the power behind everything; okay? Nobody exerts themselves unless there's money in it.

What do we care whether Boston is overrun and they can't take any more planes anymore, they can't take any more business? They're saturated. What do we care? Who is benefiting by this; okay?

And it doesn't just start here -- stop here. It could go to Amazon. It could go to someplace else. You know, somebody else wants to come in, and, before you know it, we've got a Logan Airport in the middle of a city that's inundated with three bedroom/one bathroom houses. I mean, really, the houses in Warwick right here are -- basically, they're small houses.

MR. HANSON: Yeah, they're small.

MS. HANSON: Yeah. So I'm being, you know, sarcastic, if you can't tell, but the thing is, who benefits by this?

MR. HANSON: Are our taxes going to go lower? This is what she's hoping --

Page 4

MS. HANSON: Right.

MR. HANSON: -- to find out, you know.

MS. HANSON: We've got to benefit by this somewhat.

MR. HANSON: Are the property taxes going to go lower because of the increase in traffic to the airport?

MS. HANSON: That's my husband. He doesn't like to give his name out; so that's all right.

MR. HANSON: I'm Michele's husband. Fifty-three years, you can put that down, and I made it.

MS. HANSON: That's two flights a day -- that's just pathetic -- times two. I mean, they got to come in and they got to take off, and the houses shake when they do it. The regular planes, they --

MR. HANSON: Sometimes, when they take off, I shake.

MS. HANSON: Yeah, but we know that they're cargo planes because, I mean, when they were bringing the illegals in at 3:00 o'clock in the morning, we knew what planes they were; okay? And, when the cargo planes take off, we know that's what it is because they go, oh, my God, the sound.

MR. HANSON: They're so big and so loud.
~~~~~~

MS. HANSON: Being so loud. So now we've got two flights coming and two flights going out. I'm gonna have cracks all over our houses, you know, from the houses shaking.

After 11:00 o'clock, no passenger planes are coming in or going out unless it's bad weather that they'd have to be adjusted for coming from the south or whatever.

MR. HANSON: Diverted from a different airport.

MS. HANSON: Right, uh-hmm.

MR. HANSON: That's what they're trying to say.

MS. HANSON: So, when we hear these planes coming in, we go, oh, Jesus, we know what the hell these are. These are cargo planes or bringing in, you know, over-the-border people. You can put that in. I could care less. I just don't want the, you know, FBI, you know.

MR. HAWKINS: Ron Hawkins, 47 Bowman Drive, Warwick. So I guess, you know, I want to know who is footing the bill for this, and I want to know what type of benefit is the City of Warwick getting from this. In other words, is the taxpayer going to get any tax relief, or what is the benefit to the citizens of Warwick?

MS. HANSON: Besides the pollution and the noise.

MR. HAWKINS: Ron Hawkins, it's 47 Bowman Drive. So, you know, I find the emissions to be totally unacceptable at this point; so I'm against adding on any more funds and any new additions to T.F. Green International based on that.

MR. FIFE: Donald Fife, F-i-f-e, as in "fife and drum," 84 Gillooly, that's G-i-l-l-o-o-l-y, Drive in Warwick, 02888.

I'm against this. Whenever we have new projects, it never works out to what they say. This should have been done at their -- this is what happens when you have an airport in a residential area. It should have been done at Quonset; so I'm against this.

I'm afraid that the -- you'll have more traffic on Airport Road. You'll have more traffic on Airport Road, even though they said there won't be any more traffic; and there will be more planes coming in and out, and there's the -- the runway's 100 feet from the kids' ball fields, where they play ball, baseball fields, soccer fields, whatever.

I guess that's it. That's about it.

Nothing ever goes the way it was planned; something always changes, and it's not for better.

Warwick is $1.1 million in debt, and it's business as usual. They don't do a thing to lower the costs. That's it.

MR. COOK: All right. Barry Cook, C-o-o-k, 109 Namquid, N-a-m-q-u-i-d, Drive, Warwick, Rhode Island.

I'm a little bewildered by all of this. I just looked at the charts out front. What they tell us is, first of all, that there's no environmental impact, that all the emissions fall within federal standards, there will be no substantial change in airport traffic.

We're doing all this for four additional flights, two flights in and 2 flights out. I must say I find that to be perplexing.

I also looked at a chart that showed that, in 1999, there were like 165,000 planes leaving and arriving. In 2022, it dropped down to about 68,000, and I was told that longer-term projections will see that 68,000 rise to 80,000. I found that amazing.

I find it bewildering that we're going through all this expense, all this time and effort, to accommodate only an additional four flights.

Unfortunately, as taxpayers and residents, we have to rely on the facts as presented to us. I find that troublesome. I have no way of counter -- countering those numbers. It just seems to me hard to conceive.

I don't know that we have all the information that was required. I don't have confidence in a lot of the information that's been provided.

I asked a question earlier in the lobby what's going to happen to the two existing freight buildings on Airport Road. They're being vacated and moving the flights to the Strawberry Field Road portion of the airport, but I can't find out what the plans are for the existing buildings. I would like to know what the plans are. What will those buildings be used for? It's just interesting to me that there's no plan on record as to how those buildings will be utilized.

I'm disappointed with tonight's gathering, meeting, call it what you'd like. Again, I'm not much on airport construction -- I'm new to all this -- but I was expecting, quite frankly, a presentation. I don't know why I was expecting that, but I thought I would come to a meeting with airport people, environmental people, who would be making a presentation. I didn't realize I would be coming in and standing before six or seven different graphs and charts and proposed designs and not really receive any information from the people here.

I'm disappointed that the gentleman who just left here, who commented this meeting was for public comment, I don't know what role he plays -- maybe you're the only person recording public comment, but I'm surprised that he left the meeting. I would have thought he would have stayed here. He didn't.

I guess, in closing, I'm not happy with the process. I'm leaving with no new information, and, in that regard, I'm disappointed. That's it.

MR. FIFE: Don Fife, one additional comment.

Was there any testing done on the air quality around the airport 'cause, in that area, there's been a large number of cases of cancer, like, near the -- what's that -- Del's Lemonade, also around the ball field where the kids play.

I'd like to see the results. I'd like to see the paperwork of the testing of the air quality. That's it.

MR. DURAND: Okay. My name is Roger, last name is Durand, D-u-r-a-n-d. I live at 60 Black Creek Lane in Warwick.

I'm opposed to this expansion at the airport.

What I don't understand is they're talking an additional two flights in the morning, two flights in the afternoon for FedEx; and yet we're going to do all kinds of expansion, building the warehouses and the like.

I am very concerned about the noise pollution, as well as the air pollution, at the airport. What I have trouble with is we heard about this at the 11th hour. We were told, at the city council meeting a few weeks ago, that the city councilman, Mr. Howe from Ward 3, was conducting interviews -- excuse me, seminars -- I shouldn't say "seminars," meetings with RIAC over the course of months with reference to the berm; and yet the people in the City of Warwick who were going to be impacted I don't think had a clue of what was going on.

This seems to be shoved down our throat, as I say, at the 11th hour, and yet we're not able to ask questions whatever.

I don't understand being at this meeting tonight. I came here because I thought there was going to be a question-and-answer period as a group, not an individual walking around various little charts, where we could ask questions, we could voice our concerns, we could have an additional meeting

where our answers to our questions could be answered, as well as disseminated to other members who are here -- other members of the public who are here tonight and concerned about these issues.

I don't think -- candidly with you, and I mentioned this to the people from RIAC, I don't understand why this isn't being moved to Quonset Point. I don't think the airport should have even been expanded here in the year 2000. I think it should have gone to Quonset Point.

This is one of the examples. They have the infrastructure down there to handle this at Quonset Point. They have the road infrastructure, which is better-suited, as opposed to Airport and Post Road where these trucks are gonna have to go out.

And my final statement is, I don't believe that FedEx is gonna stop with just four flights a day. I think that what's gonna happen long-term is FedEx, I understand, is being forced and cannot expand in Boston. I could visualize in the future, not too distant future, I might add, that FedEx is gonna turn around and close the operation or reduce the operation in Boston and move it to Providence or Warwick because they have this new facility. That is very troubling, in fact, and very concerning.

The reason being RIAC has to pay their bills -- I understand they're gonna be taking out a loan for this project -- and anything they can do to generate more revenue, they're gonna -- they're gonna try to follow that path.

So, in conclusion, I'm against this project. I don't think it's been vetted well with the public, and I blame that more on the City as opposed to RIAC themselves; and I think, before they go forward with it, we should have more discussion on the issue.

Thanks.

MS. LANGSETH: I don't understand why a massive new cargo port, or whatever it's called, warehouse, needs to be built because the one that we have now is -- will be perfectly accommodating to increased loads if it is expanded, and it's very difficult to believe that the huge -- what is it, a warehouse? Not a warehouse, a cargo port, is truly necessary given the -- that the operations each day will presumably be limited to one incoming flight or two.

And what I believe will happen is that there will be plenty more from FedEx and that the airport personnel will say, well, this was unforeseen, so we're glad we built the large port; but right now there appears to be untruths being told about what is needed.

And the plan for the trucks, huge trucks, to go through the airport and to make a hairpin turn to get up there is disturbing, also, because it sounds to me that it is very dangerous; and that's about it.

Thanks.

Joanne Langseth, L-a-n-g-s-e-t-h, 170 Budlong, all one word -- yeah, you know -- Farm Road, Warwick, Rhode Island, 02886.

MS. KOMAR: Okay. My name is Michelle Komar, two Ls, and K-o-m-a-r; and I live at 80 Audubon Road in Warwick. And my comments deal with the procedures here tonight for this public meeting, and then some technical issues/concerns regarding the draft EA and the project.

So my first comment's dealing with the whole setup here for public comment. In the past, we're used to -- as a resident-involved citizen, that we have a presentation by RIAC for their projects, and everyone's gathered in one room to hear it, and then the public gives comments in the room with everybody else listening so we can benefit from hearing other citizens' comments.

This setup here today didn't afford that opportunity for public interaction and participation; so here I am at a desk, with the court reporter, giving my verbal comments, which will be recorded and a transcript, I understand, will be prepared, and it will be part of the document for the Environmental Assessment.

So, upon entering the building, I came up upon some consultants that I recognized from the January workshop that RIAC held, and I came prepared with a couple of issues that I wasn't sure I received correct information.

So I ran into Mr. Bryan Oscarson, O-s-c-a-r-s-o-n. He's the technical leader from AECOM, the consultant, and I told him that he told me, in the January meeting, that there were no state building permits required, that the City of Warwick would issue building permits.

And I knew this was a State project and the State Building Commission had gotten involved in previous RIAC projects; so I asked him today that I checked with the State Building Commission, and it requires State Building Commission approval because either it's a State project, or it's on State property.

And what he said to me in response was, "I didn't know this was a State project"; and at that point, having been so surprised by that statement, I just told him I had to leave and go on to the next consultant that I wanted to talk to, but he was insistent that this wasn't a State project.

And RIAC is a quasi-public state agency. They run the state airport. They're using FAA AIP funds for the construction of this project and some other alternative funding sources; so it's definitely a State project. I'm very concerned that he didn't recognize that, and he's the lead consultant for the draft EA.

There are two agreements that the City of Warwick entered with RIAC/FAA. One is an agreement when Mayor Linc Chafee was mayor back in, I want to say, 1994/1995; and in that agreement, amongst other conditions and agreements, was a voluntary air-flight curfew, and I believe that was, like, 6:30 a.m. to -- excuse me, 11:00 p.m. to 6:30 p.m. -- a.m. -- I'm going to say that all over again -- 11:00 p.m. to 6:30 a.m.

There were to be no flights on a voluntary basis, and I'd like to see if that MOA and the conditions in it are still being maintained by RIAC today in light of all their operations, and, in particular, because we're here to comment on the draft EA for the freight terminal, that this project will be in compliance with that agreement, and that includes the voluntary curfew.

The other agreement was in May of 2012, and the City Council of Warwick had contested the FAA record of decision for the environmental impact statement for the runway expansion project. And they made an agreement to stop their contestment, their legal challenge, and they signed this agreement.

So I'd like to also have RIAC review/revisit these two agreements to see if this project is in conformance and maintains those agreements, as they were agreed upon by the city and RIAC years ago.

I've been outside to some of the displays, and I talked to some of the consultants that were there; so I'll go right into the traffic engineer. And I'm concerned about the freight cargo trucks being allowed to make the loops around the front door of -- or near the front door of the main building, terminal building.

That loop de doo is confusing to passenger cars. I live in Warwick; so I take enough friends to the airport. I know which roads to take. I don't get mixed up and accidentally enter the parking lot which you've got to pay to get out of, which I've seen people do; and so it's very confusing.

So now we enter an element of these freight cargo trucks to add in this mix. So you get people from out of state/other parts of Rhode Island who aren't familiar with the traffic circulation pattern in front of the terminals and the two roads that circle around in front of the building, and trucks may -- truck drivers may get confused which road in front of the front door to use; so they might go through the one closest to the building where a lot of passengers are being picked up and discharged. They may not go through the second one.

Both of them have pedestrian crossings which have been upgraded over the years to make it ever more safer for pedestrians to cross, and here now we enter a new potential conflict with freight cargo trucks with pedestrians.

These truck drivers run through my neighborhood very quickly. They're on the time clock. There's full stop signs at these crosswalks from the parking lot to the main front door of the terminal.

I don't think this is a safe idea for trucks to be in the mix here in front of the terminal building with cars and pedestrians.

The other concern I have, just with the freight traffic alone, is we have a waiver in place -- FAA granted a waiver -- because the parking lot is not within the required setback distance from the main terminal; so, to compensate for that, we have these big concrete bollards that would block -- prohibit traffic/cars from entering closer to the terminal.

With that in place, we allow -- we're going to allow these big trucks to come by the front door of the terminal.

And we know, historically, there's been problems with this, and federal and state buildings are protected now from trucks being able to drive right up to the front door and set off bombs.

So I'm very concerned about that safety, and I question if TSA has reviewed the draft EAA -- draft, excuse me, EA for safety concerns and security regarding the freight trucks being allowed to enter into the terminal roadway loops.

The purpose and need -- I didn't get a lot of information when asked the purpose and need in the January meeting, and I heard variations of what the buzz was at the January meeting.

FedEx seems to be driving the project need. Boston Logan Airport will not take on more flights for

FedEx; so they want to come to Green. So we are compensating a private-sector company, FedEx, so that they can go about doing their business.

UPS is another company that will utilize the freight cargo facility. They have a nearby, relatively new facility. I don't know how popular this will be for them or advantageous to them. It seems like this is driven by FedEx more than anyone else. If FedEx changes plans, does something else, I -- I don't understand quite why we need this new facility.

I don't think the answer I got out in the major room there about, well, the existing facility is 40 years old. Well, that facility serves the purpose well, and it's located off of Airport Road. This new facility is being relocated to abutting residential areas.

Again, this airport functions as a square peg jamming it into a round hole. We've moved roadways to compensate and accommodate runway expansion. They bought out neighborhoods. We lost tax revenue, city tax revenue. We lost neighborhoods. We have a ball field, as part of the EIS compensation, that is located -- Winslow Park -- next to or near an active runway: not good for the children that are there.

And, certainly, TSA should be concerned about the security here, that anyone is that close in open air unrestricted to an active runway.

I don't know if the EA adequately addresses any potential conflicts that may have been introduced. We hear on the news all the time where airplanes on the ground collide with airplanes landing, or, whatever the situation may be, there's two airplanes involved in a collision; and I wonder, since we're introducing with this project -- or RIAC's introducing new maneuvers that have to be done to get these airplanes to reach the new location of the freight terminal facility, if we're introducing any conflicts, potential conflicts/collisions, in airplanes getting over to the cargo facility. I don't know if this has been addressed adequately in the draft EA.

Regarding alternates to the study, I see the no build was studied. What was absent was to look at FedEx trying to fit into another airport. It doesn't have to be in Rhode Island. It doesn't have to be one of RIAC's airports. It could be out of state, maybe Connecticut. I didn't know if that was studied because the impacts here are disrupting residential life next to -- and abandoning a city roadway next to this terminal location.

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The other alternative that was not mentioned was actually looked at and recommended by a former RIAC CEO Kevin Dillon, D-i-l-l-o-n, who I think left RIAC around the year 2012, I want to say, and he's now at -- in Connecticut. I know he oversees the operations at Bradley Airport.

And what Kevin Dillon recommended, when he was a RIAC director/CEO, was to relocate T.F. Green altogether to a new location somewhere else in the state that had adequate campus size to accommodate all the operations and functions that RIAC desires to happen at Green.

Like I mentioned, Green is just too small a campus. They are expanding real estate and encroaching into local neighborhoods. The city loses tax revenue, it disrupts traffic by changing roadway patterns, and we should look to relocate it to a large, adequate-sized campus where we don't have the square peg fitting -- trying to fit into a round hole; and that alternative is absent from the draft EA: locate this whole facility in a whole different location somewhere else in Rhode Island or out of state.

Another comment I have is the environmental evaluation part of the Assessment. The rare

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endangered species is inaccurate, and I believe another person here that spoke, Richard Langseth, actually got documentation from DEM that there are species of concerns in the area, in particular Bald Eagle; and the report said that there were none.

And we have out-of-state consultants. I don't know how in-depth they go into doing research, local research, but there is a need for a Rhode Island natural heritage program to be restored. They are a data bank -- amongst other functions, a data bank of the rare and endangered species special communities in Rhode Island so that an out-of-state consultant can go to them and get accurate information for their reports on state-funded projects.

This would be helpful for DOT projects, roadway, highway, as well as RIAC projects. So the rare and endangered species is not accurate in the draft Environmental Assessment.

I had hoped that the draft EA at some point would address the funding because the technical leader consultant from AECOM doesn't recognize this as a State project, and, apparently, it's funded with FAA AIP funds. I asked what other funding, and there was some kind of bond funding.

I asked if there was public money involved --

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I mean, FAA money is public, but if any state money was involved. They weren't sure about the bond funding -- this is the project manager for RIAC and the attorney that I spoke to -- but they said there would be no state funding.

The other inaccuracy I learned from that same AECOM-lead consultant was that, in January, he assured me that this project doesn't put any strain on Warwick city services. That's police, fire, and rescue. And he says RIAC has their own, and they don't call upon the city; and I knew that wasn't accurate because we know our city services, emergency services, do service the airport.

So I learned from the project manager, with clarification from the attorney, that it's an indoor/outdoor thing, to make it simple.

So if it's something indoors that happens at the terminal or inside the freight cargo terminal, the main terminal of the building -- the passenger terminal, I should say, or this freight cargo terminal, if it's inside the building, Warwick responds. We respond with police; we respond with fire; we respond with medical.

If it's outside a building, then RIAC has their own fire and police to take care of that.

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So this will put an additional strain on public services that RIAC doesn't compensate the city for. They -- and I've got information from John Goodman. He didn't want me to quote 9,000,000. He thinks RIAC pays the City of Warwick 9,000,000 a year.

I know that the Rhode Island General Assembly had some legislation to increase, I believe it was, 500,000 to 1,000,000. That didn't make it out of committee.

It seems like they try to get more money every year for the City of Warwick, who hosts the airport and all its expansion projects and its burden on city services that the taxpayers pay for and finance for the airport.

I'm going to just pause for a minute just to read my checklist, but I think I covered it all.

I think I'm done. Thank you.

MR. LOFGREN: Jim Lofgren, 21 Quinlan Court, Warwick Rhode, Island.

So the fellow that took me through was outstanding, a tremendous job. I was also here for the last time, I think it was, January; so I really appreciate the layout and the description of everything; so, perfect.

I really like the project. I think it's great for Warwick, great for Rhode Island. The only suggestions that I have are, and they're just more constructive suggestions, not -- nothing else, but the flights-per-year graph was fantastic. I never would have guessed we went from 165,000 flights a year to 65,000 or something like that. Like, it's almost dropped in half.

But what would be nice to know is not just the flights decrease, but what happened to passengers? You know, has the passengers on the flights just increased; but it would be nice to know, like, did passenger traffic here drop in half, or did it stay the same, or did it even increase? See what I mean.

That would be -- it would just be nice -- nice to know. That's all. I'm just kind of curious on that, 'cause he had said that flights fill up better now than they used to, and then my question then kind of is, well, how much more, you know.

Then I think a timeline of the project to clearly show it's three-and-a-half years to complete 'cause I kind of had to figure it out by looking at the graph; and he and I kind of walked through, and he thought it was two-and-a-half. I said, "No, I think it's three-and-a-half." I think that would be helpful

for people.

And then the data for two planes coming in and two planes going out where you have all the carbon dioxide and all those, you know, government-tracked data is good for those two planes in/two planes out for UPS and FedEx, but then what does that data look like for all planes.

So, in other words, I'm actually trying to help you here, is, if you could show that these four planes actually only increase these things by one-and-a-quarter percent, I think that's what people in the city, you know, really would like to know; right?

Because -- because, when I saw that the flights had decreased over half since 2000, this airport's not overcrowded; right? It's less than -- it's half what it was. And so -- so, if you just add four more flights, what's the big deal, you know.

But, if then you showed the environmental, here's the environmental the way it is now with commercial, we add these four flights, and it goes up just a hair. You could show here's where we are; here's where we will be. See what I mean? That's it.

(PROCEEDINGS CONCLUDED AT 7:00 P.M.)

C E R T I F I C A T E

I, Adam M. Derham, Notary Public, do hereby certify that the foregoing is a true, accurate, and complete transcription of my stenographic notes taken at the time of the aforementioned conference.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 2nd day of May, 2023.

Adam M Derham

Adam M Derham
NOTARY PUBLIC
STATE OF RHODE ISLAND

ADAM M. DERHAM, CSR/NOTARY PUBLIC
MY COMMISSION EXPIRES JULY 21, 2025

DATE: APRIL 20, 2023
IN RE: RIAC ENVIRONMENTAL ASSESSMENT PUBLIC MEETING

APPENDIX L

Comment #	Commentor	Comment	Response to Comment
1	Richard Langseth	None	This is an APRA (Access to Public Records Act) request submitted to RIAC through the project's email address. No substantive comments were provided on the Draft EA.
2	Richard Langseth	None	This is an APRA (Access to Public Records Act) request submitted to RIAC through the project's email address. No substantive comments were provided on the Draft EA.
3	Harley Farrow	How early will noise begin no earlier than I already hear or disagree with downgrading my quality of life, as you would do if it was me doing it to you.	As described in Section 3.1.3 of the Draft EA, FedEx flight operations would begin approximately one hour earlier than the current schedule, while UPS flight operations are not expected to change immediately or dramatically at the new location.
4	Pamela Burdon	Can you please direct me to data about how the flights arriving and departing over the Cowesett area of Warwick will increase and what hours of operation will be in effect for these flights? Planes fly almost directly over my house and due to the elevation of our neighborhood they can be quite loud, particularly the cargo planes. This is a forgotten area, but we are affected.	As described in Section 3.1.3 of the Draft EA, on average the proposed project would result in an additional two arrivals and two departures per day and starting approximately one hour earlier than current operations. When arriving to Runway 5, aircraft would likely pass over Cowesett (see Figure 3 in Appendix H) and when departing from Runway 23 aircraft will turn to the west or south before reaching Cowesett (see Figure 4 in Appendix H). The noise model accounts for terrain elevations in your area. The projected hours of operation used for the noise model are between 5:30 am and 9:30 pm. FedEx mainline aircraft (3) would arrive PVD between 5:30 am - 6:30 am (coming from Hub sort), volume unloaded, aircraft sits all day, volume loaded and departs for night hub sort between 8 pm - 9 pm. UPS aircraft would arrive around 6 am, remain all day and depart around 9:30 pm.
5	Keri	This needs to be delayed!	Thank you for your comment.
6	Gary Theriaque	Why is there no money for a sound berm to be built? It's easy to say it's not needed when you don't live in the neighborhood. Is the issue of middle of the night take offs and five in the morning planes roaring over all the houses in Governor Francis Farms. One goes to bed listening to planes taking off , one is roused from a dead sleep because of planes taking off at all hours of the night. I would have been at the meeting last week if not for a medical procedure that I could not reschedule. More conversation is needed to address these issues.	In order for the for the noise barrier to be eligible for federal grant funding it has to meet certain federal criteria for noise mitigation. As stated in footnote 59 in the Draft EA, even if the noise barrier does not qualify for federal funding, RIAC plans to construct the barrier. The proposed project would result in earlier aircraft arrivals (approximately one hour earlier), and the additional aircraft departures would occur in the evening.
7A	Thomas Kravitz (City of Warwick Planning Department)	Through both the Master Plan Update process and the Draft Environmental Assessment, the City has repeatedly and explicitly reiterated objections to the use of local roadways versus an the Airport Connector, regardless of origin or destination of freight. This position was supported by the Rhode Island Department of Transportation's Technical Advisory Committee	RIAC heard and understood the City's concerns from the outset, but more clarity was needed in the Draft EA due to misperceptions about the number of cargo trucks using local roadways. Although the proposed project would have the effect of increasing overall traffic volumes on the local roadways, the

Comment #	Commentor	Comment	Response to Comment
7A (cont'd)		appointee during the Master Plan process. A review of intersections studied in the Appendices appears to indicate a project reliance on Main Avenue, Post Road, Coronado Road and Airport Road, all congested City roadways incapable of handling a substantial increase in tractor trailer vehicles. The viable solution is to modify Airport roadways to improve connections to the Airport Connector to serve the traveling public and the proposed cargo facility.	Draft EA did not categorize the vehicle types to show nearly all the heavy trucks using the Airport Connector Road. As specifically requested by the City, the Proposed Action includes intersection modifications as needed to permit project induced heavy truck traffic to utilize the Airport Connector Road between the proposed air cargo facility and I-95 to the degree practicable, and nearly all the heavy trucks are projected to use this route. Where the Airport Connector Road does not provide an efficient or serviceable route, the Proposed Action allows for a small number of heavy trucks to use the local roadways, the volume of which would have no appreciable adverse effect on local traffic operations during any hour of the day. In addition, assuming all cargo truck traffic is relocated from the north side to the south side of the airport, the Proposed Action has the potential to reduce future heavy truck traffic operations on Airport Road and other local roadways, when compared to the No Action Alternative, which is consistent with the City's land use plans for the area surrounding the airport. Section 5.9 (Land Use) and Section 5.13 (Traffic) in the Final EA have been revised to show that the proposed project would not cause or contribute to a substantial increase in track traffic on local roadways in the City Centre District.
7B	Thomas Kravitz (City of Warwick Planning Department)	The draft Environmental Assessment did not include a consistency review of the Comprehensive Plan and the Federal Highway funded City Centre Warwick Master Plan (Transit Oriented Development) and related improvements, including the $3.7 million pedestrian enhancements to Coronado Road designed to support a pedestrian centric zone.	Appendix G of the Draft EA identifies the key objectives of the City of Warwick Comprehensive Plan 2033, and the Warwick Station Development District Master Plan, A Transit-Oriented Development. However, because no changes in land use were identified in other sections of the Draft EA, no further detailed analysis or discussion was provided in this category. In response to the City's concerns, Section 5.9 in the Final EA has been revised to include additional information relating to these goals and how the Proposed Action demonstrates consistency with the City's land use plans.
7C	Thomas Kravitz (City of Warwick Planning Department)	Any expansion of airport operations to the south of the terminal will adversely impact the residential area through increased noise originating from airport operations, specifically aircraft, commercial cargo trucks, ground equipment and loading/unloading operations. Extended hours of operation may create disruptive noise levels during evening and early morning hours. Substantial mitigation efforts will need to be implemented to reduce the impact on the residential neighborhood.	RIAC has designed the facility to minimize impacts as much as possible including placing the building between the aircraft apron and the neighborhood and planning to install the noise barrier along Strawberry Field Road. The proposed project does not exceed federal thresholds for noise impacts on residential land uses.

APPENDIX L

Comment #	Commentor	Comment	Response to Comment
7D	Thomas Kravitz (City of Warwick Planning Department)	Expansion of either cargo or General Aviation operations closer to this neighborhood will exacerbate the existing reported issues with exhaust from ground equipment, shuttle buses, vehicles and aircraft.	The United States Environmental Protection Agency (USEPA) promulgates the National Ambient Air Quality Standards (NAAQS) to address criteria pollutants. As stated in the FAA Order 1050.1F Desk Reference, the General Conformity Rule establishes the de minimis levels to identify those actions with the potential to have air quality impacts large enough to require a conformity determination. If a project's net emissions are less than the de minimis levels, then the Federal action is considered to be too small to adversely affect the air quality status of the area and is automatically considered to conform with the applicable state implementation plan, and therefore the general conformity requirements have been complied with and the process is complete. The State of Rhode Island is in attainment of the NAAQS, and therefore an Applicability Analysis determined that a General Conformity Determination is not required. However, the resulting emissions increases due to the proposed project have been estimated and were found to be below the de minimis thresholds described in the Clean Air Act for a maintenance area, and for an area designated as in marginal, moderate, or serious nonattainment of the NAAQS.
7E	Thomas Kravitz (City of Warwick Planning Department)	The residential neighborhood will require additional buffering and landscaping to limit the impacts of contemplated commercial intrusion closer to the residences. Any expansion should utilize dark sky compliant lighting and light shielding to the maximum extent practical and incorporate substantial buffering measures as needed to minimize and mitigate proposed expansion.	As described in Section 3.1 of the Draft EA, the proposed project includes the installation of a new noise barrier wall to reduce the effects of construction and operation of the air cargo facility on nearby residences across Strawberry Field Road. Section 5.15 addresses the visual effects of the proposed project including light emissions, discusses the beneficial effects of the barrier wall, and identifies other mitigation measures that could be implemented to lessen any annoyance, such as installing shields/baffles and adjusting the angle of the headframe and luminaries, i.e., dark sky compliant lighting.
7F	Thomas Kravitz (City of Warwick Planning Department)	The basis for evaluating the alternatives fails to consider the City of Warwick's Comprehensive Plan and the City Center Master Plan (funded by the Federal Highway Administration), both key land use planning documents that are critical to evaluating any proposed development alternatives for Airport Properties. Solely utilizing the Airport Master Plan as the evaluation tool for alternatives analysis dismisses the potential impact on the local community and local land use planning. The Rhode Island Comprehensive Planning and Land Use Act § 45-22.2-10(g) compels the Rhode Island Airport Corporation to conform its actions to the City of Warwick's Comprehensive Plan. In addition, the Environmental Assessment did not examine the impacts of the increase in tractor trailer freight traffic on City Centre Warwick. Documents that should be reviewed as part of the Environmental	Section 2 in the Draft EA establishes the project's purpose and the need for action. Section 3 identifies the Proposed Action and the No Action Alternatives for detailed evaluation. Section 4.10 and Appendix G reference the City of Warwick Comprehensive Plan 2033, and the Warwick Station Development District Master Plan, as the existing local land use plans for the area surrounding the airport. Section 5.9 evaluates the Proposed Action and No Action Alternatives, discusses the potential for effects on land uses adjacent to the project site, and concludes that no inconsistencies were identified with the City's land use plans (see RIAC's responses to Comments 7A and 7B above). It is also important to note that the basis for evaluating alternatives comes from the FAA and Airport Sponsor's purpose and need in accordance with CEQ regulations and FAA requirements for preparing NEPA

Comment #	Commentor	Comment	Response to Comment
7F (cont'd)		Assessment include: − Warwick Station Development District Master Plan (Goody Clancy, 2012) − InterLink Multimodal Transportation Safety and Efficiency Assessment (RIAC, 2011) − Warwick Station Redevelopment District Streetscape Design (VHB, 2013) − Warwick Station Redevelopment District Circulation and Access Management Plan (VHB, 2013) − City Centre Warwick Design Manual (VHB, 2017) − Feasibility Study for Intercity Rail Service to TF Green Airport (Amtrak & RIDOT, 2017)	documents. As important as the City's Plans are to the analysis of the proposed action on the affected environment, they are not necessarily instrumental in formulating criteria for evaluating alternatives against the project's purpose and need.
7G	Thomas Kravitz (City of Warwick Planning Department)	What is the noise impact from the larger planes that are capable of more thrust and additional carrying capacity?	The proposed larger cargo aircraft are Boeing 767-300 aircraft which is the same as the New England Patriots' 767-300 aircraft currently operating at the airport and parked adjacent to the proposed project site. Figure 5-3 in the EA shows the change in noise due to the proposed project in 2026. Primarily due to the earlier morning flights and the higher DNL weighting of night arrival operations, the DNL 65 contour extends to the north and south of the airport. However, the noise increase within the DNL 65 contour off airport property does not exceed 1.5 dB which is the FAA criteria for a significant noise impact.
7H	Thomas Kravitz (City of Warwick Planning Department)	What is the impact to the abutting residents of these larger and possibly louder planes as they depart/land and taxi to the cargo facility?	The potential increases in noise are discussed in Section 5.11 in the Draft EA. Ground noise from the proposed facility was evaluated in the Draft EA and noise levels without the noise barrier were estimated to range from DNL 52 to 60 dB in the closest residential area. With the noise barrier these levels will be reduced further and remain well below the federal threshold for noise. Additional details are provided in Appendix H.
7I	Thomas Kravitz (City of Warwick Planning Department)	Will these aircraft violate the local noise ordinance?	No, RIAC does not expect the proposed facility to violate the existing noise ordinance under normal operations. The nearest residential area has been shown by modeling to be just outside the DNL 65 dB area, therefore the majority of these homes on an average basis experience noise levels between DNL 60 and 65 due to normal aircraft operations at the airport. With the noise barrier in place no residential areas would experience single event maximum (Lmax) levels greater than 61 dB and most of this area would only be exposed to Lmax values in the mid to upper 50's.

Comment #	Commentor	Comment	Response to Comment
7J	Thomas Kravitz (City of Warwick Planning Department)	How many of these added trucks are proposed to travel to local facilities before deploying elsewhere?	The project induced increase in FedEx truck operations to/from the Boston area (approximately 33 trucks/day) would arrive and depart the proposed air cargo facility using the Airport Connector Road and I-95 (those heavy trucks are not expected to travel to local facilities before deploying elsewhere). See Comment 7A above.
7K	Thomas Kravitz (City of Warwick Planning Department)	The contemplated action is substantially larger than the action as "depicted generally" proposed during the Master Plan Update effort which was completed less than 24 months ago (June 18, 2021). The current proposal does not appear to be consistent with the presentations and representations made during the Master Planning process, technical advisory committee and the public meetings.	As explained in Section 1.6 of the Draft EA, RIAC is responding to a commercial proposal that was not foreseeable at the time the Airport Master Plan Update was prepared. The proposed project site is consistent with the Airport Master Plan recommendation to use this location for future air cargo operations, and the site layout it is based on more refined details including facility requirements recently provided by the future tenants. For comparison, the site boundary is larger; however, the proposed project provides less cargo building square footage, fewer truck berths, and smaller freight airliners with less payload capacity. Ancillary facilities are also included such as employee parking and truck staging areas that were not identified with the Master Plan concept. It should also be noted that the Airport Master Plan is a comprehensive vision that focuses more on the goals, strategies, and guidelines for development of the entire airport campus. As individual projects are implemented, concept plans are prepared and continuously refined to meet facility requirements and design parameters. Alterations to the proposed project can still occur during the design phase due to factors such as funding, design evolution, value engineering, agency permitting, etc.
7L	Thomas Kravitz (City of Warwick Planning Department)	As stated, the recently completed Master Plan effort focused on 50,000 to 55,000 square feet of cargo space. A very short time later, this is now being presented as 140,000 square feet of cargo space. This is a substantial deviation from what was originally presented to the Technical Advisory Committee (TAC), the public and the FAA.	As explained in Section 1.6 of the Draft EA, RIAC is responding to a commercial proposal that was not foreseeable at the time the Airport Master Plan Update was prepared. See response to Comment 7K above.
7M	Thomas Kravitz (City of Warwick Planning Department)	Planning staff has received concerns from residents regarding ultra-fine particle size. There is no mention in the Environmental Assessment of an aerodynamic diameter less than 10 micrometers (PM10) and 2.5 micrometers (PM2.5) respectively. Please confirm whether a requirement exists to study particle diameter of less than PM2.5. Regardless, notwithstanding the USEPA designation of the area as an attainment area in accordance with NAAQS criteria for all pollutants. Planning staff feels the action should include as a mitigating measure, additional, functional air quality monitoring equipment in areas most appropriate to measure the impact of the proposed action. Specifically, to monitor and quantify the pre and post air quality condition and potential impact to the immediately abutting neighborhood. At a minimum, residents and families must have	The United States Environmental Protection Agency (USEPA) promulgates the National Ambient Air Quality Standards (NAAQS) to address criteria pollutants, which include particulate matter with an aerodynamic diameter less than 10 micrometers (PM 10) and less than 2.5 micrometers (PM2.5). Currently there is no requirement to study particulate matter in a group smaller than the group that includes PM2.5; however, all particulate matter with an aerodynamic diameter of less than 2.5 micrometers is included in any assessment of PM2.5. The State of Rhode Island is in attainment of the NAAQS for all criteria pollutants including PM2.5, and therefore an Applicability Analysis determined that a General Conformity Determination is not required. However, the

Comment #	Commentor	Comment	Response to Comment
7M (cont'd)		the availability of valid air quality data so that individual decisions can be made relative to the potential long-term impacts the localized air quality may have on health and welfare. In future sections, Planning Staff also suggests the use of electric vehicles and solar as a mitigation measure with respect to all ground operations. Doing so will limit air quality impacts, energy consumption and noise generation.	resulting emissions increases have been estimated, and were found to be below the thresholds described in the Clean Air Act for maintenance areas, and for areas designated as in moderate or serious nonattainment of the NAAQS for PM2.5. Currently, electric vehicles are encouraged but not required for and ground operations at the Airport. Additionally, solar power generation is encouraged, where applicable, but solar power generation would not reduce emissions on the Airport. Presently there are no air quality standards for ultrafine particles (UFPs). But it is important to note that Research funded by the FAA, including the Airport Cooperative Research Program (ACRP) and the Aviation Sustainability Center (ASCENT), is ongoing to improve the understanding of airport related impacts on UFP and health.
7N	Thomas Kravitz (City of Warwick Planning Department)	The narrative describes Post Road as a commercial transportation corridor to the west, and while there is a reference to the Warwick Station Redevelopment District Master Plan, we feel the plan could do more by way of analysis of the mixed use nature of the City Centre district. The Environmental Assessment Land Use Mapping should be updated to incorporate the following: From August of 2021 to current, nearly 900 residential units of applications are proceeding through the Planning approval process. This includes a new Woodspring Suites hotel (122 units), a 215 unit residential development abutting Post Road/Airport Connector, 238 units at 1850 Post and a 297 unit, mixed use residential apartment building with restaurant(s). Traffic impacts on local roadways should consider calculations that include the cumulative impacts of these developments relative to the proposed action.	The traffic impact analysis prepared by the other developers mentioned in the comment all indicate acceptable LOS of study intersections for future conditions. Additionally, the traffic impact analysis prepared for the development located at 2119 Post Road included traffic from all three developments in the traffic analysis and still indicated no significant impacts to LOS in future conditions. The traffic impact assessment prepared for the proposed project (Appendix J of the Draft EA) indicates a negligible increase of a few seconds to study intersections in the future conditions. The incremental increase due to the proposed project would also be negligible when added to proposed development trips included in the other analysis. In RIDOT's review of the traffic analysis on January 17th, RIDOT concurred that a background growth of 0.5% per year is a conservative growth rate given a population increase of .02% per year from 2010 to 2020. The conservative projection of background growth would account for some of the other development traffic. Based on the traffic impact assessment prepared for the proposed project (Appendix J of the Draft EA), it is reasonable to conclude that the proposed project would not cause or contribute to a significant decrease in LOS on Post Road or any other roadways in the surrounding area including the City Centre district. See response to Comment 7A and 7B above.
7O	Thomas Kravitz (City of Warwick Planning Department)	City planning staff is very concerned over the anticipated increased pedestrian activity within the Transit Oriented Development (TOD) being in direct conflict with freight truck trips. This land use element does not justify the traffic and circulation plan to use Coronado Rd and to do so would be wholly inconsistent with the City of Warwick Comprehensive Plan and the Federal Highway Administration funded City Centre Warwick Master Plan. Notwithstanding the location of the two shipping facilities of FedEx and UPS, the City feels strongly about maximizing the purpose of the	RIAC recognizes the City's vision for Transit Orientated Development within the City Centre District which includes Coronado Road and is supportive of the City's efforts to limit truck traffic through the pedestrian-centric area (with the understanding that commercial truck traffic would not be restricted). As stated in the response to Comment 7A, the proposed project includes intersection modifications as needed to permit project induced heavy truck traffic to utilize the Airport

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7O (cont'd)		Airport Connector – even if it means utilizing the connector to Route 95, back to Jefferson Blvd. This preferred and viable route would keep truck traffic north of the City Centre District where most of the residential units are being planned. Deploying semi-trailer trucks carrying cargo from the Airport through the core of City Centre Warwick (Post/Coronado) is wholly inconsistent with the Master Plan for this area and the zoning. The City Centre Warwick Circulation and Access Management Plan (Vanasse Hangen Brustlin, Inc) found in its analysis of the intersection: “Under future conditions, the Post Road/Coronado Road intersection is projected to operate near capacity during the evening peak hour with some approaches experiencing high delays.” As stated numerous times during Master Plan TAC Meetings and subsequent monthly meetings with RIAC staff, the City does not a support a scenario that puts freight traffic onto any roadways other than the Airport Connector/Interstate 95, regardless of the local destination. Such an action would be wholly inconsistent with the City of Warwick Comprehensive Plan and in violation of Rhode Island general Laws § 45-22.2-10(g).	Connector Road between the proposed air cargo facility and I-95 to the degree practicable, and nearly all the heavy trucks are projected to use this route. Where the Airport Connector Road does not provide an efficient or serviceable route, the proposed project allows for a small number of heavy trucks to use the local roadways, the volume of which would have no appreciable adverse effect on local traffic operations during any hour of the day. In fact, assuming all cargo truck traffic is relocated from the north side to the south side of the airport, the proposed project has the potential to reduce future heavy truck traffic operations on Airport Road and other local roadways (including Coronado Road) when compared to the No Action Alternative, which is consistent with existing land use plans for the area surrounding the airport.
7P	Thomas Kravitz (City of Warwick Planning Department)	The remaining properties along Post Road have specialized transit-oriented development zoning “Gateway” and “Intermodal”. This is mixed-use, pedestrian-centric zoning consistent with the City Centre Warwick Master Plan. The Master Plan promotes a sustainable walkable community within an attractive mixed use environment with versatile access to varied transportation options providing housing, retail entertainment in a compact pedestrian friendly setting. Development in this area (other than Hospitality Uses) is primarily influenced by the permissive zoning and the City investment incentive (Tax Stabilization Agreement) which is the primary driver for the residential and mixed-use developments. The Environmental Assessment did not consider the City of Warwick Comprehensive Plan in its analysis. A-7 is identified as high-density, single family residential in the future land use map and if the Zoning Ordinance was consulted it is defined as follows: “Properties mapped in accordance with subsection 303 of this ordinance and used for high-density residential use, comprising not more than one single-family dwelling unit per lot area measuring a minimum of 7,000 square feet.”	See response to Comment 7B regarding consistency with the City's land use plans. RIAC acknowledges the A-7 district adjacent to the proposed project site is “high density,” and not “medium density” as referenced in Section 4.9 of the Draft EA. The A-7 district is correctly referenced as high density in Appendix G of the Draft EA. Similarly, the Comprehensive Plan references this area as high density. The applicable statement/sentence is revised in Section 4.9 of the Final EA.

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7Q	Thomas Kravitz (City of Warwick Planning Department)	There is no mention of utilizing renewables or electric vehicles (EV) as part of the action. This is the perfect opportunity to utilize solar atop the proposed buildings and install the infrastructure necessary for RIAC to maintain and utilize and electric vehicles for all ground operations and equipment. The plan to utilize EV would further promote Green Airport as a renewable airport, and support the negative effects of noise. The decision to use EV is most compatible with Section 4.11 Noise and Compatible Land Use. The decision to utilize EV for ground equipment is most sympathetic to GHG emissions as described in Section 4.3 Climate.	The Draft EA in Section 5.10 identifies energy efficient building systems, and waste minimization, as potential measures to reduce the effects of the proposed project. Other mitigation measures may exist, such as utilizing energy from renewable sources. These measures would normally be considered by RIAC during the design phase. RIAC agrees that the potential use of electric vehicles would be beneficial to the air and noise environments, but the decision to deploy electric vehicles for the proposed project would be the tenant's discretion. FedEx and UPS have published corporate goals to achieve carbon neutral operations by 2040 and 2050, respectively, and transitioning to alternative fuel vehicles is a means to achieving their goals.
7R	Thomas Kravitz (City of Warwick Planning Department)	It is the opinion of the City Planning staff that the Airport Connector is not being utilized the maximum extent practicable when compared to the scale of the action being proposed. Section 5.13.1, paragraph one puts forth a position that conflicts with the data presented in Appendix J. The narrative states, the new location of the cargo facility would have the effect of reducing traffic volume on the north side of the Airport along Airport Road and increasing traffic volume on the west side of the Airport using the terminal area roadways. It is the position of City staff that utilization of terminal area roadways, particularly that section of Airport Connector Road in front of the terminal area which leads to Post Road and Coronado Road, is not optimal. It introduces conflict of more commercial truck vehicles with passenger plane customers entering and exiting the airport. When comparing Figure 4 Existing 2022 Volume Network Diagram to Figure 18 Build 2026 Volume Network Diagram, the cargo traffic volumes appear to increase along Airport Road. This is true for all key intersections with Post Road, such as Coronado Rd, Airport Connector entry and exit ramps to Post Road, Aviation Avenue, and Baywood Street. The proposed action needs to require cargo companies to utilize the intersection at area G as depicted in Figure 2 of Appendix J in order to make the land use most compatible with that of the City when we speak of City Centre Warwick due to the expected number of increased pedestrians and pedestrian vehicle traffic along Post Road, Coronado Rd, and select portions of Jefferson Blvd near the Interlink. Other circulation options indicate a use of Interstate 95 to Main Avenue to Post Road north to access the proposed cargo facility. To reiterate comments made during the Master Plan Process, the City strongly objected and objects to the use of Main Avenue to support expanding Airport operations. Main Avenue is one of the City's major east/west arterials (30,000 trips per day) and functions as an emergency evacuation route for residents. The segment between Interstate 95 and the Greenwood Bridge	According to the traffic data collected at Evans Avenue and the Airport Connector Road attached to Appendix J of the EA, today there are 9 heavy vehicles between 7AM and 8AM and 14 heavy vehicles between 4PM and 5PM that pass through the terminal area roadways. This heavy vehicle traffic represents 8.5% of all morning peak traffic and 2.3% of all afternoon peak traffic without the project. With the proposed project in place, there is 1 additional heavy vehicle projected to pass through the terminal area roadway between 7AM and 8AM and 1 additional heavy vehicle projected to pass through the terminal area roadway between 4PM and 5PM. In the future, with the proposed project in place heavy vehicles represent 8.8% of morning peak traffic and 2.4% of afternoon peak traffic. This is a negligible increase of 0.3% in the morning peak and 0.1% increase in the afternoon peak when compared to today. The traffic volumes depicted in Figure 18 also include projected general background traffic growth which will happen without the proposed project in place. A true comparison of traffic volumes should compare the future No-Build condition (Figure 13) to the Build condition (Figure 18). Figure 13 shows the future traffic volumes without the project and Figure 19 shows the future traffic volumes with the project. Figure 14 and Figure 15 show the change in traffic due to the relocation of the cargo facility. These figures show decreases to truck traffic now that trucks have a more direct connection to/from I-95 and Route 37. Figure 16 and Figure 17 show the increase of truck traffic to specific movements due to the project. The largest movements with an increase to

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7R (cont'd)		is primarily high density residential with some general commercial uses. Adding cargo freight vehicles will further exacerbate an existing, deficient condition. Particularly at the intersections of Jefferson Boulevard and Post Road at the Greenwood Bridge. This is not a viable option. Maximum utilization of the Airport Connector ramps at intersection G with Evans Avenue (right) is critical to minimizing all truck traffic along Post Road, including the traffic traveling north and south to Main Avenue. RIAC's property (Map 323 Lot 0266) should be explored to modify the intersection of area G -if necessary. Doing so will confine cargo traffic to the Airport Connector, to Route 95, to Jefferson Blvd in both directions of travel to and from the cargo facility.	truck traffic are movements to/from the Airport Connector Road which provides direct access to I-95.
7S	Thomas Kravitz (City of Warwick Planning Department)	The City objects to use of local roadways to circulate freight cargo vehicles when a viable alternative exists, that being the Airport Connector which provides direct access to Interstate 95. Per RIGL§ 45-22.2-10(g), such an action does not conform to the City of Warwick's Comprehensive Plan.	See response to Comment 7A. The Airport Connector Road would be used to the extent practicable.
7T	Thomas Kravitz (City of Warwick Planning Department)	The City requests the following mitigation measures: - Modification of the Airport Connector at intersection G (see above comments) to confine cargo traffic to the Airport Connector/Interstate 95. - Pre- and post-construction, permanent air quality monitoring in the vicinity of the Strawberry Field neighborhood for a period of up to 5 years post-construction (or as recommended by the Rhode Island Department of Health). Monitoring to include ultra-fines with functional equipment that provides consistent readings. Data to be made publicly available on a bi-monthly basis. - Dark Sky compliant lighting in the project area. - Conformance with City Code of Ordinances, Chapter 40 Section 13. Noise Specifically the Maximum Permissible Noise Level of 60 dBA between 8:00 a.m. and 10:100 p.m. and 50 dBA between 10:00 p.m. and 8:00 a.m. - Extension of the noise/visual barrier wall and associated landscaping westward beyond the residential uses towards Post Road. - Conformance with local zoning regulations; specifically setbacks for industrial uses from residential zoning districts. See Table 2B. Dimensional Regulations "An industrial building or use (parking/drive aisles) shall be set back a minimum of 100 feet wherever such industrial building or use abuts a residential zoning district. Also Landscaping and tree planting requirements.	Traffic. As stated in Section 3.1 of the Draft EA, intersection modifications would be undertaken to allow cargo trucks to utilize the Airport Connector Road to the degree practicable. This is a functional element of the proposed project and would not be treated as a mitigation measure. Air Quality Monitoring. Under Section 1-7-1 of the State of Rhode Island General Law (Air Quality Monitoring Act), RIAC currently operates and maintains a long-term air quality monitoring program and publishes quarterly reports. Four air monitoring stations are located around the Airport including one station near Fieldview Drive, which is south-southwest of the airfield in proximity to the proposed project site. The program includes ambient air monitoring for black carbon and ultrafine particulate matter (PM0.1). No changes to the ongoing program are required for FAA environmental approval. Dark Sky Compliant Lighting. As stated in Section 5.14.3 of the Draft EA common operational mitigation measures to reduce the effects of light emissions, such as installing shields/baffles and adjusting the angle of the headframe and luminaries are included in the proposed project. Mitigation for light emissions would be

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7T (cont'd)		- Primary fleet mix for ground equipment servicing the cargo facility shall be electric vehicles. This reduces localized emissions, lessens air quality pollution and reduces engine noise, all adverse to the abutting, high-density residences. - Installation and use of rooftop solar on the cargo facility to partially offset the use of greenhouse gas emissions and a reduction of strain on the electrical grid. - Fee in lieu of landscaping – To reduce the impact of the Urban Heat Island Effect generated by the Airport's structures and large surface parking lots, and to maintain consistency with local zoning, a mitigating action would be to fund planting of trees and vegetation locally to offset the heat island effect. Fee to be calculated based on the project footprint by the City Landscape Project Coordinator, payable to the City of Warwick Tree Trust.	considered during the design process but is not required for FAA environmental approval. Conformance with the City's Noise Ordinance. RIAC does not expect the proposed project to violate the existing noise ordinance under normal operations. The nearest residential area has been shown by modeling to be just outside the DNL 65 dB area, therefore most of these homes on an average basis experience noise levels between DNL 60 and 65 due to normal aircraft operations at the Airport. With the noise barrier in place no residential areas would experience single event maximum (Lmax) levels greater than 61 dB and most of this area would only be exposed to Lmax values in the mid to upper 50's. Enforcement of the noise ordinance is not within the FAA's jurisdiction and is beyond the scope of this EA. Extension of the Noise/Visual Barrier Wall. RIAC understands that all the residences facing Strawberry Field Road currently experience noise emissions and visual effects of airport operations, which is an existing condition. The length of the proposed barrier wall is limited to reducing the effects caused by the future condition. Therefore, the proposed wall extends westward to the limits of project site, directly across from those residences facing the proposed cargo facility. Conformance with City Zoning Regulations. RIAC will continue to coordinate with the City of Warwick throughout the planning, design, and construction phases. GSE Electrification. RIAC does not control the type of fleet vehicles or ground service equipment (GSE) utilized by tenants at PVD. With the proposed project, use of electric vehicles and/or equipment would remain at the cargo airlines' discretion. Utilization of electric vehicles is not required for FAA environmental approval. Solar Panels. RIAC understands that solar panels would have the potential to reduce energy use and emissions however solar projects at airports also have potential to create glint or glare that could pose a safety hazard for pilots and air traffic controllers. A study of the benefit/cost of solar panel installation would also have to be accompanied by a corresponding risk assessment. Analysis and results notwithstanding, because the project induced energy consumption and/or emissions would be less than FAA significance thresholds, mitigation measures are not required for FAA environmental approval. Fee in Lieu of Landscaping. RIAC recognizes that the airfield runways and taxiways, buildings, roadways, and other pavements and infrastructure can contribute to urban overheating especially

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7T (cont'd)			during summer months, and that a fee in lieu of landscaping may be requested or required for consistency with City zoning ordinances during the design phase. Summary. Pursuant to FAA Order 1050.1F, "mitigation incorporated into project design should be consistent with the project's purpose and need."
8	Richard Langseth	None.	This is an APRA (Access to Public Records Act) request submitted to RIAC through the project's email address. No substantive comments were provided on the Draft EA.
9	Richard Langseth	It has been reported by AECOM's contractor VHB on Page 2 of Appendix B, Biological Resources that: "The Bald and Golden Eagle Protection Act (50 CFR part 22) protects these eagles from the unauthorized capture, purchase, or transportation of the birds, their nests, or their eggs There are no known reports for the presence of bald eagle or golden eagle at the Project Area and visits by these species to such an urbanized area would be unusual and not characteristic of these species. The proponent is not recommended to seek additional coordination with the USFWS under this federal regulation." RIDEM reports that 15 eagle observations were called in to them from T.F. Green Airport in 2022. A contractor working for RIAC told me that he has observed the Control Tower switching runways to protect Bald Eagles. There is a report of an eagle/motor vehicle strike on the Airport Connector Road according to RIDEM. I occasionally see them at my location on Budlong Farm, a 60 acre working farm south of the airport on Greenwich Bay.	The Bald and Golden Eagle Protection Act prohibits anyone from taking a bald or golden eagle including their parts, nests, or eggs without a permit issued by the Secretary of the Interior. The current definition of "Take" means pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb.[2] Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.[2] The subject of the EA is the PVD Airport Property and more specifically the area proposed for development of the new cargo facility. Infrequent sightings of bald eagle near the airport do not describe an occupation of the Airport by this species that would describe normal breeding, feeding, or sheltering behavior. These infrequent observations are more descriptive of transient eagles following the coast to find suitable wintering habitat or returning from wintering areas. The information provided in this comment does not change the conclusion that the Proposed Project would not constitute a "take" under the Bald and Golden Eagle Protection Act. Therefore, any impact would be less than significant. [1] US Code 2010 Title 16-Conservation Chapter 5A Subchapter II Protection of Bald and Golden Eagles §668. Bald and Golden Eagles. [2] Code of Federal Regulations Title 50 Chapter I Subchapter B Part 22/Subpart A/§22.6

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10	Richard Langseth	The E.A. uses a lack of a Part 139 certificate as the reason not to consider Quonset (OQU) as the location for the FedEx Sorting facility. A lack of a Part 139 Certificate cannot be used for the justification of the elimination of OQU (Quonset State Airport) as an alternative to PVD for expanded air cargo handling. Part 139 only applies to air passenger service for planes with more than 30 seats. It does not apply to air cargo. Footnote 20 of the E.A. states "14 CFR Part 139 requires the FAA to issue airport operating certificates to airports that serve scheduled passenger (and cargo) airlines" On its website at https://www.faa.gov/airports/airport_safety/part139_cert/what-is-part-139 FAA reports: "What is Part 139? – Part 139 Airport Certification "14 CFR Part 139 requires FAA to issue airport operating certificates to airports that: "Serve scheduled and unscheduled air carrier aircraft with more than 30 seats; "Serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats; and "The FAA Administrator requires to have a certificate." "This Part does not apply to airports at which air carrier passenger operations are conducted only because the airport has been designated as an alternate airport."	Although Part 139 refers to passenger carrying operations, FedEx and UPS are U.S. Certificated Air Carriers under 14 CFR Part 121, and they operate large aircraft under the same rules as scheduled passenger airlines, which require using a Part 139 certificated airport. To clarify, under 14 CFR Part 121, no scheduled air carrier operations using B767 aircraft would be permitted to occur at Quonset State Airport (OQU) without the appropriate airport certification under 14 CFR Part 139. The Footnote in the Final EA is revised accordingly.

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11	Richard Langseth	Purported Historic Area Needs Review - Artificially tilts E.A. Decision to the pre decided "South" location. The consultant's study of historical impact is incomplete at best. It appears as if the "Historical District" was set up in 2009 to encompass part of the original airport but not all of it. Conveniently, a large chunk of the original Airport Road area is carved out. This is where recent corporate hangars have been built. Also carved out is the current passenger terminal area. It appears that no public input was sought out during the purported designation of this area as being of significant importance. Indian burial areas were not included. Similar areas at Quonset (OQU) are described as "shabby" in the Quonset Master Plan and have been torn down without any review including the remains of the failed unique hangar that served as the base of the Air Museum there. The consultant's E.A. pre decides that the facility will be built outside of the "historical area" so none of the above is discussed or presented to the public. It appears to be a regulatory hurdle put up in 2009 when this south side facility was being proposed to put off limits the Hangar #2 for redesign for air cargo operations. It should be noted that Hangar #1 was torn down as well as the geodesic dome without historical review. For the E.A. to be valid, with this sham historical district established during the period of the envisioned south side terminal being discussed put up, The purported Airport Historical District, established in 2009, without obvious public input, by perhaps a friendly archeological consultant, seems to be part of the envision of RIAC to place the modern air cargo facility at the proposed south side location. Using this concept without a peer or public review as a stumbling block for another viable option, the Airport Road option, tilts the scale of options in favor of the south side facility over the Airport Road facility.	The identification and evaluation of historic resources at T.F. Green Airport, including archaeological resources, was completed in 2009, as part of the Section 106 consultation process for the T.F. Green Airport Improvement Program and the details were recorded in the Draft Environmental Impact Statement (2010) and summarized in the Final Environmental Impact Statement (2011). No archaeological sites, including Native American burial sites, were determined historically significant and therefore eligible for listing in the NRHP. For above-ground resources, the RIHPHC issued opinions in July 2008 and January 2009, that Hangar No. 1 and No. 2 and the historic district, are eligible for listing in the NRHP. The FAA concurred with these eligibility determinations, on the recommendation of the RIHPHC, in April 2009. The FAA consulted with the RIHPHC and the Narragansett Indian Tribal Historic Preservation Office (NITHPO) as part of the Section 106 process during the preparation of the approved 2011 EIS with no objection. A brief description of the historic resources is included in Appendix F of the Draft EA. As outlined in Appendix F, the Section 106 process of identification, evaluation, and consultation with local and state agencies was conducted for this project. No additional historic properties were identified within the vicinity of the project and none of the previously identified historic properties were determined to be affected. RIHPHC reviewed the project information and concurred with the findings. A copy of RIHPHC's letter (dated February 20, 2023) is included in Appendix F. Therefore, the Section 106 process is complete.

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11 (cont'd)	Richard Langseth	The project manager told me that Hangar #2 is on the list of historical places – which it is not. It is on a proposed list established during the build up to this E.A. A similar hangar, Hangar #1, also in the purported "district" was torn down without the apparent review that the consultant described. Conveniently the center of activity in this purported district on Airport Road is carved out leaving a hole in the middle of the district from the truly unique and historic first terminal and Hangar #2. The present passenger terminal area is also conveniently carved out from this purported historical district. For this E.A. to move forward, a complete peer review of the purported historical district with public comment is indicated. The E.A. should not move forward without this review. The removal of Hangar #1, the geodesic dome, and significant removal activities at what is truly a historic airport of national significance at Quonset Point should serve as a red flag. During the Offshore Oil Drilling Exploration phase of Quonset in the late 1970s, there were several buildings at Quonset including Building #7 and the paint hangar recently used by the air museum allowed one to envision the historic importance of that airport. All are gone now at the hands of RIAC and other state agencies. Yet we hang on to a regulatory burden of some kind of vision of historic importance at Green to tilt the positioning of the air freight terminal. It just does not deliver! This aspect of the E.A. cries out for review.	

APPENDIX L

Comment #	Commentor	Comment	Response to Comment
12	Richard Langseth	FAA Order 1050.1F Problem - 53-Foot Semis Can't Negotiate the Right Hand Turn at end of Airport Connector and Require Police Escort Disrupting Traffic Meeting the traffic patterns component of FAA Order 1050.1F presents a unique challenge for this project and E.A. Problems like that reported below should be reported out in the E.A. Appendix I, Socioeconomics, Environmental Justice and Children's Health and Safety. Page 3 of that Appendix includes the checklist item: "Disrupt local traffic patterns and substantially reduce levels of service of roads serving an airport and its surrounding communities" which is an item to consider under Order 1050.1F. There is no mention of this problem in either Appendix I or in the Traffic Study (Appendix J) The Appendix J consultant being concerned about the tight situation recommended mitigation which was rejected by RIAC. But the consultant did not address the impossible turn scenario. Here is the problem: When trucks, going from I-95 to the area of the proposed South Terminal, they are approaching the right turn from the Airport Connector heading North at that point and need to turn East to the belly freight area and on to the proposed South Terminal complex. They need assistance from the police to make that turn because they need to back up to wiggle through disrupting traffic. They sometimes must jockey forward and backward several times to complete the turn while opposing traffic is stopped by the police. To avoid that unsafe backing up on to the Airport Connector situation, the police direct them to go North through the passenger terminal area and the police assist them with an escort at the blind merge near Garage B. Then they loop along the loop road that was required to be improved by the EIS because the radius is too tight, but that work was never done. Going West, then South and finally East, they reach the light where they started from where they now have a strait shot to cross the end of the Airport Connector at right angles to the Connector.	The maneuver and route described in this comment is not described as such in the EA. The EA does not propose a police escort for turning trucks and the route described in this comment is not the proposed route under the EA. The Bypass road at the merge after Garage B is under a YIELD control and drivers must give right of way to terminal pick-up traffic. Buses make this maneuver daily without police escort. As stated in the EA, geometric modifications will be made to accommodate truck turning movements. Intersection modifications may include but are not limited to the following: curb cuts to widen the intersection, widening of approach and departure lanes, sign relocation, and revised pavement markings. The Bypass road at the merge after Garage B is under a YIELD control and drivers must give right of way to terminal pick-up traffic. In advance of the yield sign vehicles on the bypass road are able to see the vehicles on the pick-up/drop-off roadway and are able to yield appropriately. Buses make this maneuver daily without police escort. "END OF CONSTRUCTION" sign is likely temporary and would be removed prior to the start of the project. The figure shown in the public presentation will be revised for future reports to show trucks using the Bypass roadway.

Comment #	Commentor	Comment	Response to Comment
12 (cont'd)	Richard Langseth	Trucks leaving the belly freight area (and the proposed South Terminal Area) have an easier time of it. They may take both lanes at the light turning left from the right lane or they may choose to go through the passenger terminal area, drive blindly at the left to right merge in front of Garage B imperiling cars on the right blind side of the truck, and along the loop to eventually turn right at the light and on to the Airport Connector. There is an "End of Construction" sign over the Jersey Barrier on the left side of the end of the Airport Connector road. It hangs slightly over the traveled way. This sign has been struck by a large object, possibly a truck or a bus. During the presentation at the April 20, 2023, public meeting I noted that there was a map of the trailer trucks going through the passenger terminal loop that was incorrectly drawn, showing the trucks under the canopy with a 12-foot 8 inch clearance. This is an obvious mistake in the presentation material. AECOM management announced at the meeting that RIAC was very unhappy with the prospect of trucks running through the passenger terminal loop as was UPS. The announcement was made that UPS has decided to use the Airport Connector rather than the Coronado Avenue, Post Road route that was expected. This decision was made based on "trial runs." But it is obvious that the trial runs were not with 53-foot semis. They can't make the right-hand turn from the Connector to the Belly Freight area. This situation is made more difficult during construction. How will the heavy equipment and trucks with long loads get into the proposed south terminal area? A bus driver of RIPTA Bus 14 (or 66) told a friend that when he merges his bus with passenger car traffic at the merge in front of Garage B, he is doing it blindly. In his mind driving a trailer truck there would be quite unsafe. This comment points to a FAA Order 1050.1F. problem that must be directly addressed by the FAA.	

Comment #	Commentor	Comment	Response to Comment
13	Richard Langseth	Project is not "On Airport Property," RIAC Misrepresents "within the boundaries" question to Warwick City Council. On Page 15 the following statement is made: "The proposed barrier system would be lengthened and moved closer to the residential area, but the structure would remain on airport property." Footnote 11 on Page 14 of the E.A. presents a half truth scenario where RIAC claims to be: "in the process of vacating the City streets within this area (namely, Field View Drive, Murray Street, Bunker Street, and a portion of Strawberry Field Road) and any legal easements and/or right-of-way(s) that remain." RIAC does not have condemnation powers. It cannot "vacate" or take over city streets. The Project is currently not on airport property and will not be for the foreseeable future unless the scope is reigned in as RIAC appears to be doing just that after the completion of the April 20, 2023 public meeting where it now states that it will not spend its own funds for the berm, and, therefore will not build it. For the South Terminal project to proceed, RIAC needs to petition the Warwick City Council (and thus the current users of the streets including the property owners of adjacent streets) for a recognition that these streets are no longer of use to the public and, thus, can be abandoned. The problem is that the public still uses these streets and have legal rights to show continued public use. These streets cannot be simply vacated by RIAC. For an abandonment to proceed, abutters in the network of streets need to concede no further use. That this question ends up in Superior Court is highly likely because at least one neighbor will not agree with RIAC that the streets have ceased to be useful to the public. The proposed vacating these streets is well known issue and has been discussed at meetings between RIAC and the City of Warwick as recently as February 16, 2023, and is a fact presented in a current Administrative Law Proceeding before the Attorney General between myself and RIAC with the City of Warwick and the FAA joined in. RIAC and its go between with the City claim that no street abandonments are required. (This is the subject of a different comment to AECON)	The Draft EA discloses that RIAC is coordinating with the City of Warwick for the appropriate property rights for segments of three City streets that remain within the Airport's property boundary and would be impacted by construction of the noise barrier wall. No local businesses, residences, off-airport land uses, or local traffic routes or circulation patterns would be affected by the closing of the roads. It is understood that the roads currently provide access to vacant land on Airport property that is used occasionally by a few residents for dog walking, etc., and that this area may no longer be accessible after the streets are closed. Regarding the project's status, Section 3.1.1 in the Draft EA lists the noise barrier wall as a major element of the proposed project, and Section 3.1.5 identifies the sources of funds for construction of the project. The noise barrier wall is a mitigation measure and would be developed as part of the proposed project regardless of federal funding. Regarding differences in the noise contours, the Noise Land Use Inventory report documents land that RIAC has acquired through noise mitigation funding and these properties are shown in that report in relation to the EIS forecasted 2020 and 2025 DNL 65 dB contour. These contours were generated in 2011 as part of the EIS. For example, the 2020 EIS contour reflects a different fleet mix and level of operations (108,114 annual operations) that were forecasted for T. F. Green back in 2011, whereas the EA contours developed for 2021 reflect actual operations that occurred in 2021 (57,391 annual operations). The EA 2021 contours are much smaller due to the actual level of operations being approximately half of what was forecasted back in 2011.

Comment #	Commentor	Comment	Response to Comment
13 (cont'd)		So, in the E.A., the consultant agrees that the streets need to be abandoned. But that is easier said than done. RIAC has not petitioned the City Council for abandonments which would require notice in newspapers and a full public hearing on the subject after a presentation to the Planning Board. Abutters using the streets as recreational areas etc. have standing to show that the streets have not fallen into disuse. The statement "The proposed barrier system would be lengthened and moved closer to the residential area, but the structure would remain on airport property" is causing great confusion among the public who know that the entirety of the structure is not on airport property as AECON confirms when it shows the same in its January 2023 bid specs for the building of the berm. After the completion of the April 20, 2023, public meeting, RIAC has published in the Warwick Beacon that it will not build the berm because FAA will not fund it. That funding situation has been known all along, that RIAC must fund the berm. The reason, I believe, that RIAC is now reversing and "will not build the berm" is because it has finally figured out that City Council action is required – yet RIAC is insisting that the project will be entirely on airport property when it clearly is not. There is great confusion over the need for the berm. The 2021 noise contours presented in Figure 4-2 of the E.A. are vastly out of sync with the 2022 noise contours presented RIAC in the December 2022 Noise Inventory with the Noise Inventory 65 db line shifted at least 1,000 feet to the west of the E.A. Line encompassing the entirety of the proposed facility and the associated residential neighborhood. (This is the subject of a different comment to AECON) So the noise berm ends up serving a useful function. Abandoning it because it is not on RIAC property is a big conceptual controversy which demands that FAA find the reason for a full EIS.	

Comment #	Commentor	Comment	Response to Comment
14	Richard Langseth	E.A. Noise Contours Inconsistent with December 2022 Part 150 Noise Land Inventory – Rerun Noise Study Figure 4-2 of the E. A. on Page 33 "displays the 65 – 75 dB DNL noise contours for the 2021 Existing Condition over a map of the existing land use in the study area. …The DNL 65+ dB noise contour—which covers approximately 398 acres—contains no residents and no housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship, are within the 2021 DNL 65+ dB noise contour." The TF Green Airport Part 150 Noise Land Inventory and Reuse Plan (December 2022) shows on Page 51 the 2020 65 db contour as 900 feet to the west of the E. A. position and the 2025 65 db contour as being 1,000 feet to the west. This encompasses all of the proposed South Cargo Freight Facility. It reaches to Thomas Street near the Greenwood Volunteer Fire Company. The significance if this confusion is what is the impact of the proposed South Cargo facility that is to run at night sorting packages from evening flights from Memphis and then bringing daily packages not making the evening outbound into the morning outbound to Memphis? Clearly the nighttime ground noise which will be significant needs to be cast in the light of the December 2022 Part 150 contour and not the consultant's E.A. Numbers. This confusion requires a complete rerun of the E.A. Noise study in light of the less favorable Part 150 grant assurance numbers.	PVD's Noise Land Use inventory is based on the forecasted 2020 and 2025 DNL 65 dB noise contours developed during the Runway EIS process in 2011. These contours were used to define the noise mitigation areas from the Runway EIS. The 2020 EIS contour reflects a different fleet mix and level of operations (108,114 annual operations) that were forecasted for T. F. Green back in 2011. The EA contours developed for 2021 reflect actual operations that occurred in 2021 (57,391 annual operations). The EA proposed action noise contours shown in Section 5.11 are based on current forecasted fleet mix and operational levels for T. F. Green. As discussed (and also displayed using a presentation board at the Public Meeting in April), aircraft operations at PVD have decreased dramatically over the past 23 years—from 156,366 operations in 1999 to 65,828 operations in 2022. The proposed facility will sort packages and load aircraft during the day, aircraft will arrive early in the morning and be unloaded, during the day they will be reloaded and depart in the evening.

Comment #	Commentor	Comment	Response to Comment
15	Richard Langseth	E. A. Inconsistent with Warwick Comprehensive Plan - E.A. does not Address Turning Radii at Evans Avenue and Airport Connector Specifically Addressed in the Comprehensive Plan FONSI must be Denied. This comment is the single point of failure for the South Cargo option. 53-foot trailers (70-foot units) cannot get to the facility without police escort. The South Terminal option is not feasible. Chapter 9 of the Warwick Comprehensive Plan 2013-2033 specifically addresses the signalized intersection of the Airport Connector and the lower level of the loop roads around the passenger terminal. This is where the E.A. makes the point on Page 15 that: "Roadway Intersection Geometry. Intersection modifications along Aviation Avenue and/or Evans Avenue may be needed to accommodate truck turning movements, e.g., a larger turn radii for semi tractor-trailers." The Warwick Comprehensive Plan states on Page 9.10 that: "The baseline conditions assessment provided in the EIS further notes that 'the on-Airport signalized location where Airport Connector intersects with Terminal Loop Road operates at capacity due to high demands, short storage bays, inefficient intersection geometry, and a high number of signal phases. This poor condition contributes to long delays and queues along the entire southern portion of Terminal Loop Road.'" The Comprehensive Plan further states that PART V SUSTAINABLE SYSTEM Transportation and Circulation in Section 9.2 that "• Mitigation of negative impacts of airport operations and development." " • Ensure that the proposed expansion of TF Green Airport addresses all land use, and environmental impacts (including air, noise, water quality, wetlands, etc.) and implements all mitigation measures." On Page 50 of the E.A. the statement is made that "Finally, there are no known inconsistencies between the Proposed Action and local laws, zoning ordinances, or comprehensive plans that cover PVD. … The Proposed Action would not cause or contribute to potentially significant land use impacts identified in other sections of this EA. The Proposed Action would not create a wildlife hazard, and the Proposed Action would not conflict with local laws, ordinances, or comprehensive plans. Therefore, no significant land use impacts would occur." That statement is untrue. The EIS (2012) specifically requires RIAC to fix this intersection and is called for in the MOA with the City. This work is not done and is a cumulative negative impact.	See responses to Comments 7A and 7B above.

Comment #	Commentor	Comment	Response to Comment
15 (cont'd)	Richard Langseth	It is not good enough for the E.A. to state: "Evans Avenue may be needed to accommodate truck turning movements, e.g., a larger turn radii for semi tractor-trailers." This is the number one point of failure in the E.A. There is testimony that trailer trucks making this turn now must be accompanied by Airport Police who stop all traffic and the trucks must jockey forward and backward to get though the intersection. RIAC claims fixing the intersection is not financially feasible. This makes the entire South Cargo Facility unacceptable as an alternative as shown in the Warwick Comprehensive Plan. The E.A. must be redone to reflect this reality or the FONSI must be denied.	
16	Richard Langseth	Bradley handles half of T. F. Green Air Cargo - It is a viable alternative to expansion yet is not considered in E.A. Option - Handles T.F. Green Amazon Air Cargo The Rhode Island Statewide Planning document (2022 State of RI Freight and Goods Movement Plan – Interim Update) makes clear of the fact that BDL is an option to consider for air freight expansion. It reports on Page 84 that in 2015 T F Green handled 27,040,498 lbs. of freight, 2016 27,718,271, 2017 43,553,895, 2018 59,208,511, but in 2019 only 27,849,924 and in 2020 31,242,746. The Freight and Goods Movement Plan attributes the drop in freight handling at T F Green to diversions (mostly Amazon) to BDL (where there is a large Amazon facility. Internal RIAC documents confirm that outflow to BDL a drop of 31 million lbs. of Amazon freight to BDL the year Amazon exited T.F. Green (2019). The RI Freight and Goods Movement Plan reports on Page 27 that: “Regionally, the largest share of Rhode Island outbound or inbound air freight moves through Connecticut via Bradley International Airport. Though it may be redistributed elsewhere, 1,101 tons worth more than $91 million in value were shipped out of Rhode Island via Connecticut in 2013.” “In addition to changes in technology and reduced consumer purchasing, the reduction in air cargo at T.F. Green is primarily due to DHL discontinuing its domestic air and ground services in the U.S, even though it continues to operate international services, with operations at Bradley International Airport in Windsor Locks, Connecticut and Logan International Airport in Boston, Massachusetts.” The E.A. does not reference Amazon nor Bradley even once although this is a major factor in the Air Cargo story at T.F. Green. Both the lack of an Amazon reference where Amazon was 59% of T.F. Green’s air cargo business in 2018 and the lack of a reference to Bradley where 59% or so of	Section 2 of the Draft EA explains the purpose and the need for the proposed project. In Section 3 of the Draft EA, RIAC considers a range of potentially feasible alternatives. Redirecting the proposed project to an out-of-state airport is not reasonable because it does not address the need to replace existing deficient and obsolete cargo facilities at PVD.

Comment #	Commentor	Comment	Response to Comment
16 (cont'd)		T.F. Green's catchment area air freight is coming/going from is unacceptable. Clearly Bradley (BDL) is the current alternative for T.F. Green and it should/must be considered to be a prime alternative to expansive infrastructure investment at T. F. Green which is utterly nonresponsive to truckers who would need to obtain police escorts to get to the South Freight facility due to an unworkable access road. (as reported in another comment). The NEPA process requires the consultant to consider Statewide Planning information in E.A.s This requirement has not been met. And Bradley should be recognized as a viable alternative and explored in detail in a restatement of the E.A. or full EIS.	
17	Richard Langseth	E. A. States That Facility Will be Financed with Airport Revenue Bonds Implying that General Revenues of RIAC will be Pledged to this Facility. That is incorrect. The E.A. must include a section from the Rhode Island Commerce Corporation that explains in detail the bond underwriting for this project. Section 3.1.5. Project Cost and Funding Sources on Page 17 of the E.A. states: "The South Cargo Facility is a $100 million program that would be developed by RIAC using a combination of Airport Improvement Program (AIP) grants(12), Passenger Facility Charges (PFC)(13), and an airport revenue bond.(14)" "(14) An airport revenue bond is a type of municipal bond in which the operating revenue of an airport is used to secure the bond. A municipality or airport authority will issue an airport revenue bond, with the funds going toward improving, expanding, or building a new airport." This comment is totally unrealistic. RIAC is currently supporting the payment of its debt service with $1 Million per Month emergency COVID-19 funding directly from the Federal Government. There is no general revenue available to float a revenue bond this year. And the FAA has slapped rules on the use of revenues to support bonds for such purposes as passenger safety, etc. Dedicating general airport revenues to support this bond series is totally unrealistic. As I understand the plan, this facility will be financed through $70 plus million of probable taxable Special Facility Bonds. They are probably taxable because the FedEx facility will be used to sort its own freight. It is not a common carrier. Bonds may be taxable because most of the investment is for private purposes (the 90% rule) the lease payments from	Section 3.15 of the Draft EA discloses the sources of funding. No City funding is proposed. The proposed project would not cause local taxes to increase or create a financial burden to the community. No further financial analysis or disclosure is necessary for environmental impact assessment or FAA decision making under NEPA.

Comment #	Commentor	Comment	Response to Comment
17 (cont'd)		FedEx to pay the juice on the bonds will be quite high, probably in the range of $7 million per year. (7% interest plus amortization ???). This is a controversial item at the community level. RIAC has approached the City of Warwick for it to appeal to the FAA for Airport Improvement Funding for aspects of this development that do not fit into that AIP program. The E.A. must include a section from the Rhode Island Commerce Corporation that explains in detail the bond underwriting for this project. We need a statement from FedEx that it is on board with the projected cost of the Special Facility Bonds.	
18	Richard Langseth	Objections to the Master Plan not Recognized in E.A. nor Made Available for Review Note Community Responsibilities to Email to FAA Complaint Regarding public involvement, Section 6.1 History on Page 70 of the E.A. where it states: "The South Cargo Facility has been discussed publicly since the start of the PVD Master Plan Update in 2019. Early in the master planning process, RIAC formed a Master Plan Technical Advisory Committee (TAC) which met regularly over the course of the study. RIAC also participated in meetings with the City of Warwick Mayor's office, hosted three open house events, and conducted one planning workshop so that the 20-year development plans for airside, landside, terminal, and cargo/general aviation areas could be presented for review and comment. The relocation of cargo facilities to the south side of the airport was included in these conceptual plans. There were no comments received in opposition to the project." On 5/19/19 I sent an email to Gail Lattrell of FAA and to RIAC – on RIAC's failure to meet community responsibilities re the Master Plan including an 800 number that does not work and the lack of RIAC contacting the New England Parking Company, a stakeholder. On 9/23/19 I sent an email to pvdplanning – that Greenwich Bay Watershed Group not included in stakeholder meetings. This was resolved by Dan Porter of RIAC. I attended Master Plan Open Houses in May and June 2019 where I expressed my concerns regarding the South Freight Terminal expansion across Strawberry Field Road (I think) I attended an Open House on September 26, 2019 where I addressed issues associated with the Master Plan	No objections were noted in the Master Plan Appendix B Public Involvement (May 2021). As a public entity, RIAC takes its responsibilities under APRA very seriously and will continue to review and respond efficiently and appropriately to all requests in accordance with its statutory obligations. This public comment period is associated with the Draft EA for the South Cargo Facility pursuant to FAA requirements under NEPA. Comments associated with the Master Plan are outside the scope of this EA project.

Comment #	Commentor	Comment	Response to Comment
18 (cont'd)		At a February 12, 2020 Master Plan presentation at the RIAC Board room I spoke extensively with Dan Porter about the overly ambitious Air Freight scenario including the South Freight facility expressing my lack of approval of the plan, talking way into the evening. Via APRA, I requested information about my comments at these meetings when the E.A. was unveiled. RIAC has yet to respond to the E.A. associated APRA. The E.A. should be corrected to document my prior complaints and disapprovals of the South Freight facility that were established during the Master Plan process. RIAC should release the documents that I have requested regarding the E.A. as a public matter.	
19	Richard Langseth	Confusion over B 767 Planes on the Ground - Need is for 5 pads not six. Regarding Section 1.2. Cargo Airline Operations. The T. F. GREEN AIRPORT RUNWAY UTILIZATION REPORT 10/01/2022 - 12/31/2022 shows a consistent six operation per day, Boeing 757-based, Air Cargo process going on every weekday by UPS and FedEx with two UPS planes and one FedEx plane coming into T.F. Green. In addition to this, there are several much smaller prop-based “island hopping” Wiggins flights. There is confusion in the E.A. about how many Boeing 757 planes are on the ground each day. As shown in the Runway Utilization Report, the current number is three, one FedEx and two UPS. The E.A. states in Section 1.3 on Page 9 (10 in the pdf) that: “Both carriers … (c)combined, they typically operate five flights per day on average.” Is this “five flights” five operations or ten operations? The actual number six operations leaving three planes on the ground to be serviced. In addition, there are three to four small Wiggins operations, one at 3:00 a.m., the New Jersey flight. The number of planes on the ground needs to be further examined and explained. Are six pads needed? Probably not. With one of the current BOS operations an evening inbound and morning outbound to apparently service overnight sorting, this overnight sorting operation needs to be fully explained in the E.A.	Section 1.6 in the Draft EA discussed the aircraft parking positions requested by FedEx, and Section 3.1.3 described how the number of type of aircraft operations would be expected to change. Under the proposed project, both companies would switch from B757 to B767 freighter aircraft. FedEx currently has one parking position and would increase to three. UPS currently has two parking positions, and one additional parking position is needed for operational flexibility for a total of six aircraft parking positions as shown in Figure 3-4 in the Draft EA. For clarity, the Draft EA assesses cargo aircraft operations using an average annual day. The cargo operators currently operate three daily flights (1 arrival/1 departure) only five to six days per week. Currently and as part of the No Action Alternative, there are five daily flights (2.5 arrivals / 2.5 departures) on an average day. Under the Proposed Action Alternative, there would be nine daily flights (4.5 arrivals / 4.5 departures) on an average day, or an increase of approximately two flights per average day. It is also important to note that the proposed project is not based on the utilization report but rather on the tenant's forecast and the airport's ability to accommodate the forecast growth at an acceptable level of service. To meet their forecasted operational requirements, six aircraft parking positions for large aircraft, plus three positions for smaller aircraft, are anticipated.

Comment #	Commentor	Comment	Response to Comment
20	Richard Langseth	Airport Road Solution Best Option - already signed off by FAA. Master Plan shows a future 100,000 sq ft air cargo terminal at Airport Road. South Side Terminal has poor access. The new 2021 Airport Layout Plan, signed off by the RIAC CEO on June 18, 2021, which is approved by the FAA, lays out an adequate Air Cargo plan at Airport Road that meets FedEx requirements and the stated requirements of the E.A. That the South Side Terminal is knocked off because 53-ft Tractor Trailers literally cannot get to that site through the proposed roads system is inconsequential. The South Side Terminal is simply not needed. This alleviates the sound and air pollution negatives on residential abutters within 200 feet of the proposed facility. It solves the sticky City Council approval cycle for street abandonments. It avoids a Comprehensive Plan battle with the City of Warwick where the Comprehensive Plan calls for improvements at the critical Airport Connector/Evans Avenue intersection that RIAC has yet to implement and does not want to pay for - potential costs in the millions. Airport Layout Plan calls for the building of a fifty foot tall 100,000 square foot cargo expansion facility on Airport road beyond the AECOM unexplained “E.A. no parking line” shown in the E.A. AECOM claims that 59 foot high 767s cannot be parked beyond that line. It provides no reference in the FAA regs to support that position. However the FAA approved Airport Layout Plan signed by RIAC CEO shows the Airport Road area 100,000 sq ft air cargo terminal to be on the safe side of the Building Restriction Line (BRL). It appears to be viable. It also calls for three 767s parked next to that facility on the wrong side of the AECOM “E.A. Line.” It is within the BRL Line. See Reference (S1-3) This three 767 accommodation meets the stated FedEx need In addition the Airport Layout Plan calls for a new apron (S2-8) that would accommodate two or possibly three 767s within the BRL. Given that UPS does not use hangar space in the existing Hangar Two and processes its freight off site, the Master Plan shows that the UPS need can be met using the Airport Road option.	Section 2 in the Draft EA explains why the proposed project is needed to replace existing deficient and obsolete air cargo facilities at PVD. Section 3.1 identifies the intersection improvements required for heavy trucks to utilize the Airport Connector Road. Section 3.3 explains the rationale for dismissing the alternative to expand the existing cargo facilities on the north side of the airport. Footnote 18 in the Draft EA cites the Federal Aviation Regulations (Part 77) used to identify the aircraft parking limit line for this alternative. Regarding alterations to the project site layout that occurred between the 2021 Airport Master Plan and the Draft EA, airport planning is a dynamic process. Section 1.5 and Section 1.6 in the Draft EA discuss the changes in demand and design parameters. Additional alterations to the proposed project may occur during the engineering phase due to factors such as funding, design evolution, value engineering, agency permitting, etc.

Comment #	Commentor	Comment	Response to Comment
20 (cont'd)	Richard Langseth	The RIAC signed off Master Plan also calls for demolition of the "historic" Hangar two to be replaced with two modern 40,000 sq ft corporate hangars. This answers the AECOM historic objection. (The purported Historic District has been questioned in another response. This 2009 proposal conveniently carves out existing corporate hangars and the 1992 PVD Passenger Terminal. I suspect that such a district would also penetrate the proposed South Side facility significantly if it were fully studied and documented.) The RIAC signed off Master Plan also calls for the demolition of the original passenger terminal recently used by the U.S. Weather Service. However, an option could be to shift the proposed 100,000 foot cargo terminal to the east into the Textron and CVS hangars with these hangars being relocated to the existing belly freight area where the Patriots 767 is parked etc. or near the fuel farm where the Master Plan calls for a new belly freight facility (Reference S-12) The existing belly freight area (Reference 19) is labeled "Vacant to be Demolished" It is known that that Reference 19 building is to be rehabbed for Breeze Airlines for its maintenance area. Having CVS and Textron there is compatible with a Breeze maintenance facility. During the Winslow Park discussions, RIAC described this area to be used for updated CVS and Textron hangars. So, the current location of these hangars is not "sacred ground" by any means. This concept is reinforced by the RIAC signed off proposed S2-3 expansion of the maintenance facility which is right on the Building Restriction Line well within what would be an AECOM E.A. No Parking Line. FAA has no problem with that building (which could have been used for corporate hangars but was not.) There is much to review in this Airport Layout Plan/Master Plan which gives hope to FedEx to accommodate its needs within the existing Airport Road site. The South Side proposal must be rejected because the access road is impossible for trucks to use. The Airport Road site should be investigated fully in a redone E.A. or perhaps an EIS. Airport Road Solution already signed off by FAA. Master Plan shows that a future 100,000 sq ft air cargo terminal at Airport Road. South Side Terminal is not needed. It has no access for trucks.	

Comment #	Commentor	Comment	Response to Comment
21	Michele Komar	In addition to my comments provided for the record to the stenographer at the RIAC public meeting on April 20, 2023, I am submitting the following additional comments re: the Rhode Island T. F. Green International Airport (PVD) South Cargo Facility Draft Environmental Assessment (EA): 1. It is not clear if the project is a State or private project, and if all aspects and functions of the project are unique to and dependent on passenger airport. Which is it, State or private? 2. At the RIAC April 20, 2023 public meeting, the RIAC project manager and RIAC attorney assured me that the project was to be funded with FAA AIP funds, bonds, and no other public monies. John Goodman, RIAC (Warwick Beacon, April 27, 2023) indicated that RIAC does not have funds to construct the sound berm (wall) and will be looking for funding. All project funding sources were not disclosed in the Draft EA. The Warwick City Council when discussed and voted favorably in support by resolution of the sound berm did not consider lack of RIAC funding for the berm, as this information was not brought before them. 3. It is not clear if the project is a State or private project based on potential funding sources. Which is it? 4. The project will place additional burden on City of Warwick services re: fire, rescue and police. Financial compensation to City of Warwick and Warwick taxpayers was not included in Draft EA. 5. There are extensive public questions and comments being submitted during this public comment period, and new information was disclosed from/after the April 20, 2023 public meeting which may necessitate that Draft EA be re-issued and circulated for public comment. I request that FAA ensure that the Draft EA be revised with accurate and complete analyses, and that the public comment period be extended.	1. It is a RIAC project. 2. The Draft EA in Section 3.1.5 identifies the funding sources. 3. It is a RIAC project. 4. The proposed project would have no appreciable effect on City of Warwick public services. 5. The nature and extent of public comments on the Draft EA do not warrant preparing and reissuing a revised Draft EA.
22A	Ronald Hawkins	Please be advised that my first comment is that there are community wide concerns regarding the lack of transparency and availability of current facts and data compared to the prior TF Green Airport NEPA Process.	Section 6 of the Draft EA identifies the efforts RIAC has taken to consult with the community about the proposed project and the EA process, including but not limited to two public meetings. The City of Warwick has also acknowledged "the efforts made by RIAC to involve the Administration, the City Council, the local community and staff during the drafting of the Environmental Assessment." Regarding the prior NEPA process, an EA would not normally include the same depth of analysis or degree of public involvement as the EIS that was prepared for the Airport in 2011.

Comment #	Commentor	Comment	Response to Comment
22B	Ronald Hawkins	The majority of the community impacted by T.F. Green Airport were not given sufficient notification to provide helpful input, involvement and subsequent comments within the NEPA process. It is difficult to provide comments when the lead consultants cannot provide answers to questions at a Public Meeting. The Draft EA is incomplete given design metadata and facts have changed from the Master Plan and issued D EA. Information presented at the April 20, 2023 Public Meeting was different and key pieces of information had changed from what was in the published draft environmental assessment (EA).	Section 6 of the Draft EA identifies the efforts taken by RIAC to engage the community about the proposed project and the EA process, including but not limited to public notice of the (voluntary) Public Information Meeting in January, public notice of availability of the Draft EA report, and public notice of the Public Meeting in April, all of which was also posted to RIAC's website and to social media platforms. As an additional measure, RIAC sent letters by mail to 56 neighbors potentially affected by the proposed project. Regarding changes to the project site layout between the Airport Master Plan and the Draft EA, airport planning is a dynamic process. As individual projects are implemented, concept plans are prepared and continuously refined to meet facility requirements and design parameters. Additional alterations to the proposed project may occur during the design phase due to factors such as funding, design evolution, value engineering, agency permitting, etc. Regarding traffic information presented in the Draft EA and discussed at the Public Meeting in April, the Final EA in Section 5.13 clarifies and resolves community misperceptions regarding potential future traffic volumes and truck routing.
22C	Ronald Hawkins	RIAC's consultants were not able to answer key questions, and to some questions indicated that they did not have basic design data, and could not provide detailed information about trip generation for vehicular traffic related to the proposed air freight facility. Nor were lead consultants able to answer question about the vehicular traffic fleet mix, ex. Will any of the trucks be for local delivery, small trucks versus large which cannot navigate the planned routes without mounting curbs, crossing into opposing traffic lanes, and repetitive forward reverse movement. We need more data of private air freight company fleet mix, for example neighborhood delivery truck modal split versus inter-warehouse trip generation for freight warehouse within the region Tractor Trailer Access and Egress shown on story boards on 4/20/22 to the proposed facility is not feasible and would require roadway geometric redesign and traffic to be compliant with the AASHTO Green Book and ITE Traffic Engineering Handbook for efficient Levels of Service and to not interfere with Passenger Terminal related motor vehicle traffic flow.	As stated in Section 3.1 of the Draft EA, if the proposed project is implemented, intersection modifications along Aviation Avenue and/or Evans Avenue may be needed to accommodate truck turning movements, e.g., larger turn radii for semi tractor-trailers. RIDOT reviewed the traffic impact analysis and has no objections. The traffic engineer did not have the traffic analysis appendices (390 pages) at the Public Meeting in April, but the requested information has since be uploaded to the project website for public review.
22D	Ronald Hawkins	The title for the Draft EA, Draft Environmental Assessment for the "South Cargo Facility at Rhode Island T.F. Green International Airport" indicates that the south filed location was arbitrarily and capriciously chosen prematurely BEFORE receiving official public comments on ALL Alternatives, Rendering the south filed location choice to be arbitrary and capricious.	FAA Order 1050.1F in Section 6-2.1.d states the preferred alternative, if one has been identified, should be indicated in the EA document. FAA Order Section 3.1 of the Draft EA identifies the preferred alternative. It is also not uncommon for the title of an Environmental Assessment to refer to the preferred alternative.

Comment #	Commentor	Comment	Response to Comment
22E	Ronald Hawkins	The Draft EA is further deficient in that it does not include other potentially viable Alternatives which would make more efficient spending of federal dollars. While RIAC had ruled out the north ramp location, the north side location is feasible with slightly changing the constructed facility footprint, potentially moving corporate aviation to the south so those passengers can easer connect with commercial flights, closer look at Bradley International as not as geophysically constrained as TF Green and Bradley being more centrally located within the Region.	Section 3 of the Draft EA identifies several potentially feasible alternatives to the proposed project site, including expanding the existing location on the north side of the airport, and using alternate airports. The Draft EA in Section 3.3.3 gives several reasons why it would not be practicable to accommodate the proposed action on the north side of PVD. Further, redirecting the proposed project to an out-of-state airport was not identified as an alternative because it does not address the need to replace existing deficient and obsolete cargo facilities at PVD.
22F	Ronald Hawkins	I hereby request that the FAA New England Region Executive Management has potential significant impact to the community given the incomplete information that needs to be updated before going forward and that that the following be implemented to ensure efficient spending of federal dollars. 1) AECOM go back and update the issued Draft EA for changes revealed at the 4/20/2023 Public Meeting, (ex. AECOM had no detailed info on the truck fleet mix and it's impossible to do traffic analysis and impact without that) 2) Re-Issue the Draft EA with the changes revealed at the 4/20/2023 Public Meeting, and; 3) After the appropriate update to the Draft EA to bring it current at the draft stage, reissued the Draft EA with a renewed 30-45 full day comment review period,	The Proposed Project is not without negative effects, and as required those effects are identified and addressed in the Draft EA. When compared to FAA's significance thresholds, no significant adverse impacts on the environment have been identified (ex. RIDOT reviewed and concurred with the findings of the traffic analysis). New insights about potential truck traffic routing were discussed at the public meeting. However, that information is preliminary and if implemented would increase use of the Airport Connector Road thereby reducing the effects of the project on local roadways. Therefore, it would not be efficient to re-issue the Draft EA with more detailed traffic information that is not needed to make a significance determination.
23	Ronald Hawkins	I find the emissions to be totally unacceptable at this point; so I'm against adding on any more funds and any new additions to T.F. Green International based on that.	The United States Environmental Protection Agency (USEPA) promulgates the National Ambient Air Quality Standards (NAAQS) to address criteria pollutants. As stated in the FAA Order 1050.1F Desk Reference, the General Conformity Rule establishes the de minimis levels to identify those actions with the potential to have air quality impacts large enough to require a conformity determination. If a project's net emissions are less than the de minimis levels, then the Federal action is considered to be too small to adversely affect the air quality status of the area and is automatically considered to conform with the applicable state implementation plan, and therefore the general conformity requirements have been complied with and the process is complete. The State of Rhode Island is in attainment of the NAAQS, and therefore an Applicability Analysis determined that a General Conformity Determination is not required. However, the resulting emissions increases due to the proposed project have been

Comment #	Commentor	Comment	Response to Comment
23 (cont'd)			estimated and were found to be below the de minimis thresholds described in the Clean Air Act for a maintenance area, and for an area designated as in marginal, moderate, or serious nonattainment of the NAAQS.
24	Michael Almeida	Did they consider building this cargo terminal, instead of at its present location where it wants to be built, to Quonset airport; and, if not, why didn't they, and, if they did, why did they turn it down. Because, to me, if you're gonna make a new cargo airport, why not put it in the industrial complex at Quonset airport where it's already been upgraded, the infrastructure, and it's in an industrial complex where you can appease the residents of Warwick by taking the aircraft cargo out of T.F. Green and putting it in Quonset Point, and it would eliminate, also, the possibility of hazardous materials being shipped on cargo planes and interfering with air travel of regular passengers. So to me it was a win-win:· a safety issue for passenger safety, a residential issue for noise, and a traffic issue because that infrastructure is already built at Quonset, and it's an industrial complex.	Section 3.3.5 in the Draft EA considers relocating the proposed project to Quonset State Airport and explains why this alternative is not reasonable.
25	Mr. & Mrs. Hanson	Are our property taxes going to go down because of the increase in traffic to the airport? What type of benefit is the City of Warwick getting from this? Is the taxpayer going to get any tax relief, or what is the benefit to the citizens of Warwick?	Section 3.15 of the Draft EA discloses the sources of funding. No City funding is proposed. The proposed project would not cause local taxes to increase or create a financial burden to the community. No further financial analysis or disclosure is necessary for environmental impact assessment or decision making under NEPA.
26	Donald Fife	It should have been done at Quonset. I'm afraid that you'll have more traffic on Airport Road and that there will be planes coming in and out and the runway's 100 feet from the kids ball fields. Was there any testing done on the air quality around the airport? I'd like to see the results.	Section 3.3.5 in the Draft EA considers relocating the proposed project to Quonset State Airport and explains why this alternative is not reasonable. Section 5.1 in the Draft EA discusses the potential impacts on the air environment. Air emissions quantification was performed for the proposed project and the emissions increase would be less than significant. The results of the air quality analysis are presented in Section 5.1, and the details are included in Appendix A. In addition, ambient air quality monitoring is performed at PVD on a routine basis, and the results can be found at https://flyri.com/t-f-green-airport/environmental/.
27	Barry Cook	What's going to happen to the two existing freight buildings on Airport Road. They're being vacated and moving to the Strawberry Field portion of the airport, but I can't find out what the plans are for the existing buildings. I would like to know what the plans are.	As stated in Section 3.1.6 of the Draft EA “the existing cargo building on Airport Road (Hangar No. 2) would be vacated and maintained until it can be utilized for some other purpose, which has not been determined.” The existing cargo building is the only freight building on Airport Road.

Comment #	Commentor	Comment	Response to Comment
28	Roger Durand	I am very concerned about the noise pollution as well as the air pollution at the airport. I don’t understand why this isn’t being moved to Quonset Poit. They have the infrastructure which is better suited as opposed to Airport and Post Road where these trucks are gonna have to go out. I don't believe FedEx is gonna stop with just four flights a day. I think that what's gonna happen long-term is FedEx, I understand, is being forced and cannot expand in Boston. I could visualize in the future, not too distant future, I might add, that FedEx is gonna turn around and close the operation or reduce the operation in Boston and move it to Providence or Warwick because they have this new facility. That is very troubling, in fact, and very concerning.	The Draft EA addresses potential impacts on the air and noise environments in Section 5.1 and Section 5.11, respectively. The project induced net increase in air and noise emissions would be less than significant. The Draft EA in Section 3.3.5 considers using Quonset State Airport (OQU) and explains why this alternative was dismissed. The Draft EA in Section 1.6 outlines the commercial proposal under consideration. The remaining comments are purely speculative.
29	Joanne Langseth	I don't understand why a massive new cargo port, or whatever it's called, warehouse, needs to be built because the one that we have now is -- will be perfectly accommodating to increased loads if it is expanded, and it's very difficult to believe that the huge -- what is it, a warehouse?· Not a warehouse, a cargo port, is truly necessary given the -- that the operations each day will presumably be limited to one incoming flight or two. And what I believe will happen is that there will be plenty more from FedEx and that the airport personnel will say, well, this was unforeseen, so we're glad we built the large port; but right now there appears to be untruths being told about what is needed. And the plan for the trucks, huge trucks, to go through the airport and to make a hairpin turn to get up there is disturbing, also, because it sounds to me that it is very dangerous; and that's about it.	The Draft EA in Section 2 explains the need for the project. The Draft EA in Section 3.3.2 explains why it would not be practicable to expand the existing cargo building, and Section 3.3.3 explains why it would not be practicable to redevelop the north side of the airport for expanded air cargo operations. The Draft EA in Section 3.1.2 and Section 5.13.1 identify that improvements to existing intersections may be needed to accommodate semi-tractor trailers.

Comment #	Commentor	Comment	Response to Comment
30A	Michelle Komar	There are two agreements that the City of Warwick entered with RIAC/FAA.· One is an agreement when Mayor Linc Chafee was mayor back in, I want to say, 1994/1995; and in that agreement, amongst other conditions and agreements, was a voluntary air-flight curfew, and I believe that was, like, 6:30 a.m. to -excuse me, 11:00 p.m. to 6:30 p.m. -- a.m. -- I'm going to say that all over again -- 11:00 p.m. to 6:30 a.m. There were to be no flights on a voluntary basis, and I'd like to see if that MOA and the conditions in it are still being maintained by RIAC today in light of all their operations, and, in particular, because we're here to comment on the draft EA for the freight terminal, that this project will be in compliance with that agreement, and that includes the voluntary curfew. The other agreement was in May of 2012, and the City Council of Warwick had contested the FAA record of decision for the environmental impact statement for the runway expansion project.· And they made an agreement to stop their contestment, their legal challenge, and they signed this agreement. So I'd like to also have RIAC review/revisit these two agreements to see if this project is in conformance and maintains those agreements, as they were agreed upon by the city and RIAC years ago.	In December 1999, RIAC completed a Noise Compatibility Planning Study to update the 1986 Noise Compatibility Program in compliance with Federal Aviation Regulation Part 150. One of the Noise Abatement measures (NA-7) included "Voluntary nighttime restrictions for scheduled air carrier operations (midnight to 6:00 am)". In accordance with RI General Law 1-5-2 RIAC has been providing quarterly reports which track compliance with the Noise Compatibility Program. The first report was completed for January through March 2000 (Q1 2000). Reports from 2017 to the present are on our website: flyri.com/t-f-green-airport/noise-management. This information is also presented at biannual public hearings conducted in accordance with RI General Law 1-5-3. Subsequent to the FAA Record of Decision (September 23, 2011), RIAC entered into a Memorandum of Understanding (MOU) with the City in May 2012. There is nothing in this MOU directly related to the proposed project. The only element that may be applicable to this project is section 5.06.01 which states: "….the City will work with RIAC to timely rezone all acquired Properties from residential to commercial where appropriate, based on the land use of the surrounding area."
30B	Michelle Komar	I'm concerned about the freight cargo trucks being allowed to make the loops around the front door of --or near the front door of the main building, terminal building. The other concern I have, just with the freight traffic alone, is we have a waiver in place --FAA granted a waiver -- because the parking lot is not within the required setback distance from the main terminal; so, to compensate for that, we have these big concrete bollards that would block -- prohibit traffic/cars from entering closer to the terminal. With that in place, we allow -- we're going to allow these big trucks to come by the front door of the terminal. So I'm very concerned about that safety, and I question if TSA has reviewed the draft EAA -- draft, excuse me, EA for safety concerns and security regarding the freight trucks being allowed to enter into the terminal roadway loops.	The existing roadway network allows for truck traffic in front of the airport terminal and the safety concerns described will exist both with and without this project in place. This project does not propose removing any bollards in front of the airport pick-up or drop-off areas.

APPENDIX L

Comment #	Commentor	Comment	Response to Comment
30C	Michelle Komar	FedEx seems to be driving the project need. Boston-Logan will not take on more flights for FedEx; so they want to come to Green.	The Draft EA in Section 2 states that the proposed project is needed to replace existing deficient and obsolete facilities. After discussions about the need for a new, modern cargo facility at PVD, the project scope increased in size to accommodate additional FedEx operations.
30D	Michelle Komar	I wonder, since we're introducing with this project -- or RIAC's introducing new maneuvers that have to be done to get these airplanes to reach the new location of the freight terminal facility, if we're introducing any conflicts, potential conflicts/collisions, in airplanes getting over to the cargo facility. I don't know if this has been addressed adequately in the draft EA.	The design airplane is a B767 widebody airliner. The same type airplane is used by the New England Patriots and is parked adjacent to the proposed project site. All cargo aircraft operations must comply with applicable FAA clearance standards dimensions. No airfield safety issues or concerns have been identified with the proposed project.
30E	Michelle Komar	The other alternative that was not mentioned was actually looked at and recommended by a former RIAC CEO Kevin Dillon, who I think left RIAC around the year 2012, I want to say, and he's now at -- in Connecticut.· I know he oversees the operations at Bradley Airport. And what Kevin Dillon recommended, when he was a RIAC director/CEO, was to relocate T.F. Green altogether to a new location somewhere else in the state that had adequate campus size to accommodate all the operations and functions that RIAC desires to happen at Green. Like I mentioned, Green is just too small a campus.· They are expanding real estate and encroaching into local neighborhoods.· The city loses tax revenue, it disrupts traffic by changing roadway patterns, and we should look to relocate it to a large, adequate-sized campus where we don't have the square peg fitting -- trying to fit into a round hole; and that alternative is absent from the draft EA: locate this whole facility in a whole different location somewhere else in Rhode Island or out of state.	Section 3.3.6 of the Draft EA discussed the alternative to construct a new airport to supplement or replace PVD.
30F	Michelle Komar	The rare endangered species is inaccurate, and I believe another person here that spoke, Richard Langseth, actually got documentation from DEM that there are species of concerns in the area, in particular Bald Eagle; and the report said that there were none.	The Draft EA does not state there are no Bald Eagles. The EA discussion is limited to Federal- and State-listed species potentially affected by the proposed project. The Bald Eagle is an occasional transient species at PVD. The USFWS did not identify the Bald Eagle as potentially affected. See response to Comment 9.

Comment #	Commentor	Comment	Response to Comment
30G	Michelle Komar	I had hoped that the draft EA at some point would address the funding.	Section 3.15 of the Draft EA discloses the sources of funding. No City funding is proposed. The proposed project would not cause local taxes to increase or create a financial burden to the community. No further financial analysis or disclosure is necessary for environmental impact assessment or FAA decision making under NEPA.
31	Jim Lofgren	I really like the project. I think its great for Warwick, great for Rhode Island.....	Thank you for your comment.
32	Kathleen Schofill	The cargo areas are busy but not as loud as passenger areas, but the benefit to the planes having less taxi time and shorter stopover will ultimately benefit both noise and air quality.	Thank you for your comment.
33	Rep. Joe McNamara	Warwick District 19 -many constituents are concerned and would appreciate time for them to respond.	The time allowed for review and comment (30 days) was announced in the Notice of Availability, is reasonable for an EA of this size and scope and is consistent with FAA requirements under NEPA.
34A	Michelle Komar	How is the berm going to be funded? Extend the comment period until the funding issues is clarfied.	Section 3.15 in the Draft EA discloses the sources of funding. The proposed project, which includes the berm, would be financed using a combination of federal grant funds, passenger facility charges, and/or airport revenue bonds.
34B	Michelle Komar	What are the facility hours of operation? Planes coming in and out, sorting, trucks coming in and out.	The facility hours of operation are not expected to be substantially different than the current cargo operation, except that the first FedEx aircraft arrival each day would occur approximately one hour earlier. As stated in Section 1.2 in the Draft EA, trucking operations would primarily occur during the day between aircraft arrival and departure times.
35A	Michael Gautieri	I oppose this act of ignorance to our neighborhood and it will result in a environmental issue with where this is taking place, right in front of our homes and in our face. Building a berm and extending the berm is a temporary patch to somewhat silence the noise and block the fumes with what will omit from these diesel trucks entering into our zone.	The potential increases in noise are discussed in Section 5.11 in the Draft EA. Ground noise from the proposed facility was evaluated in the Draft EA and noise levels without the noise barrier were estimated to range from DNL 52 to 60 dB in the closest residential area. The majority of the nearby homes have been sound insulated by RIAC and with the sound barrier these levels will be reduced further and remain well below the federal threshold for noise. With the noise barrier in place no residential areas would experience single event maximum (Lmax) levels greater than 61 dB and most of this area would only be exposed to Lmax values in the mid to upper 50's. As stated in the FAA

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35A (cont'd)			Order 1050.1F Desk Reference, the General Conformity Rule establishes the de minimis levels to identify those actions with the potential to have air quality impacts large enough to require a conformity determination. The resulting emissions increases due to the proposed project have been estimated, and were found to be below the de minimis thresholds described in the Clean Air Act for a maintenance area, and for an area designated as in marginal, moderate, or serious nonattainment of the NAAQS. Since the project's net emissions are less than the de minimis levels, then the Federal action is considered to be too small to adversely affect the air quality status of the area and is automatically considered to conform with the applicable state implementation plan, and therefore the general conformity requirements have been complied with and the process is complete.
35B	Michael Gautieri	Off Hours Loading: Not entertained by this. So 11PM – 7:00AM we get to hear all the deliveries coming in and out in front of my house	The traffic impact analysis assumes that heavy truck traffic would utilize the Airport Connector Road to/from I-95 to the degree practicable. From there, truck traffic to/from the project site would utilize roads on existing airport property. As stated in Section 1.2 of teh Draft EA, trucking operations would primarily occur during the day between aircraft arrival and departure times. The noise analysis discussed in Section 5.11 indicates, with the noise barrier wall, traffic related noise levels would be below Federal thresholds of significance. Also, the majority of the nearby homes have been sound insulated by RIAC.