DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

SOUTH CARGO FACILITY

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

Prepared for:
Rhode Island Airport Corporation (RIAC)
2000 Post Road
Warwick, Rhode Island 02889

Prepared by:
CHA Consulting, Inc.
272 West Exchange Street, Suite 101
Providence, Rhode Island 02903

MAY 2024

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

South Cargo Facility

Rhode Island T. F. Green International Airport
Warwick, Rhode Island

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
As Lead Federal Agency pursuant to the National Environmental Policy Act of 1969

MAY 2024

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed federal action is consistent with existing national policies and objectives as set forth in Section 101 of the National Environmental Policy Act (NEPA) and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 101 (2) (c) of the NEPA. This environmental assessment becomes a federal document when evaluated, signed, and dated by the responsible Federal Aviation Administration (FAA) official.

Cheryl Quaine

Digitally signed by Cheryl Quaine
Date: 2024.05.08 07:50:07 -04'00'

Responsible FAA Official

Date

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS & ABBREVIATIONS

AASHTO	Association of State Highway and Transportation Officials
AC	Affected Community
ACIP	Airport Capital Improvement Plan
ACS	American Community Survey
ALP	Airport Layout Plan
APE	Area of Potential Effects
BCC	Birds of Conservation Concern
CAA	Clean Air Act
CBRS	Coastal Barrier Resource Mapper
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COC	Community of Comparison
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
dB	Decibel
dbh	Diameter at Breast Height
DNL	Day Night Average Sound Level
DOT	United States Department of Transportation
DPF	Diesel Particulate Filter
DSA	Detailed Study Area
EA	Environmental Assessment
ECHO	Enforcement and Compliance History Online
EJ	Environmental Justice
EO	Executive Order
EPA	United States Environmental Protection Agency
ERM	Environmental Resource Mapper
ESS	Enviro Site Search
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GSA	Generalized Study Area
GSE	Ground Support Equipment
HWCP	Hazardous Waste Contingency Plan
IPaC	Information for Planning and Consultation
LOS	Level of Service
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NFHL	National Flood Hazard Layer

NHPA	National Historic Preservation Act of 1966
NLEB	Northern Long-eared Bat
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_x	Nitrogen Oxides
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O_3	Ozone
Pb	Lead
PFC	Perfluorocarbons
PM	Particulate Matter
PVD	T.F. Green International Airport
RCRA	Resource Conservation and Recovery Act
RIAC	Rhode Island Airport Corporation
RICRMC	Rhode Island Coastal Resource Management Council
RIDEM	Rhode Island Department of Environmental Management
RIDOT	Rhode Island Department of Transportation
RIHPHC	Rhode Island Historical Preservation & Heritage Commission
SCR	Selective Catalytic Reduction
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SSA	Sole Source Aquifer
SWPPP	Stormwater Pollution Prevention Plan
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	United States Fish & Wildlife Service
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 PURPOSE AND NEED

1.1 Introduction

The Rhode Island Airport Corporation (RIAC) is preparing a Supplemental Environmental Assessment (EA) for proposed improvements along Airport Connector Road (reference throughout the document as the "*Proposed Project Modifications"*) at the Rhode Island T. F. Green International Airport (PVD) in Warwick, Rhode Island. This Supplemental EA is being prepared as required by the National Environmental Policy Act of 1969 (NEPA), as amended (40 Code of Federal Regulations (CFR) 1500-1508) and in accordance with Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policies and Procedures*. It should be noted that this EA was prepared before the Council on Environmental Quality (CEQ) issued *National Environmental Policy Act Implementing Regulations Revisions – Phase 2*. This Supplemental EA does modify the Final Environmental Assessment and Finding of No Significant Impact (FONSI) for the previously approved Proposed Action known as South Cargo Facility (referenced throughout this document as the "*Original Proposed Action*"). This Supplemental EA is limited to evaluating the intersection design changes that were further defined following FAA's authorization of the South Cargo Facility.

According to FAA Order 1050.1F, paragraph 9-3, "*a supplemental EA is required for a project if either of the following occurs:*

- *There are substantial changes to the proposed action that are relevant to environmental concerns, or*
- *There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (see 40 CRF § 1502.9(c)(2), CEQ Regulations).*

Based on the extent of the proposed project changes to the Original Proposed Action that was approved in the 2023 Final EA/FONSI, the FAA has determined that a Supplemental EA needs to be prepared.

The Proposed Project Modifications to the 2023 Original Proposed Action include Evans Avenue alterations with the construction of a roundabout and the reconfiguration of Airport Connector Road (see **Figure 1-1**). The 2023 Original Proposed Action discussed the potential need for "intersection modifications" along Evans Avenue to accommodate truck turning movements; however, those modifications were not specifically determined in the planning stages of the project. During the preliminary design, the proposed intersection modifications were better defined and now include a roundabout located outside of the Original Proposed Action study area.

The FAA has determined that the extent of the Proposed Project Modifications constitute new information warranting a Supplemental EA be prepared. This Supplemental EA analyzes the potential for additional environmental impact from the Proposed Project Modifications. A traffic study completed for the Proposed Project Modifications indicated a roundabout would increase and benefit the Level of Service (LOS) when compared to the LOS at the existing intersection.

1.2 Background

In 2023, RIAC completed a Final EA for the Original Proposed Action, which involved the construction of a 140,000-square-foot cargo building, aircraft parking apron, truck loading dock, access road and circulation, employee parking, truck parking/staging area, noise wall, and other related activities. In accordance with NEPA, RIAC and its consultant developed an EA that

Rhode Island Airport Corporation

CHA

Proposed Salt Shed

POST RD

AIRPORT CONNECTOR RD

Proposed Pavement Removal

Proposed Stormwater Basin

AIRPORT CONNECTOR RD
ARRIVALS (LOWER LEVEL)

AIRPORT CONNECTOR RD
DEPARTURES (UPPER LEVEL)

EVANS AVE

Proposed At-Grade Roundabout

GRAPHIC SCALE (FEET)

0 50 100 200

LEGEND

- Airport Property Line
- Supplemental EA Proposed Action Study Limits
- Proposed Pavement
- Proposed Pavement Removal
- Proposed Salt Shed
- Proposed Stormwater Basin

Figure 1-1
Project Modifications

evaluated the potential physical, environmental, and social impacts of the Original Proposed Action. As the lead Federal agency, the FAA issued a FONSI on June 2, 2023 (see **Appendix A**). Based on the analysis in the Final EA, the FAA determined that the proposed South Cargo Facility would not result in significant impacts on resources identified in the FAA Order 1050.1F Desk Reference. The Original Proposed Action evaluated in the FONSI included the following project elements (see **Figure 1-2**):

- Construct two single-story warehouse buildings providing up to 140,000-sf of multi-use space for processing cargo.
- 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.
- 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.
- 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.
- Repurpose a portion of the existing surface parking lot for airline employees and visitors.
- Provide a portion of the existing surface parking lot for trucks to park and wait for loading dock assignment at the cargo building.
- Construct 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.
- Perform intersection modifications along Aviation Avenue and Evans Avenue to accommodate truck turning movements.

Since issuing the 2023 FONSI, the approved Original Proposed Action will be modified to include project components not explicitly considered by the 2023 Final EA. This Supplemental EA evaluates those Proposed Project Modifications.

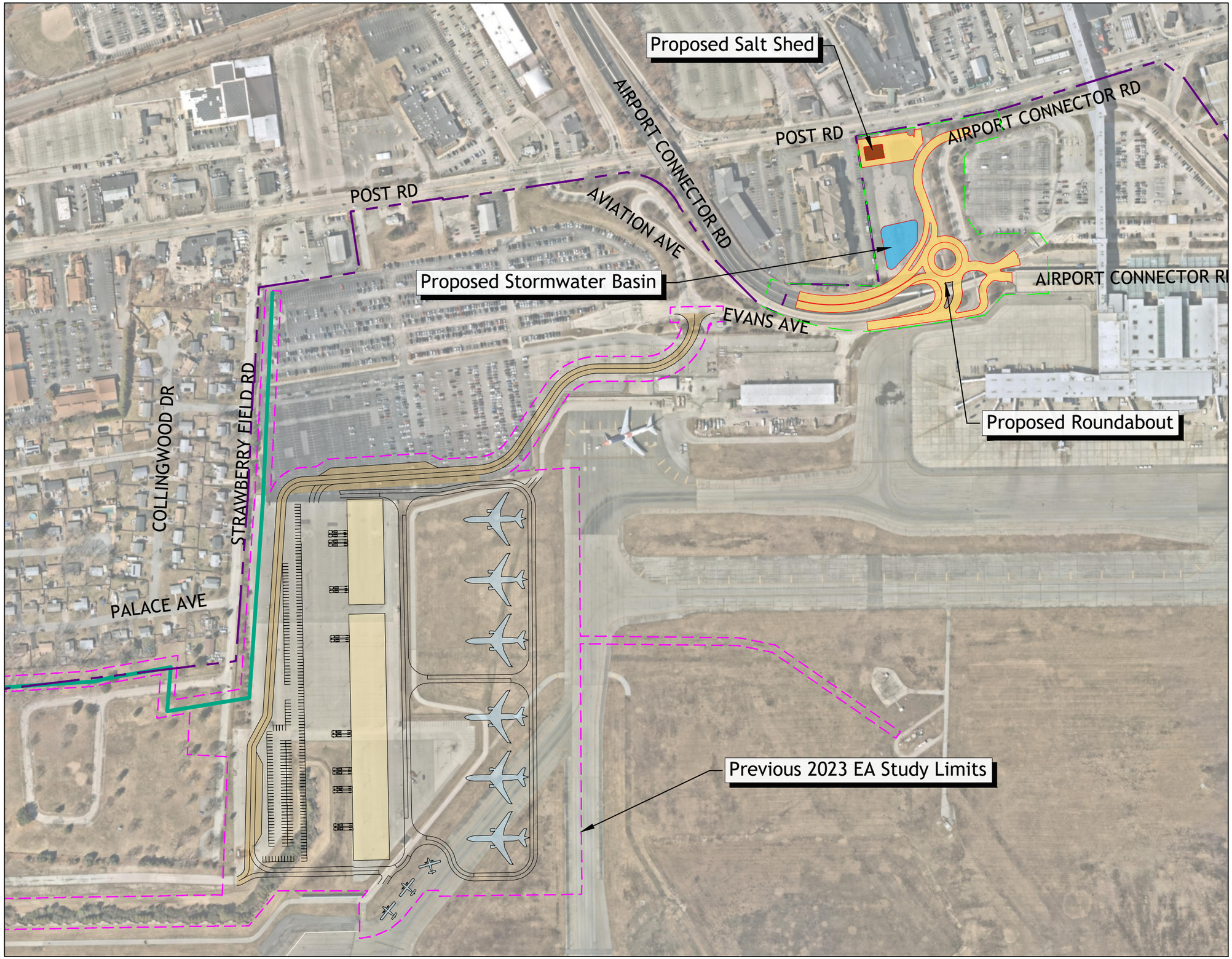
1.3 Purpose & Need of the Proposed Project Modifications

1.3.1 Purpose

The purpose of the Proposed Project Modifications is to improve the intersection at Evans Avenue and Airport Connector Road. The Original Proposed Action discussed the potential need for “intersection modifications” along Evans Avenue to accommodate truck turning movements; however, those modifications were not specifically determined until after the Original Proposed Action was approved.

1.3.2 Need

The need for the Proposed Project Modifications is to improve turning movements for truck traffic and provide better access to Interstate 95 via the Airport Connector Road. Although the demolition of the salt storage shed was discussed in the Original Proposed Action, the relocation and specific location of the new facility were not disclosed.



Rhode Island Airport Corporation

CHA

GRAPHIC SCALE (FEET)

0 150 300 600

LEGEND

- Airport Property Line
- Supplemental EA Proposed Action Study Limits
- Proposed Pavement
- Proposed Salt Shed
- Proposed Stormwater Basin
- Proposed Noise Berm

Figure 1-2
2023 Final EA/FONSI Proposed Action

1.4 Timeframe of the Proposed Project Modifications

The timeframe for the Proposed Project Modifications is proposed to take approximately 325 calendar days, with construction beginning in October 2024 and ending in September 2025.

1.5 Federal Actions

The list of federal actions being requested of the FAA by RIAC would include unconditional approval of the Airport Layout Plan (ALP) depicting the proposed improvements pursuant to 49 United States Code (USC) §§ 47107(a)(16) and federal environmental approval of further processing of an application for federal assistance to implement those Airport Improvement Program (AIP) eligible projects.

2.0 ALTERNATIVES

NEPA and FAA Order 1050.1F require the consideration of alternatives commensurate with the purpose and need statement. The intent is to evaluate various options that address the recognized need so that potential environmental impacts can be analyzed and compared. This chapter presents a description and analysis of alternatives considered to meet the identified purpose and need.

Alternatives will be discussed in terms of an Action Alternative and a No Action Alternative. The No Action Alternative is assessed under the guidance of Section 1502.14 (c) of Council on Environmental Quality (CEQ) regulations, which requires that a "no action or build alternative" be considered.

2.1 Alternative 1: Proposed Project Modifications (Roundabout)

Alternative 1 includes reconfiguring traffic flow at the Airport Connector Road/Evans Avenue intersection by constructing a roundabout to replace the southern intersection of Airport Connector Road and the service road leading towards Evans Ave and Aviation Ave. Additionally, a salt storage shed will be constructed to replace an existing shed that will be removed due to the realigned cargo access road. The work will be phased to allow the existing roadway to remain open throughout construction with no impact on the arrival or departure lanes. All proposed work will remain on airport property. The Proposed Project Modifications will also include the demolition of existing pavement, stormwater management improvements including a 0.4-acre bioretention basin, and the construction of a new 2,320-SF (40' x 58') salt storage shed south of Post Road (refer back to **Figure 1-2**).

2.2 Alternative 2: No Action Alternative

To satisfy the intent of NEPA and FAA Order 1050.1F: *Environmental Impacts: Policies and Procedures* and other special purpose environmental laws, a No Action alternative is carried forward in the analysis of environmental consequences. As part of the No Action alternative, the actions described as part of Alternative 1 would not occur. This includes installation of the roundabout, Any intersection improvements would be limited to what was described in the Original Proposed Action, which was minor physical improvements to existing intersection geometries along Aviation Avenue and Evans Avenue to accommodate truck turning movements.

This No Action alternative does not meet the stated purpose and need for this project. Although not always reasonable, feasible, or practicable, the No Action alternative is a required alternative under NEPA and serves as the baseline for the assessment of future conditions/impacts.

2.3 Sponsor's Preferred Alternative

The preferred alternative (Alternative 1) outlined in this chapter is proposed to amend and supplement the associated elements of the airport sponsor's proposed project from the 2023 EA.

3.0 AFFECTED ENVIRONMENT

The Affected Environment Chapter describes the environmental resources that may be affected by the Sponsor's Proposed Project Modifications. Consistent with FAA Order 1050.1F, the following impact categories are addressed:

- Air Quality
- Biological Resources
- Climate
- Coastal Resources
- Department of Transportation Act, Section 4(f) Properties
- Section 6(f) Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archaeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise & Land Use Compatibility
- Socioeconomics, Environmental Justice, and Children's Environmental Health & Safety Risks
- Visual Effects
- Water Resources (Wetland, Surface Waters, Groundwater, Floodplains, and Wild & Scenic Rivers)

3.1 Study Area

As part of this EA, two study areas were defined to assess the potential direct and indirect impacts of the Sponsor's Proposed Project Modifications on environmental resources.

3.1.1 Detailed Study Area

A Detailed Study Area (DSA), which covers the areas of physical disturbance during the construction phase and lands directly adjacent, has been established for the Proposed Project Modifications. The DSA boundary was developed using the anticipated direct impacts of the Proposed Project Modifications and is shown in **Figure 1-2** as the "Supplemental EA Study Limit." Airport Connector Road and Evans Avenue are both within the DSA. The DSA consists of a paved surface, mowed grass, ornamental trees, and other plantings and is entirely within airport property.

3.1.2 Generalized Study Area

The Generalized Study Area (GSA) is the area that could be impacted indirectly, which varies by resource category. The GSA is contained to the City of Warwick in Kent County.

3.2 Air Quality

In accordance with the Clean Air Act (CAA) Amendments of 1990, all areas within Rhode Island are designated with respect to compliance, or degree of noncompliance, with the National Ambient Air Quality Standards (NAAQS). The project area is within Kent County, which is a part of the Metropolitan Providence Interstate Air Quality Control Region (40 CFR 81, Subpart B, §81.13). NAAQS have been established for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM)[1], and lead (Pb) (see **Table 3-1**). These designations are either "attainment," "nonattainment," or "unclassifiable." An area with air quality better than the NAAQS is designated as "attainment." An area with air quality worse than the NAAQS is designated as "non-attainment." Non-attainment areas are further classified as extreme, severe, serious, moderate, and marginal. An area may be designated as unclassifiable when there is a lack of data to form a basis of attainment status. When the air quality in a non-attainment area improves and the applicable NAAQS are met, the area is redesignated as a "maintenance area." Certain requirements apply in the maintenance area to ensure continued compliance with the NAAQS.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead (Pb)	Primary & Secondary	3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary & Secondary	1-year	53 ppb	
Ozone (O_3)	Primary & Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter ($PM_{2.5}$)	Primary	1-year	12.0 µg/m^3	Annual mean, averaged over 3 years
	Secondary	1-year	15.0 µg/m^3	98th percentile, averaged over 3 years
	Primary & Secondary	24-hour	35 µg/m^3	Not to be exceeded more than once per
Particulate Matter (PM_{10})	Primary & Secondary	24-hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years

[1] [1] Particulate matter is classified by the aerodynamic diameter of the particles. Coarse particulate matter has a diameter of 10 microns or less (PM_{10}). Fine particulate matter has a diameter of 2.5 microns or less ($PM_{2.5}$).

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: U.S. EPA; CFR, Title 40, Part 50, Section 121

3.2.1 Attainment/Non-Attainment Status

According to the U.S. Environmental Protection Agency (EPA) Green Book, Kent County is in attainment for all criteria pollutants.

3.3 Biological Resources

Section 7(c) of the Endangered Species Act of 1973 (16 USC 1531 et seq.) requires that the potential impacts on rare, threatened, and endangered species of flora and fauna and their critical habitats be identified to avoid adverse impacts on these species. The U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website and State of Rhode Island online resources were utilized to determine the potential for impacts on rare, threatened, or endangered species.

3.3.1 Federally Protected Species

The IPaC website was reviewed in April 2024 for federally listed species (see **Appendix B** for the full IPaC summary). The website indicated that the following species may occur or could potentially be affected by activities within the DSA:

- Northern Long-eared Bat (*Myotis septentrionalis*), Endangered
- Tri-colored Bat (*Perimyotis subflavus*), Proposed Endangered
- Monarch Butterfly (*Danaus plexippus*), Candidate

No critical habitat for these species has been identified within the DSA. CHA conducted a field walkover of the DSA on March 13, 2024 (see **Appendix B**). The site consists entirely of a previously paved vacant lot, existing public roadways and sidewalks, and existing planted and managed landscaping.

According to the USFWS, after hibernation ends in late March or early April, Northern Long-eared Bats (NLEBs) migrate to summer roosts. The active season is the period between emergence and hibernation from April 1 through October 31. Suitable summer habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel. It may also include some adjacent and interspersed non-forested habitats. This includes forests and woodlots containing potential roosts and linear features such as fence rows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. They roost in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags [typically ≥ 3 inches in diameter at breast height (dbh)]. They are known to use a wide variety of roost types, using tree species based on the presence of cavities and crevices or the presence of peeling bark. They have also been occasionally found roosting in structures like buildings, barns, sheds, houses, and bridges.

As part of the informal consultation process, the NLEB range-wide determination key was used to evaluate the Proposed Project Modification's potential effect on the listed species. Based on the IPaC submission and a standing USFWS analysis, the project has been determined to have "No Effect" on the NLEB. The consistency letter from the USFWS for this determination can be found in **Appendix B**. This determination was confirmed during the field visit as the level of anthropogenic disturbance and the low-quality habitat observed within the DSA indicate that no suitable summer habitat for the NLEB is located within the project area.

Suitable summer roosting habitat for the Tricolored Bat includes forested habitat where the bats roost in live or dead leaf clusters of deciduous hardwood trees. Roosting can also occur in eastern red cedar and pine needles, as well as structures such as buildings, barns, sheds, houses, and bridges. Females characteristically return to the same summer roosting locations. At the time of this evaluation, a final determination key for this species has not been released. However, a preliminary determination key for the NLEB has been included in the beta version of the IPaC operated by the USFWS. The project information was entered into the beta IPaC and the determination key was evaluated resulting in a determination of "No Effect" on the tricolored bat. The consistency letter from the USFWS for this determination can be found in **Appendix B.** This was confirmed during the field visit as no suitable habitat for this species was identified within the project area for the tricolored bat, which utilizes caves for winter roosting and forested habitat for summer roosting. The manicured and managed landscaping trees within the DSA do not provide appropriate summer roosting habitat, and no caves or culverts were identified.

Monarch Butterflies can be found in a variety of habitats where they rely on obligate milkweed (primarily Asclepias spp.) as a host plant during breeding season and as a food source. The DSA does not include a suitable habitat for the Monarch Butterfly.

The Proposed Project Modifications would not alter any habitats, and because of the unlikelihood of their presence in the area, pursuant to Section 7 of the Endangered Species Act, the Proposed Project Modifications would have no effect on the Northern Long-eared Bat, Tri-colored Bat, and the Monarch Butterfly.

3.3.2 Migratory Birds

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

The IPaC identified a list of Birds of Conservation Concern (BCC) that may be affected by the proposed project. Those species are listed below:

- Bald Eagle (*Haliaeetus leucocephalus*)
- Black-billed Cuckoo (*Coccyzus erythropthalmus*)
- Canada Warbler (*Cardellina canadensis*)
- Chimney Swift (*Chaetura pelagica*)
- Eastern Whip-poor-will (*Antrostomus vociferus*)

- Rusty Blackbird (*Euphagus carolinus*)
- Scarlet Tanager (*Piranga olivacea*)
- Wood Thrush (*Hylocichla mustelina*)

The managed landscape and impervious surface within the DSA do not support plant or animal diversity and do not provide suitable nesting or stopover habitat for any of the migratory bird species of concern.

3.3.3 State Protected Species

According to the Rhode Island Geographic Information Systems (GIS) Natural Heritage Areas map, a natural heritage area is about 0.2 miles west of the DSA. These areas serve as an aid in identifying state-listed rare, threatened, or endangered plant and animal species found in Rhode Island. During the field visit, no observations of state-listed species or their required habitats were made.

3.4 Climate

Although the FAA has no thresholds for Greenhouse Gas (GHG) emissions, on January 9, 2023, the CEQ issued interim guidance regarding the preparation of GHG inventories for NEPA documents. The three GHGs of greatest interest are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). On a world-wide scale, CO_2 represents the largest proportion, ranging from 80 to over 90 percent of the total. Because CO_2, CH_4, and N_2O are products of fuel combustion, they are also the predominate GHGs associated with most airports. Presently, there are no Federal or state standards for GHGs in ambient air. Since there is a direct link between fuel combustion and GHG emissions, sources that require fuel or power at an airport are the primary sources that would generate GHGs. Aircraft engines, like many other vehicle engines, produce CO_2, water vapor, nitrogen oxides, carbon monoxides, oxides of sulfur, Volatile Organic Compounds (VOCs), particulates, and other trace compounds.

The typical sources at an airport associated with GHG emissions are broken up into Scope 1, 2, and 3, defined below.

- **Scope 1:** These are direct GHG emissions from sources owned and operated by an airport. These can be stationary power sources, airport-owned ground service equipment (GSE), or airport maintenance or other airport-owned vehicles.
- **Scope 2:** These are indirect emissions associated with electricity generation consumed at an airport.
- **Scope 3:** These sources are associated with an airport but are out of the airport's control, which include aircraft emissions, airport tenant activities (i.e., airline GSE), and vehicles traveling to/from the airport.

As stated in the Original Proposed Action EA, RIAC conducts an annual air emissions inventory and reports on GHG emissions associated with airport activities. These inventories have historically shown that Scope 1 and 2 emissions typically make up approximately 2 percent or less of total airport emissions, while Scope 3 generates the other 98 percent. According to a GHG inventory completed by the Rhode Island Department of Environment (RIDEM), the Airport's GHG emissions account for approximately 3 percent of the total statewide emissions.

3.5 Coastal Resources

The U.S. Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the Coastal Zone Management Act (CZMA) in 1972. One of the programs outlined by the CZMA is the National Coastal Zone Management Program (CZMP). This is a voluntary partnership between the federal government and coastal and Great Lakes states and territories. Under this program, state governments design unique coastal zone management programs, which are subsequently approved by the National Oceanic and Atmospheric Administration (NOAA). Once the programs have been approved, the CZMA requires that any federal actions that could have a reasonably foreseeable impact on a state's coastal zone, even if the action occurred outside of the designated coastal zone, be consistent with the approved coastal management program for that state. The goal of the Act is to "preserve, protect, develop, and, where possible, to restore or enhance the resources of the nation's coastal zone."

Rhode Island's CZMP is administered by the Rhode Island Coastal Resource Management Council (RICRMC). According to the CZMP, the entire state of Rhode Island is within the Coastal Zone. However, based on a review of the Coastal Barrier Resources System (CBRS) Mapper, the DSA is not within a designated coastal barrier. RICRMC further identifies coastal resources under the CRMP in which the RICRMC has jurisdiction. The CRMP identifies all tidal waters of the state, all coastal features, and a 200-foot contiguous area to those features. The DSA does not contain resources within this area. Additionally, the project area is not covered by a Special Area Management Plan. The Original Proposed Action EA and the Federal Consistency Review letters included as part of that documentation indicate that the Proposed Project Modifications in this Supplemental EA are consistent with the CZMP. Because the Proposed Project Modifications are consistent to the maximum extent practicable with the enforceable policies of the CRMP, this resource will not be considered further in the Supplemental EA

3.6 Department of Transportation Act, Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966 [recodified in 1983 as Title 49, Section 303(c) of the USC] provides for the protection of publicly owned recreational resources and requires the analysis of potential impacts on these resources arising from DOT actions. Resources protected under Section 4(f) include public parks and recreation areas, wildlife and waterfowl refuges, or management areas of national, state, or local significance. Section 4(f) also applies to historic sites of national, state, or local significance as determined by the official that has jurisdiction over these historic resources. Such sites include those listed or eligible for inclusion in the National Register of Historic Places (NRHP) and those identified by appropriate state or local agencies as having historic significance.

There are no publicly owned parks, recreation areas, or wildlife or waterfowl refuges with the DSA or surrounding area. The Hillsgrove State Airport Historic District begins 0.2 miles southeast of the DSA. The Hillsgrove Mill Village Iron Works building is 0.3 miles northwest of the DSA. **Figure 3-1** shows the location of each historic resource. Historic resources are further defined in **3.10**.

3.7 Section 6(f) Resources

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreational resources. Section 6(f) of this Act prohibits the conversion of lands purchased with LWCF monies to non-recreational use. A review of 6(f) properties on the LWCF website revealed no properties within or adjacent to the DSA.

3.8 Farmlands

The Farmland Protection Policy Act (FPPA) of 1981 authorizes the U.S. Department of Agriculture (USDA) to develop criteria for identifying the effects of federal programs on the conversion of farmland to nonagricultural uses. The prime and unique farmland regulations require that the USDA determine whether land affected by any proposed action is prime and unique farmland. If the proposed project involves acquiring farmland that would be converted to nonagricultural use, it must be determined whether any of that land is protected by the FPPA.

According to the Natural Resource Conservation Service (NRCS) Web Soil Survey, there are no soil types identified as prime, unique, or farmland of local or statewide importance mapped within the DSA.

Table 3-2. Farmland Classification

Soil	Symbol	Rating
Udorthents – Urban land Complex	Ud	Not prime farmland
Urban land	Ur	Not prime farmland

Source: NRCS Web Soil Survey, March 2024

3.9 Hazardous Materials, Solid Waste, & Pollution Prevention

Hazardous materials, including hazardous wastes and hazardous substances, petroleum, and natural gas substances and materials, if present within the DSA, may present a risk to human health and the environment. Hazardous and solid wastes are regulated under federal law by the Resource Conservation and Recovery Act (RCRA). RCRA established the framework for the proper generation, storage, treatment, and disposal of hazardous and non-hazardous solid waste to prevent potential threats to human health and the environment. RCRA also regulates new products (e.g., fuels) and waste materials stored in underground storage tanks (USTs). At operating facilities where improperly managed hazardous waste was released or threatens to be released, EPA or a state agency may pursue an RCRA Corrective Action. For abandoned, uncontrolled, hazardous waste sites, the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) establishes liability, including emergency remediation costs, for those parties determined to be responsible. CERCLA also established a fund to pay for the cleanup of sites when no responsible party is identified. Additionally, CERCLA directed EPA to create the National Priorities List (NPL) of Superfund sites or sites prioritized by known or threatened releases of hazardous substances, pollutants, or contaminants into the environment. The NPL includes the most serious uncontrolled or abandoned hazardous waste sites in the United States.

A review of online environmental resources was conducted to identify sites within the GSA (i.e., an approximate 0.50-mile radius surrounding the DSA) that could impact the Proposed Project Modifications. The results of this review are summarized below. Supplemental information is provided in **Appendix C.** The online RIDEM and EPA resources that were reviewed include the following:

- RIDEM Environmental Resource Map (ERM)
- RIDEM Enviro Site Search (ESS)

- EPA Cleanups in My Community
- EPA Enforcement and Compliance History Online (ECHO)
- EPA NEPAssist
- EPA RCRAInfo
- EPA UST Finder

The review of online environmental resources identified that no contaminated sites are located within or near the DSA. No NPL or non-NPL Superfund sites were identified within the GSA. **Table 3-3** presents 13 sites within the GSA identified as regulated under the RIDEM Site Remediation Program. This program regulates and provides technical oversight for the investigation and remediation of releases of hazardous waste, hazardous material, and petroleum releases to the environment. Seven of the 13 sites were actively undergoing investigation, remediation, or post-remediation monitoring. One of the seven sites, T.H. Baylis, was listed as an RCRA Corrective Action site, indicating that EPA worked with RIDEM in an oversight capacity during site investigation and cleanup. Three of the seven active sites, including T.H. Baylis, were labeled as brownfield sites, or properties whose reuse may be complicated by the presence of hazardous substances, pollutants, or contaminants, were identified within the GSA. One of these three brownfield sites, United Wire Company (former), has an environmental land use restriction, which provides guidelines for ensuring that future land use is protective of public health and the environment. **Figure 3-1** shows the location of the RIDEM Remediation Program sites in relationship to the DSA.

Table 3-3. RIDEM Remediation Program Sites within the GSA

Facility	Address	Investigation-Remediation Status	Brownfield	Environmental Land Use Restriction
United Wire Company (Former)	697 Jefferson Blvd. Warwick, RI	Active	Yes	Yes
Kilvert Street Solar Array (Leviton)	Kilvert St. Warwick, RI	Active	Yes	No
T.H. Baylis	61 Glenham Ave. Warwick, RI	Active	Yes	No
D'Ambra Construction	780 Jefferson Blvd. Warwick, RI	Active	No	No
Pierson Property	West Side of Cottage St. Warwick, RI	Active	No	No
Gold Coast - Post Road	2245 Post Rd. Warwick, RI	Active	No	No
Green (T.F.) Airport	2000 Post Rd. Warwick, RI	Active	No	No
Green (T.F.) Airport-Western Noise Barrier	2000 Post Rd. Warwick, RI	Inactive	No	No
Air Cargo, Inc. -T.F. Green Airport	2000 Post Rd. Warwick, RI	Inactive	No	No
Sea-Pro Boats	103 Glenham Ave. Warwick, RI	Inactive	No	No

Rhode Island
Airport Corporation

CHA

GRAPHIC SCALE (FEET)

0 300 600 1200

LEGEND

- Airport Property Line
- Supplemental EA Study Limits
- 0.5 Mile Radius of Study Limits
- Proposed Noise Berm
- RIDEM Remediation Program Sites
- UST Sites
- LUST Sites
- RCRA Hazardous Waste Generators

Figure 3-1

Hazardous Materials

Airport Autobody	Kilvert St. Warwick, RI	Inactive	No	No
Kenney Manufacturing Company	1000 Jefferson Blvd. Warwick, RI	Inactive	No	No
National Car Rental	2053 Post Rd. Warwick, RI	Inactive	No	No

Sources: RIDEM ERM, March 2024; RIDEM ESS, March 2024

One 10,000-gallon UST that previously contained #2 fuel oil was identified at the former Johnson & Wales College – Carlton House located at 2082 Post Road, which is within the DSA. A Certificate of Closure for Underground Storage Facilities dated May 11, 1989, indicated the UST was taken out of service permanently and filled in situ in compliance with the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials (see **Appendix C**). No records identified the UST as a leaking underground storage tank (LUST) or indicated that the UST affected subsurface soils or groundwater within the DSA.

Table 3-4 identifies 13 facilities within the GSA as having had one or more permanently closed USTs and one or more LUSTs and/or in-use USTs. Of the 12 listed facilities that had a LUST within the GSA, one facility had a LUST status of "active - monitored natural attenuation" but was not within the immediate vicinity of the GSA. The remaining 11 LUSTs, two of which are in the immediate vicinity of the DSA, appear to have no remaining contamination associated with the LUSTs and are in compliance. Four of the 13 facilities identified in **Table 3-4** have a UST status of "in use." Two of these facilities are gas stations, and they are in the immediate vicinity of the DSA but have had no documented impact on it. Also, 24 sites within the GSA, four of which are directly adjacent to the DSA, had one or more permanently closed USTs with no identified documentation of a LUST or residual contamination. A complete list of identified USTs and LUSTs within the GSA is presented in **Appendix C. Figure 3-1** identifies the location of the LUSTs, permanently closed USTs, and in-use USTs in relationship to the DSA.

Table 3-4. Facilities with LUSTs and In-use USTs within the GSA

Facility	Address	UST Status	LUST Status
Shell - Colbea #41	2027 Post Rd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Not Applicable
Former Gaspee Auto Parts Store	93 Imera Ave. Warwick, RI	Permanently Closed	Active - Monitored Natural Attenuation
Kenney Manufacturing Company	1000 Jefferson Blvd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Inactive
National Car Rental	2053 Post Rd. Warwick, RI	Permanently Closed	Inactive
Global Montello Group #210	2003 Post Rd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Inactive/Soil Removal Only
Former Leviton Manufacturing Company - Lot 2	745 Jefferson Blvd. Warwick, RI	Permanently Closed	Inactive/Soil Removal Only
		In Use	Not Applicable

Facility	Address	UST Status	LUST Status
Warwick Inter-Modal Station	700 Jefferson Blvd. Warwick, RI	Permanently Closed	Soil Removal Only
Hertz Corporation	2000 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
T. F. Green Airport	2000 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Fast Gas	1995 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Hillsgrove Servicenter, Inc.	1965 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Bud Industries, Inc.	697 Jefferson Blvd. Warwick, RI	Permanently Closed	Soil Removal Only
Thrifty Car Rental	2329 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only

Sources: RIDEM ERM, March 2024; RIDEM ESS, March 2024, US EPA UST Finder, March 2024

The online environmental resource review revealed 57 facilities within the GSA that had an assigned RCRA identification number, meaning they may generate, store, transport, treat, or dispose of hazardous waste. It should be noted that the inclusion of the sites in these databases is not necessarily an indication that hazardous waste has been released on site. Two sites within the GSA were listed as large quantity generators of hazardous waste, 21 were listed as small quantity generators, one was listed as a very small quantity generator, and 33 sites had an unknown generator type. **Appendix C.** provides additional information on each RCRA facility. No RCRA hazardous waste generators are located within the DSA, and two are near the DSA but have had no documented impact on it.

RIDEM regulates and permits solid waste management and recycling facilities in Rhode Island. These facilities include recycling and material recovery, composting, treatment, and transfer facilities, along with solid waste landfills. Minimal municipal solid waste is anticipated to be generated within the DSA.

3.10 Historical, Architectural, Archaeological, and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effects of their undertakings on historic properties and, if necessary, to consult with the State Historic Preservation Office (SHPO) and other parties to develop and evaluate alternatives and modifications to the undertaking that could avoid or minimize potential impacts on historic resources. The Rhode Island Historical Preservation & Heritage Commission (RIHPHC) is the SHPO in Rhode Island responsible for maintaining historical, archaeological, and cultural resource sites throughout the state.

3.10.1 Area of Potential Effect

The Area of Potential Effects (APE) is defined in 36 CFR 800.16(d) as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties if 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 APE for the Proposed Project Modifications is limited to the DSA and its immediate surroundings. Existing buildings are not found within the DSA.

3.10.2 Historic Resources

The western boundary of the Hillsgrove State Airport Historic District runs adjacent to the terminal apron and begins approximately 0.2 miles southeast of the DSA. The Rhode Island State Airport Terminal and Hangar No. 2, both located on the northern side of the airfield between the Northeast Apron and Airport Road, are eligible for listing in the NRHP and are found within the Hillsgrove State Airport Historic District. These resources are over 0.6 miles away from the study area and are not within the APE. The Hillsgrove Mill Village Iron Works building is 0.3 miles northwest of the DSA. According to RIHPHC, this building was determined to be eligible for listing in the NRHP through consensus. The Iron Works building, formerly used as the main office building, is now used as a restaurant. The original building was built in 1867 by Thomas Jefferson Hill for malleable iron casting production but was rebuilt in 1918 after a fire. **Figure 3-2** shows the location of each historic resource. No other historic resources are within the APE.

3.10.3 Archeological Resources

The APE for archaeological resources includes the project's limit of disturbance only. Due to the nature and extent of prior earthwork and development within the APE, there is very low potential for intact archaeological resources.

3.11 Land Use

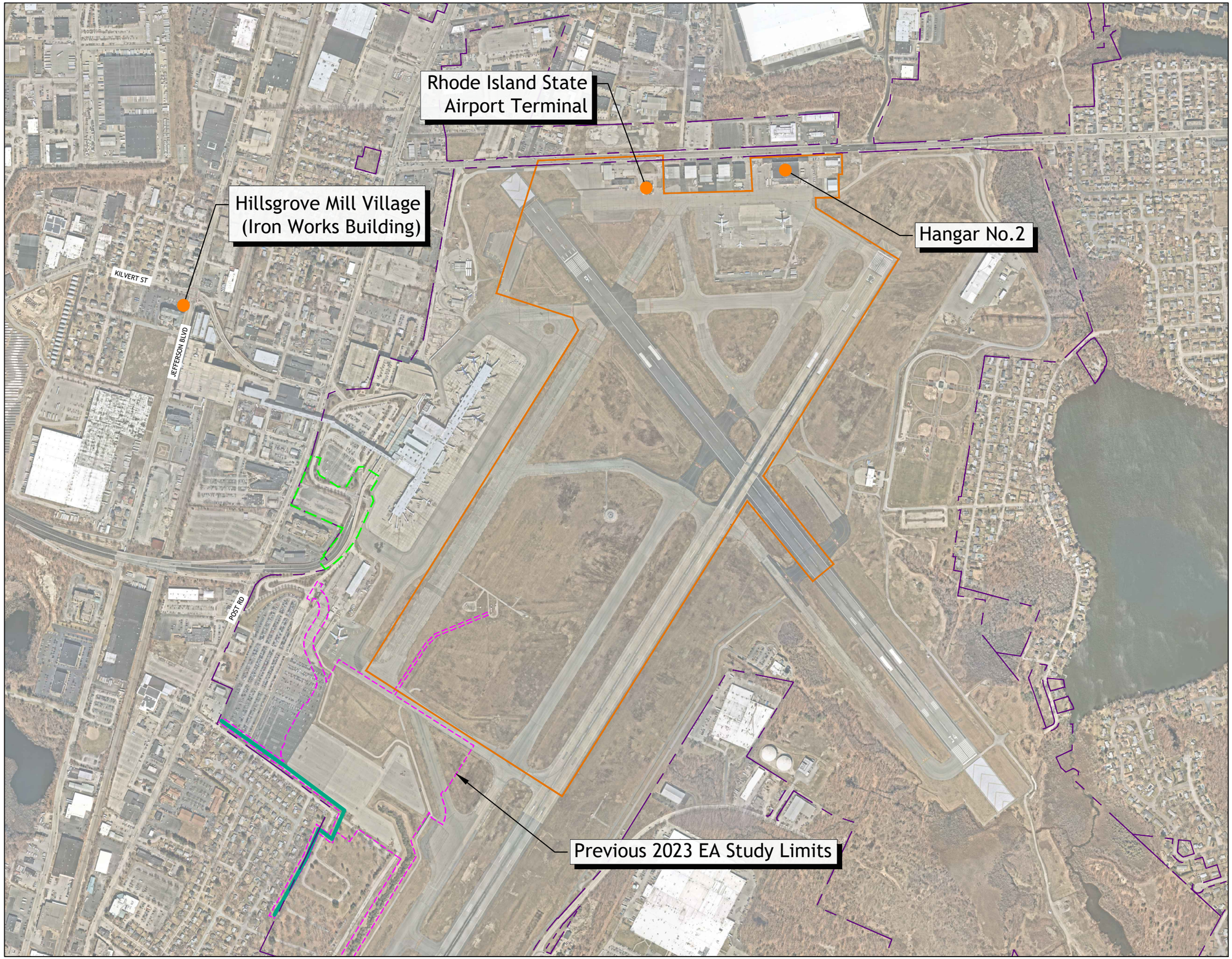
The City of Warwick's Geographic Information Systems (GIS) and the City of Warwick Comprehensive Plan 2033 were reviewed to determine land use and zoning on and around the project area. The following subsections describe zoning and existing land use.

3.11.1 Land Use

According to the City of Warwick's GIS map, land use within the DSA is indicated as Airports (and associated facilities). Land uses adjacent to and surrounding the project area include Commercial (sale of products and services) and Roads (divided highways >200' plus related facilities). The goal of the Comprehensive Plan, as related to the Airport, is "to promote transit-oriented development," "continue to work with the RIAC to mitigate the environmental and other impacts of PVD and monitor implementation of previous agreements," and to "ensure implementation of measures to mitigate negative impacts of airport operations and development."

3.11.2 Zoning

According to the City of Warwick's GIS map and Zoning Ordinances, the DSA is zoned (IM) Warwick Station Intermodal District, (G) Gateway, and (GB) General Business District. One purpose of the Warwick Station Intermodal District is to generate and preserve economic activity while maintaining a high design quality and allowing for convenient movement of pedestrians between different transportation nodes. The General Business District is used for a variety of commercial businesses. The Gateway District (also referred to as Warwick Station Gateway District (Gateway), is similar in use to the Warwick Station Intermodal District. In addition, the Gateway District is a transitional area leading to the Intermodal District. Areas adjacent to the DSA area are zoned (GI) General Industrial District and (A-7) Residence A-7 District. Areas zoned as General Industrial District are utilized for general manufacturing and industrial activities, and areas zoned as Residence A-7 District are high-density residential use.



Rhode Island
Airport Corporation

CHA

GRAPHIC SCALE (FEET)

0 400 800 1600

LEGEND

- Airport Property Line
- Supplemental EA Study Limits
- Proposed Noise Berm
- Historic District
- Historic Sites

Figure 3-2
Historic Resources

3.12 Natural Resources & Energy Supply

The CEQ Regulations specify that the environmental effects of a proposed action and its reasonable alternatives should include an assessment of each alternative's energy requirements, energy conservation, and the use of natural or consumable resources.

Airport operations require energy in the form of electricity, natural gas, aviation fuel, diesel fuel, and gasoline to power, cool, heat, and provide lighting. Narragansett Electric Company is the electric and natural gas provider at PVD. The City of Warwick's Department of Public Works, Water Division supplies potable water to PVD. The Airport is within the Warwick Water Service Area, which gets its water from the Providence Water Supply Board. As determined in the Original Proposed Action EA, energy and water constraints are not relevant in this service area. However, PVD 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).

3.13 Noise & Land Use Compatibility

The FAA utilizes 14 CFR Part 150: *Airport Noise Compatibility Planning's* land use compatibility guidelines to determine compatibility with most land uses. These guidelines are consistent with land use compatibility guidelines developed by other federal agencies such as the USEPA and the United States Department of Housing and Urban Development.

According to the Original Proposed Action EA, the existing aircraft noise contours were generated using the CY 2021 fleet mix. The DNL 65 dB noise contour does extend off airport property to the east of Runway 5-23 at the corner of Warwick Industrial Drive and Strawberry Field Road; however, the land is a combination of industrial and open space. There were no individual noise-sensitive locations, such as schools or places of worship, within the DNL 65dB contour. The Proposed Project Modifications for this Supplemental EA remain within the airport environment and are subject to noise from aircraft and the surrounding airfield. Other noise sources in the vicinity would include noise from vehicular traffic on local roadways.

3.14 Socioeconomics, Environmental Justice, & Children's Health and Safety

Socioeconomic resources include population, income, employment, and economics. Socioeconomic resources also include sensitive populations, such as minorities, low-income communities, and children, as mandated by Executive Order (EO) 13045: P*rotection of Children from Environmental Health Risks and Safety Risks,* EO 12898: *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations,* and EO 14096: *Revitalizing our Nation's Commitment to Environmental Justice for All.*

3.14.1 Socioeconomics

According to U.S. Census Bureau data, Airport property is contained to Census Tract 9800, which does not contain a residential population. Census Tract 211 is directly adjacent to the DSA, northwest of Post Road. **Table 3-5** summarizes the demographics within and adjacent to the DSA with data from Kent County for comparison.

Table 3-5. 2022 U.S. Census Bureau Data

	Kent County	Census Tract 211	Census Tract 9800
Population Under 5 Years Old	7,941	275	0
Population Under 20 Years Old	34,575	902	0
Percent Minority	14.5%	9.7%	0
White Alone	145,503	4,177	0
Black or African American Alone	3,004	126	0
American Indian & Alaska Native Alone	200	0	0
Asian Alone	5,112	0	0
Hawaiian & Pacific Islander Alone	58	0	0
Some Other Race	509	0	0
Two or More Races	5070	0	0
Hispanic or Latino	10,712	324	0
Income in the Past 12 Months Below Poverty Level	12,655	635	0

Source: U.S. Census, 2022 ACS (5-year Estimates)

3.14.2 Environmental Justice

According to the CEQ, an EJ population can be defined as an affected community (AC) that is more than 50% minority or low-income. Additionally, ACs are designated as EJ populations if the low-income or minority populations are 125% of the community of comparison (COC). Demographic data from the U.S. Census Bureau 2022 American Community Survey (ACS) 5-year Estimates was reviewed and compiled to complete the analysis. The project is within Kent County, which most accurately represents the geographic, social, and economic environment of the project area. Therefore, Kent County was deemed the most appropriate COC. Census Tract 9800 fully contains the DSA and has been deemed an AC. Census Tract 211 is directly adjacent to the DSA and is also included as an AC. Neither Census Tract exceeds the 50% minority or low-income threshold. A reference threshold of 125% was calculated over the COC to assess the presence of EJ populations further. The results of this analysis appear in **Table 3-6**. Based on this analysis, Tract 211 could be considered a low-income EJ population.

Table 3-6. EJ Analysis

	Kent County (COC)	Census Tract 211	Census Tract 9800
Total Population	170,168	4,627	0
Minority Persons	24,665	450	0
Percent Minority	14.5%	9.7%	-
125% COC	18.1%		
Minority EJ Population?		No	N/A
Total Population	168,632	4,627	0
Low Income	12,655	635	0
Percent Low Income	7.5%	13.7%	-

	Kent County (COC)	Census Tract 211	Census Tract 9800
125% COC	9.4%		
Low-Income EJ Population?		Yes	N/A

Source: U.S. Census, 2022 ACS Survey (5-year Estimates)

3.14.3 Children's Environmental Health & Safety Risk

No children's facilities, such as schools, daycare, and parks, are within or adjacent to the DSA. Facilities located within the GSA (approximately 0.5 miles around the DSA) that are frequented by children include the following:

- WonderKids Early Learning Center for RI (73 Alhambra Rd) – 0.2 miles from the DSA
- Tender Hearts Child Care & Learning Center (935 Jefferson Blvd Ste 1001) – 0.3 miles
- Chesterton Academy of Our Lady of Hope (610 Jefferson Blvd) – 0.4 miles from the DSA

3.14.4 Traffic

A traffic study was completed for the intersection at Evans Avenue and Airport Connector Road (see **Appendix D**). The evaluation reviews future traffic scenarios after the Original Proposed Action is operational. The goal of this study was to provide recommendations for intersection controls that would mitigate any impacts.

According to the study, Evans Avenue is classified as a local road and is maintained by the Rhode Island Department of Transportation (RIDOT). Evans Avenue runs north to south, beginning at the intersection with Airport Connector Road and terminating at Long Term Parking Lot E. Airport Connector Road is maintained by RIDOT and has mixed classifications. This roadway begins as a freeway ramp, providing airport access to and from Interstate 95. Past the airport terminal, the lower-level Airport Connector Road provides an exit to Post Road via Coronado Road or continues to join the upper-level road as it loops around to form the western leg of Evans Avenue and the Airport Connector Road intersection. This roadway segment is also referred to as Airport Ring Road. The intersection of Airport Connector Road and Evans Avenue, where the roundabout is proposed, is currently a four-legged signalized intersection.

This intersection experiences relatively low traffic volumes. Based on Association of State Highway and Transportation Officials (AASHTO) guidelines, the intersection does not meet the recommended intersection sight distance in several locations. This is attributed to atypical lane geometry, along with visual obstructions such as median barriers, vegetation, and overpass support columns. Pedestrian volumes were low during the study, and no bicyclists were observed.

3.15 Visual Effects

Some visual resources are protected under Federal, state, or local regulations. According to FAA Order 1050.1F, these resources generally include, but are not limited to, Federal, state, or local scenic roadways/byways; Wild and Scenic Rivers, National Scenic Areas; protected rails; and biological resources; and features protected under other Federal, state, or local regulations. In addition to NEPA, laws protecting resources that may be affected by visual effects include Section 106 of the NHPA, Section 4(f) of the DOT Act, the Wild and Scenic Rivers Act, and the Coastal Zone Management Act. In addition, there may be state and local regulations, policies, and zoning ordinances that apply to visual effects. According to 1050.1F Desk Reference Chapter 13 (Visual

Effects), visual effects are broken into two categories: (1) light emissions and (2) visual resources and visual character. The following subsections describe the existing condition of these categories within the affected environment.

3.15.1 Light Emissions

Light emissions include any light that emanates from a light source into the surrounding environment. As shown in the site photos contained in **Appendix B**, roadway lights are present along Airport Connector Road and Evan's Avenue. In addition to existing roadway lighting, urban lighting from surrounding areas, including hotels and businesses, are existing light sources contributing to light emissions. Trees are also present along the roadway, which provide a natural barrier that partially blocks light emissions.

3.15.2 Visual Resources and Character

According to 1050.1F Desk Reference, visual resources include buildings, sites, traditional cultural properties, and other natural or artificial landscape features that are visually important or have unique characteristics. Important or unique landscape features are not present within the DSA. The affected environment's visual character is closely tied to the land use in the area. As discussed in **3.11.1**, land uses surrounding the project area are primarily Airport and Commercial. Included in the commercial area are hotels, restaurants, gas stations, and other commercial businesses. As mentioned above, trees are present within the project area surrounding the roadway. Sidewalks and planted and managed landscaping areas are also located near the roadway. As discussed in previous sections, biological resources, water resources, and coastal resources are not present within the DSA. As mentioned in **3.10**, the Hillsgrove State Airport Historic District and the Hillsgrove Mill Village Iron Works Building are both historic resources located approximately 0.2 and 0.3 miles outside of the DSA, respectively.

3.16 Water Resources

Water resources are important in providing drinking water and supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. In accordance with the FAA 1050.1F Desk Reference Section 14, water resources include wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. Water resources within and adjacent to the DSA are described below.

3.16.1 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 administered under the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (250 RICR-150-15-3) by the RIDEM. The USFWS National Wetlands Inventory (NWI) mapper was reviewed to determine the potential for wetlands within the DSA. No wetlands are shown within or adjacent to the DSA. CHA's field visit completed in March 2024 confirmed that no wetlands are present within the DSA.

3.16.2 Surface Waters

The federal regulatory programs designed to protect surface waters include the CWA, the Fish and Wildlife Coordination Act, the Rivers and Harbors Act, and the Safe Drinking Water Act. The

authority to implement Section 401 of the CWA and the National Pollution Discharge Elimination System Program (NPDES) has been delegated to the RIDEM. Several online resources made available by the RIDEM were reviewed for the presence of surface water resources. No surface water resources were found within or adjacent to the DSA. The field visit completed in March 2024 determined that no surface water resources are found within the DSA.

3.16.3 Wild & Scenic Rivers

The Federal regulatory program protecting wild and scenic rivers is the Wild and Scenic Rivers Act, administered by the National Park Service. According to the National Wild and Scenic River System map, no Wild and Scenic Rivers are present near the DSA. The National Park Service Nationwide Rivers Inventory was also reviewed for the presence of river segments that are believed to possess features that make them a candidate for inclusion in the National Wild and Scenic River System. However, there were no segments surrounding the DSA. Surface waters are not found within the study area.

3.16.4 Ground Water

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). Review of EPA and RIDEM's Sole Source Aquifer mapping resources indicates that the DSA is not within the limits of a sole source aquifer (SSA). RIDEM groundwater mapping resources do indicate that the Providence/Warwick Groundwater Aquifer is located adjacent to the DSA but does not underlie the proposed project area. This aquifer is not used for local public drinking water, and the proposed reduction in impervious surface area would have a positive effect on groundwater recharge.

3.16.5 Floodplains

The federal regulatory programs designed to protect floodplains include the National Flood Insurance Act and Executive Order 11988, Floodplain Management. Floodplains are also regulated under the Rhode Island Freshwater Wetlands Act by the RIDEM. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rates Map (FIRM) panel number 44003C0129J, dated October 2, 2015, the DSA is not located within a regulated floodplain.

4.0 ENVIRONMENTAL CONSEQUENCES

Pursuant to the environmental documentation requirements of FAA Order 1050.1F, this section describes the anticipated impacts of the Proposed Project Modifications upon each of the following environmental resource categories:

- Air Quality
- Biological Resources
- Climate
- Coastal Resources
- Department of Transportation Act, Section 4(f) Properties
- Section 6(f) Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archaeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise & Land Use Compatibility
- Socioeconomics, Environmental Justice, and Children's Environmental Health & Safety Risks
- Visual Effects
- Water Resources (Wetland, Surface Waters, Groundwater, Floodplains, and Wild & Scenic Rivers)

4.1 Resources Eliminated from Detailed Analysis

Due to the nature of the Proposed Project Modifications, or the lack of resource impacts in or near the project site, there are several resource categories where no impacts would occur. Each of these categories is described in this section.

Biological Resources: According to FAA Order 1050.1F, Desk Reference, a significant impact to biological resources occurs when the USFWS or the National Marine Fisheries Service determines a Federal action would likely jeopardize a Federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat. The Proposed Project Modifications would not alter any habitats, and because of the unlikelihood of their presence in the area, pursuant to Section 7 of the Endangered Species Act, the Proposed Project Modifications would have no effect on threatened or endangered species. The Proposed Project Modifications will only convert small areas of marginal urban wildlife habitat to non-habitat, and no significant impact to local or regional biodiversity is anticipated. Therefore, this resource category will not be considered further in the Supplemental EA.

Coastal Resources: The FAA has not established a significance threshold for coastal resources; however, it has identified factors to consider when evaluating the potential for environmental impacts on coastal resources which are inconsistency with CZMP(s), an impact to coastal barriers, an impact on coral reef systems, an impact to human safety or property, or adverse

impact to a coastal environment that cannot be mitigated. Because the Proposed Project Modifications are consistent to the maximum extent practicable with the enforceable policies of the CZMP, this resource will not be considered further in the Supplemental EA.

Farmlands: A significant impact to farmlands would occur when the total combined score on Form AD-1006 ranges between 200 and 260 points. The Proposed Project Modifications will not convert important farmlands to non-agricultural use as there are no active farmlands within the DSA; therefore, this resource will not be carried forward in the Supplemental EA.

Land Use: The Proposed Project Modifications include Evans Avenue alterations with the construction of a roundabout and the reconfiguration of Airport Connector Road to allow future truck traffic easier access to I-95. Additional truck traffic on local roads was a concern for the City of Warwick during the Original Proposed Action. Coordination with the City of Warwick was completed during that original NEPA process. The construction of the Proposed Project Modifications would occur entirely on PVD property and would be compatible with the existing Airport environment. The Proposed Project Modifications would be consistent with future Airport plans and would not cause any land use incompatibilities or inconsistencies with local off-Airport land use plans. In addition, it would not create a new wildlife attractant or create an obstruction to navigational airspace per 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. Therefore, the Proposed Project Modifications would not change the land use in or around the DSA and would not cause significant land use impacts. The Proposed Project Modifications will improve sight distance safety and LOS at the intersection.

Wetlands: According to FAA Order 1050.1F, Desk Reference, wetlands would be significantly impacted if the federal action were to: adversely affect the function of a wetland relative to the quality and quantity of municipal water supplies and maintenance of natural systems; substantially alter the hydrology necessary to sustain a wetland; substantially reduce the ability of a wetland to retain floodwaters or storm runoff, or promote the development of secondary activities that would cause any of the circumstances listed above. CHA's field visit completed in March 2024 confirmed that no wetlands are present within the DSA; therefore, this resource category will not be carried forward in this Supplemental EA.

Surface Waters: A significant impact on surface waters would exist if the action were to impact water quality standards established by federal, state, local, or tribal regulatory agencies or contaminate the public drinking water supply, including an aquifer used for public water supply. The field visit completed in March 2024 determined that no surface water resources are found within the DSA. This resource category will not be carried forward in the supplemental EA.

Floodplains: According to FAA Order 1050.1F, the significance threshold for floodplains would apply if the proposed action would cause notable adverse impacts on natural and beneficial floodplain values. The natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2: *Floodplain Management and Protection*. According to the FEMA FIRM panel number 44003C0129J, dated October 2, 2015, there are no floodplains within the DSA. Therefore this resource category will not be carried forward in the Supplemental EA.

Groundwater: A significant impact on groundwater would exist if the action would exceed groundwater quality standards established by federal, state, and local agencies or contaminant an aquifer used for public water supply. Although the Providence/Warwick Groundwater Aquifer is located adjacent to the DSA, it does not underlie the DSA. In addition, this aquifer is not used for local public drinking water, therefore, this resource category will not be considered further in the Supplemental EA.

Wild & Scenic Rivers: The FAA has not established a significance threshold for wild and scenic rivers; however, FAA Order 1050.1F has identified factors to consider when evaluating impacts to wild & scenic rivers. As detailed in the Affected Environmental Chapter, there are no wild & scenic rivers within the DSA; therefore, this resource category will not be carried forward in the Supplemental EA.

4.2 Resource Categories Where Impacts May Occur

The remaining portion of this Consequences Chapter is focused on those resource categories where environmental impacts may occur because of the Proposed Project Modifications.

4.2.1 Air Quality

Two primary regulations apply to air quality: NEPA and the CAA. The need for an air quality assessment to satisfy NEPA depends on the nature of the project, the project area's non-attainment status, and the size of the airport. Under NEPA, the impact of a proposed action on air quality must be assessed by evaluating the impact of the proposed action on conformance with the NAAQS. The CAA amendments of 1990 include provisions to ensure emissions from Federally funded actions within non-attainment areas comply with the goals and objectives of the State Implementation Plans (SIP) for the state where the project is located.

4.2.1.1 Significance Threshold

As provided in FAA Order 1050.1F, an action would cause significant air quality impacts if pollutant concentrations were to exceed one or more of the NAAQS, as established by the EPA under the CAA for any of the time periods analyzed or to increase the frequency or severity of any such existing violations. Additionally, while not a significance threshold for NEPA, the EPA promulgated the General Conformity Rule in 1993 to implement the conformity provision of Title I, §176I(1) of the CAA Amendments of 1990.

4.2.1.2 Summary of Original Proposed Action Air Quality Impacts

This supplemental EA assumed the Original Proposed Action would be constructed and operated as described in **Section 1.2,** with construction of the facility taking place in 2024 and full operation by 2026. The emissions associated with the Original Proposed Action were compared to the *de minimis* levels for an attainment/maintenance area. Although Kent County is in an attainment area for all criteria pollutants, an emissions inventory for the Original Proposed Action's potential construction emissions was completed. The results of that applicability analysis are shown in **Table 4-1.**

Table 4-1. Original Proposed Action Construction Emissions

Source	CO (tons)	VOCs (tons)	NO2 (tons)	SO2 (tons)	PM10 (tons)	PM2.5 (tons)
Construction Emissions	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 threshold?	Yes	Yes	Yes	Yes	Yes	Yes

Source: South Cargo Facility Final EA/FONSI (2023)

As depicted in **Table 4-1**, the Original Proposed Action emissions for construction and operation of the facility were below thresholds for all pollutants in 2024 and 2026. Therefore, the 2023 Final

EA/FONSI determined that the Original Proposed Action would not result in a significant air quality impact. No mitigation measures were required.

4.2.1.3 Alternative 1: Proposed Project Modifications (Roundabout)

General Conformity refers to the specific requirements under Section 176(c) of the CAA for Federal agencies other than the Federal Highway Administration and the Federal Transit Administration. The applicability of the General Conformity Rule is dependent on whether construction emissions will affect attainment as set forth in the SIP. The threshold levels, or *de minimis* levels, for each criteria pollutant were established under the CAA to determine if a proposed action could affect attainment status.

For this Supplemental EA, a construction emissions inventory was also prepared for the Proposed Project Modifications (see **Appendix E**). The proposed construction may include the disturbance and movement of soil, concrete, and asphalt and generate various forms of solid waste and debris (e.g., vegetation, concrete, and asphalt). Air emissions associated with excavation, site preparation, paving, and other construction activities include dust from exposed soils and haul roads, and exhaust from construction vehicles and equipment. The types and amounts of emissions generated will vary in time and location depending on the operation, the level of activity, and the local weather conditions.

The Proposed Project Modifications include reconfiguring traffic flow at the Airport Connector Road/Evans Avenue intersection by constructing a roundabout to replace the southern intersection of Airport Connector Road and the service road leading towards Evans Ave and Aviation Ave. In addition, a 0.4-acre bioretention basin will be installed for stormwater quality and quantity requirements. The proposed construction equipment for these additional projects was analyzed to determine whether they would exceed *de minimis* thresholds (see **Table 4-2**).

Table 4-2. Alternative 1 Construction Emissions

Source	CO (tons)	VOCs (tons)	NO2 (tons)	SO2 (tons)	PM10 (tons)	PM2.5 (tons)
Original Proposed Action Emissions	29.4	2.08	7.71	0.074	3.04	0.36
Proposed Project Modifications Emissions	6.6	4.5	1.9	0.02	0.3	0.1
Maintenance Area de minimis threshold	100	100	100	100	100	100
Emissions below threshold?	Yes	Yes	Yes	Yes	Yes	Yes

Source: CHA (2024); South Cargo Facility Final EA/FONSI (2023)

Potential air quality emissions from construction would be limited to short-term increases in fugitive dust, particulates, and localized pollutant emissions from construction vehicles and equipment. All construction equipment would be properly maintained and outfitted with emission-reducing exhaust equipment. Diesel construction vehicles typically use selective catalytic reduction (SCR) and/or diesel particulate filters (DPF) to control emissions as required by US EPA emission standards. Adherence to a Storm Water Pollution Prevention Plan (SWPPP) would mitigate any potential impacts from dust. The SWPPP would be prepared and approved prior to construction.

The construction emissions assessment demonstrates that the Proposed Project Modifications would not cause an increase in air emissions above the applicable *de minimis* thresholds. Therefore, the Proposed Project Modifications conform to the State Implementation Plan and the

CAA and would not create any new violation of the NAAQS. Therefore, it can be concluded that the Proposed Project Modifications would not result in a significant air quality impact. No mitigation measures are required.

4.2.1.4 Alternative 2: No Action Alternative

Under the No Action Alternative, the Proposed Project Modifications would not be constructed or operated in the future. Therefore, any construction emissions would be at levels previously disclosed in the Original Proposed Action emissions inventory.

4.2.2 Climate

CO_2 and other GHGs are released into the air when fossil fuels are used to generate electricity, used in furnaces, or used to power aircraft and vehicles. CO_2 makes up most GHG emissions, with lesser contributions from N_2O, CH_4, and other compounds such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

4.2.2.1 Significance Threshold

Although there are no federal standards for aviation related GHG emissions, it is well-established that GHG emissions can affect climate change. According to the FAA Order 1050.1F Desk Reference, the CEQ has noted, "*it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand*."

Climate change results from the addition of GHG emissions from millions of individual sources. FAA Order 1050.1F guidance states that a discussion of the potential climate impacts should be documented during a NEPA process. Most recently, the CEQ issued interim guidance to assist in analyzing the GHG and climate change effects of Project Modifications under NEPA.

An inventory of GHG emissions associated with the Proposed Project Modifications (construction equipment, construction haul trips, etc) was conducted using the same methodology as the air quality analysis. The GHGs of concern are primarily CO_2, CH_4, and N_2O, with totals shown as CO_2-equivalents (CO_2e). There are currently no defined significance thresholds for aviation GHG emissions, and the FAA has not identified factors to consider when making significance determinations for GHG emissions.

4.2.2.2 Alternative 1: Proposed Project Modifications (Roundabout)

An inventory of GHG emissions associated with the construction of Alternative 1 was conducted using the same methodology as the air quality analysis. The GHGs of concern are primarily CO_2, CH_4, and N_2O, with totals shown in CO_2e. **Table 4-3** presents the annual GHG emissions for demolition and construction activities for Alternative 1.

Table 4-3. Proposed Project Modifications GHG Emissions Associated with Construction

	N2O (tons)	CO2 (tons)	CH4 (tons)	Total CO2e
Proposed Project Modifications (Alternative 1)	0.010975	2683.25	0.09	2,683.35

Source: CHA (2024)

The proposed construction emissions would be limited to short-term GHG production from construction vehicles and equipment; therefore, the Proposed Project Modifications would have no significant impact on GHG.

In January 2023, the CEQ issued interim guidance, *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, to assist agencies in analyzing GHG(s) and climate change effects of proposed projects under NEPA. The interim guidance recommends contextualizing GHG emissions by developing the social cost of carbon dioxide equivalents (SC-GHG) for proposed actions. This analysis quantifies and discloses the potential GHG(s) emissions from a proposed project and provides context by monetizing the results using social cost of carbon estimates.

The SC-GHGs quantifies the net harm to society of adding one ton of emissions of each GHG in a year. SC-GHGs provide a range of dollar estimates that can be used to incorporate the social benefits of reducing emissions into cost-benefit analyses. The Interagency Working Group (IWG) developed average discount rates to assess climate impacts over time. The higher the discount rate, the lower the social climate cost for future generations. The IWG average discount rates are 5 percent, 3 percent, 2.5 percent, and the 95th percentile estimate at the 3 percent discount rate, which represents the potential for low-probability catastrophic climate impacts. Using the IWG 2021 interim estimates and social cost calculator[2], the SC-GHG for the Proposed Project Modifications is estimated to range from $44,084 to $219,054 when the project begins in late 2024 and $43,232 to $217,129 when the project is complete in 2025.

This range in costs represents the potential social costs associated with adding GHGs to the atmosphere in a given year. Social costs are estimates only, are subject to change depending on a variety of factors, and are provided for disclosure and context, but such estimated costs may not actually result.

4.2.2.3 Alternative 2: No Action Alternative

The No-Action Alternative would cause no additional GHG emissions as the Project Modifications would not take place. Therefore, any GHG emissions would be at levels previously disclosed in the Original Proposed Action emissions inventory

4.2.3 Section 4(f)

Section 4(f) of the DOT Act of 1966 [recodified in 1983 as Title 49, Section 303(c) of the USC] provides for the protection of publicly owned recreational resources and requires the analysis of potential impacts on these resources arising from DOT actions. The resources protected under Section 4(f) include public parks and recreation areas, wildlife and waterfowl refuges, or management areas of national, state, or local significance. Section 4(f) also applies to historic sites of national, state, or local significance as determined by the official that has jurisdiction over these historic resources.

[2] https://costofcarbon.org/calculator

4.2.3.1 Significance Threshold

FAA Order 1050.1F Desk Reference provides the FAA's significance threshold for Section 4(f), which states that a significant impact would occur if "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." For Section 4(f) purposes, an action would "use" a resource in one of two ways.

- **Physical Use:** The action physically occupies and directly uses the Section 4(f) resource. A physical taking of Section 4(f) property through the purchase of land or a permanent easement, physical occupation of a portion or all the property, or alteration of structures or facilities on the property would classify as a "use."
- **Constructive Use:** The action indirectly uses a Section 4(f) resource by substantially impairing the resource's intended use, features, or attributes.

4.2.3.2 Alternative 1: Proposed Project Modifications (Roundabout)

As previously discussed in **3.6**, there are no Section 4(f) sites within the DSA, and therefore, physical use of a Section 4(f) resource would not occur because of the Proposed Project Modifications. Section 4(f) sites within the vicinity of the DSA are limited to historic resources, specifically the Hillsgrove State Airport Historic District, which is approximately 0.2 miles southeast of the DSA, and the Hillsgrove Mill Village Iron Works building, which is located approximately 0.3 miles northwest of the DSA. Correspondence with the RIHPHC received on April 12, 2024 indicated that the Proposed Project Modifications would have no effect on historic resources (see **Appendix F**). Significant impacts on Section 4(f) resources would not occur. Therefore, it can be concluded that the Proposed Project Modifications will have no significant impact on Section 4(f) resources.

4.2.3.3 Alternative 2: No Action Alternative

Under the No Action Alternative, the Proposed Intersection Modifications would not occur. Consistent with the Original Proposed Action, the No Action Alternative would have no direct or indirect impact on Section 4(f) resources.

4.2.4 Noise & Land Use Compatibility

4.2.4.1 Aircraft Noise

According to the FAA, a significant noise impact would occur when an action increases aircraft noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. The Proposed Project Modifications will not alter or change any arrival or departure paths of aircraft, add additional operations, or change the type of aircraft operating at PVD; therefore, there will be no impact from aircraft noise.

4.2.4.2 Construction Noise

Alternative 1: Proposed Project Modifications (Roundabout)
Implementation of the proposed Project Modifications will result in unavoidable temporary construction noise, during daytime hours only, from equipment such as excavators, backhoes, pavement saws, graders, asphalt pavers, concrete trucks, compressors, and other miscellaneous equipment. **Table 4-4** depicts an estimate of the typical maximum sound level energy at 50 feet

from various types of construction equipment that are likely to be used during construction of the Project Modifications. The total sound energy would be a product of a machine's sound level, the number of such machines in service, and the average time they operate.

Table 4-4. Typical Construction Equipment Noise

Equipment Type	Typical Maximum Sound Level (Lmax) in dB @ 50 feet
Excavator	85
Asphalt Paver	85
Pickup Truck	55
Roller	85
Concrete Truck	85
Dozer	85
Front end Loader	80
Excavator	85
Backhoe	80
Tractor Trailer	74
Scraper	85
Dump Truck	84

Source: FWHA Construction Noise Handbook [3]

Construction noise would temporarily increase sound levels; however, these temporary impacts will be limited to the immediate vicinity of the proposed construction. Typically, pavement removal and grading operations are the noisiest, with such equipment generating noise levels as high as 75 to 85 dB within 50 feet of its operation. The proposed construction is expected to take approximately 11 months. The Federal Highway Administration (FHWA) typically considers 85 dBA as an appropriate residential noise limit during daytime and evening hours (7 am to 10 pm) for construction activities. Distance rapidly diminishes noise levels; therefore, it is anticipated that construction noise is not likely to exceed the FHWA's residential noise limits for construction activities given that the DSA is surrounded by airport, industrial and commercial land uses. The closest residential land use is approximately ½ mile to the northwest along Jefferson Avenue and approximately ½ mile to the south. As such, it is anticipated noise from construction equipment would likely not be discernible from other background noise sources, such as aircraft movements, roadway noise via Post Road, and the adjacent industrial and commercial land uses. Therefore, the temporary noise impacts due to construction activity will not be significant. The City of Warwick does not have specific ordinances for construction noise; however, the same construction noise mitigation measures identified in the Original Proposed Action will be utilized during construction of the proposed Project Modifications, which are:

[3] https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

- 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.

Alternative 2: No-Action Alternative
Under the No Action Alternative, there would be no temporary construction noise from the proposed Project Modifications. However, there still would be temporary construction noise generated by the construction of the Original Proposed Action.

4.2.5 Hazardous Materials, Solid Waste, & Pollution Prevention

This section provides an impact analysis for hazardous materials, solid waste, and pollution prevention. The analysis considers impacts as defined by the FAA's thresholds of significance contained in the FAA Order 1050.1F Desk Reference, which defines a significant impact for hazardous materials, pollution prevention, and solid waste as one where the proposed action or connected action involves a property on or eligible for the US EPA's NPL.

4.2.5.1 Significance Threshold

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention; however, an effect on any of the listed criteria below would need to be evaluated for the potential for significant adverse effects.

- Impact on a contaminated site.
- Violate hazardous waste or solid waste management laws and regulations.
- Produce hazardous waste.
- Produce solid waste that would exceed local capacity.
- Adversely affect human health and the environment.

The Proposed Project Modifications will not violate regulations, involve a known contaminated site, produce hazardous waste, generate a different type or quality of solid waste, use a different collection method, or exceed local capacity, and would not adversely affect human health and the environment.

4.2.5.2 Alternative 1: Proposed Project Modifications (Roundabout)

Encountering existing hazardous waste, using hazardous materials, generating hazardous and solid waste, and implementing potential pollution prevention are evaluated below.

Hazardous Materials

No known areas of concern with a potential to encounter hazardous materials or contaminated subsurface media exist within the DSA. The review of online resources from the US EPA and RIDEM documented no NPL or non-NPL Superfund sites within the GSA (see **Appendix C**).

The 10,000-gallon UST containing #2 Fuel Oil identified as previously installed within the DSA was taken out of service permanently and filled in situ in compliance with the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials (see **Appendix C**). No records identified the UST as a LUST or indicated that the UST affected subsurface soils or groundwater within the DSA. Eleven of 12 identified LUST sites within the GSA, including two in the immediate vicinity of the DSA, have a UST status of "permanently closed," are listed as inactive or having required soil removal only, and are anticipated to pose no impact on the DSA. Two gas stations with in-use USTs near the DSA are also expected to pose no impact on the DSA. During and following construction, the project is not expected to generate contaminated materials or hazardous waste.

If the filled UST in the DSA is encountered or removed during construction and previously unknown hazardous substances are identified, RIAC would remove, manage, and properly dispose of contaminated material in accordance with its Hazardous Waste Contingency Plan (HWCP). Similarly, RIAC would follow its HWCP if a spill of a hazardous substance occurred after the Planned Action is complete. RIAC prepared the HWCP to ensure its hazardous waste management and disposal actions conform to applicable RIDEM Hazardous Waste Regulations and RCRA requirements.

Solid Waste

Solid waste, including construction and demolition debris and non-hazardous waste, would be generated from the demolition of existing pavement and minor structures. Contractor(s) working on site would be required to remove and properly dispose of all waste materials that may result from construction activities. Solid waste generated during construction would be transported and recycled or disposed of as directed by the appropriate authorities. Waste would be managed and disposed of in accordance with federal, state, and local regulations. Upon completion of construction, the generation of municipal solid waste is not expected to be significant. The solid waste associated with the Proposed Project Modifications is not expected to exceed local or regional landfill capacities.

Pollution Prevention

Potential pollutants could be released into the environment during demolition, construction, and operation of the Proposed Project Modifications. During design, a SWPPP for construction activities would be developed and approved for the Proposed Project Modifications prior to construction. If a contractor plans to store fuel or other oils on site during construction in sufficient quantities, they would be required to prepare and fully implement a Spill Prevention, Control and Countermeasure (SPCC) plan to prevent, respond to, and clean up spills. RIAC currently has an approved RIPDES stormwater permit, airport SWPPP, and airport SPCC plan. Upon completion of the Proposed Project Modifications, RIAC would incorporate it into its SPCC plan (if applicable) and SWPPP and address pollution prevention through stormwater management, proper storage of materials, good housekeeping practices, implementation of applicable stormwater best management practices for maintenance activities like road salt storage, and RIAC employee training.

Given the information presented, it can be concluded that the Proposed Project Modifications will have no significant impact on hazardous waste, that any solid waste generated will not exceed landfill capacity, and appropriate pollution prevention plans will be developed during construction.

4.2.5.3 Alternative 2: No Action Alternative

Under the No Action Alternative, there would be no impact associated with potentially disturbing or encountering unidentified hazardous materials on site.

4.2.6 Historical, Architectural, Archaeological, and Cultural Resources

Section 106 of the NHPA of 1996 requires Federal agencies to consider the effects of their undertakings on historic properties and consult with the SHPO and other parties to develop and evaluate alternatives and modifications to the undertaking that could avoid or minimize potential impacts on historic resources. The RIHPHC is responsible for maintaining historic and cultural resources throughout the state.

4.2.6.1 Significant Threshold

According to FAA Order 1050.1F, the FAA does not have a threshold for significant impacts for this resource category; however, it has identified factors to consider when evaluating the "context and intensity" of potential impacts. "Factors include, but are 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."

4.2.6.2 Alternative 1: Proposed Project Modifications (Roundabout)

Historic resources within the APE are limited to the Hillsgrove State Airport Historic District, located approximately 0.2 miles southeast of the DSA, and the Hillsgrove Mill Village Iron Works building, which is located approximately 0.3 miles northwest of the DSA. As shown in the photo log attached to **Appendix B**, these historic resources are not within the viewshed of the Proposed Project Modifications. The existing airport terminal and the commercial buildings along Post Road and Jefferson Boulevard are located between the DSA and the historic resources. The proposed development would be consistent with development in the area.

Early coordination with the RIHPHC was initiated on March 5, 2024. RIHPHC correspondence received on April 12, 2024, stated that the Proposed Project Modifications will have no adverse effect upon historic resources. Full correspondence can be found in **Appendix F**.

The potential to encounter undisturbed archaeological deposits is minimal, as the DSA is highly disturbed from previous development. If any archaeological artifacts or human remains are uncovered during construction, construction in the immediate area would be stopped and the RIHPHC would be notified immediately. Neither direct nor indirect impacts on historic or cultural resources would occur because of the Sponsor's Proposed Project Modifications. Therefore, it can be concluded that the Proposed Project Modifications will have no significant impact on historic architectural, archaeological, or cultural resources

4.2.6.3 Alternative 2: No Action Alternative

The No Action Alternative would not impact historic, archaeological, architectural, or cultural resources.

4.2.7 Natural Resources & Energy Supply

The NEPA regulations that address the use of energy and natural resources are discussed in FAA Order 5050.4B and FAA Order 1050.1F. The CEQ Regulations (CFR Title 40, Section 1502.16(e) and (f)) specify that the environmental effects of a proposed action and its reasonable alternatives should include an assessment of each alternative's energy requirements, energy conservation, and the use of natural or consumable resources.

4.2.7.1 Significance Threshold

FAA Order 1050.1F does not establish a significance threshold for natural resources or energy supply. Normally, an impact would be considered significant when the construction or operation of a proposed action causes the demand for limited consumable natural resources and energy to exceed available or future supplies.

4.2.7.2 Alternative 1: Proposed Project Modifications (Roundabout)

Generally, PVD is in an urbanized area with adequate access to natural resources and energy supply for airport operations, including airport construction projects. Natural resources, such as sand, gravel, and steel, would be necessary for the construction of the Proposed Project Modifications. Both on-road and off-road equipment and water would be necessary for construction practices. To limit potable water use, RIAC evaluates its development projects for potential water conservation measures and implements those measures as feasible. This temporary and minimal usage of energy and natural resources is not expected to impact natural resource use or energy supply significantly. The Proposed Project Modifications would also require electricity usage during operations. Utilities are readily available on site. Any streetlight modifications or additional streetlights installed as part of the project would be minimal. No upstream utility improvements or additional capacity would be needed to accommodate the Project Modifications. Therefore, it can be concluded that the Proposed Project Modifications will have no significant impact on natural resources or energy supply.

4.2.7.3 Alternative 2: No Action Alternative

Under the No Action Alternative, the Proposed Project Modifications would not occur. Use of consumable natural resources or an increase in energy usage would be consistent with the Original Proposed Action. Significant impacts would not occur.

4.2.8 Socioeconomics, Environmental Justice, & Children's Environmental Health & Safety Risk

This section presents the analysis of potential socioeconomic impacts, environmental justice (EJ) impacts, and children's environmental health and safety risks that would occur from the Proposed Action or No-Action Alternatives. The existing conditions for socioeconomics, EJ, and children's environmental health and safety risks are discussed in **3.0**.

4.2.8.1 Significance Thresholds

Socioeconomic Impacts

The FAA has not established a significant threshold for socioeconomics; however, in general, the significance of socioeconomic impacts is determined by the magnitude and duration of the impacts, whether beneficial or adverse. According to FAA Order 1050.1F, potential impacts to consider include:

- Causing extensive relocation of housing when sufficient replacement housing is unavailable.
- Dividing or disrupting an established community.
- Causing extensive relocation of businesses would cause economic hardship.
- Disrupting local traffic patterns and substantially reducing the levels of service of roads serving an airport and its surrounding communities.
- Producing a substantial loss of the community tax base.

Environmental Justice
Utilizing EO 12898: *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and EO 14096: *Revitalizing our Nation's Commitment to Environmental Justice for All*, an EJ analysis was completed to identify the potential of a group of people, including racial, ethnic, or socioeconomic group, bearing a disproportionate burden of effects resulting from the Project Modifications. While the FAA has identified factors to consider when evaluating potential EJ impacts, the FAA Order 1050.1F Desk Reference provides guidance for the preparation of an EJ analysis. The action would have the potential to lead to a disproportionately high and adverse impact on an EJ population due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population

Children's Environmental Health & Safety Risks
EO 13045 directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children. The FAA has not established a significant threshold for children's environmental health and safety risks. However, potential impacts from other environmental categories should be assessed to determine if they can lead to a disproportionate health or safety risk to children.

4.2.8.2 Alternative 1: Proposed Project Modifications (Roundabout)

Socioeconomics
The Proposed Project Modifications would result in a temporary growth of economic activity from the creation of additional construction jobs, which the surrounding community should be able to support given the project location. The Proposed Project Modifications would not disrupt communities near PVD, and there would be no residential or business relocations.

A traffic study was completed to analyze whether the Proposed Project Modifications would cause disruptions in local traffic patterns and improve sight distance (see **Appendix D**). This study analyzed future impacts resulting from additional traffic induced by the Original Proposed Action. A Level of Service (LOS) operational assessment using the existing 2023 and projected 2043 AM and PM peak hour traffic volumes was completed for the Evans Avenue-Airport Connector Road intersection. LOS is a qualitative measure of control delay at an intersection providing the operational qualities of a roadway or intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. A LOS of D or better is generally considered acceptable for signalized and unsignalized movements during peak periods. LOS E indicates vehicles experience significant delay, while LOS F suggests unacceptable delay for the average vehicle.

Several approaches at the Evans Avenue-Airport Connector Road intersection do not meet the recommended intersection sight distance of 240 feet for right turns and 280 feet for left turns. This can be attributed to atypical lane geometry, along with visual obstructions provided by median barriers, vegetation, and overpass support columns. The existing conditions for Evans Avenue at the Airport Connector Road intersection perform at a LOS 'B' in both the AM and PM peak hours with the existing traffic signal. The 2043 No-Build conditions are comparable, also operating at LOS B with no significant change in delays. The Proposed Project Modifications will improve the existing conditions with the proposed intersection operating at LOS 'A' with lower delays in both the morning and afternoon. In addition, the Proposed Project Modifications will improve the non-standard sight distances. Therefore, the Proposed Project Modifications will not disrupt local traffic patterns or substantially reduce the LOS of roads serving PVD and its surrounding communities. Therefore, it can be concluded that the Proposed Project Modifications will have no significant impact on traffic patterns or local socioeconomics.

Environmental Justice

As described in **3.14**, Census Tract 211 is west of PVD and adjacent to the Proposed Project Modifications. Although the tract did not exceed the 50% minority or low-income threshold, a reference threshold of 125% was calculated and compared to Kent County to assess the presence of EJ populations further. Based on this analysis, Census Tract 211 could be considered a low-income population. The analysis of other resource categories has determined that a significant impact would not occur to this potential EJ population because of the Sponsor's Proposed Project Modifications.

Any short-term construction impacts would be experienced by predominantly commercial land uses. The majority of the Census Tract, where most of the residential populations are located, is north of the DSA. Therefore, it can be concluded that the Proposed Project Modifications will have no potential for a disproportionately high and adverse impact to an EJ population.

Children's Environmental Health & Safety Risks

Using the EJScreen Tool, it was determined that Census Tract 211 has an enhanced population of individuals under the age of 5. Physiological and behavioral traits of children render them more susceptible to risks such as exposure to mobile source air pollution, particulate matter from construction and diesel emissions, and lead and other heavy metals present in construction and demolition debris. The Sponsor's Proposed Project Modifications is not expected to create significant impacts that would impact surrounding populations. All construction is contained to Airport property and would not occur near the identified resources identified in **3.14**. Therefore, it can be concluded that the Proposed Project Modifications will have no significant impact on children's environmental health or lead to a safety risk to children.

4.2.8.3 Alternative 2: No Action Alternative

The socioeconomics of the surrounding communities will not be impacted by the No-Action Alternative, as the economy and the attributes of the surrounding area will remain unchanged. If the No-Action were selected, the existing Evans Avenue intersection with Airport Connector Road would remain at its current LOS 'B' in the future. While there is an EJ population near the project area, the No-Action Alternative would not impact any communities. Finally, because the No-Action Alternative results in no impact on any environmental resources, it would not have the potential to lead to a disproportionate health or safety risk to children.

4.2.9 Visual Effects

Impacts from light emissions were determined by evaluating the extent to which roadway lighting would change and the potential for the change to create an annoyance for land uses. Impacts on visual resources and character are determined by considering the potential changes in landscape and views within the project areas.

Visual resources and visual character impacts are normally related to a decrease in the aesthetic quality of an area resulting from development, construction, or demolition. According to 1050.1F Desk Reference, visual resources include buildings, sites, traditional cultural properties, and other natural or artificial landscape features that are visually important or have unique characteristics. Important or unique landscape features are not present within the DSA. The affected environment's visual character is closely tied to the land use in the area. As discussed in **3.11.1**, land uses surrounding the project area are primarily Airport and Commercial. The proposed project area is surrounded by airport property to the north and east, while the remaining areas around the project area are commercial and roadways. Included in the commercial area are hotels, restaurants, gas stations, and other commercial businesses.

4.2.9.1 Significance Threshold

According to FAA Order 1050.1F, the FAA must evaluate the Proposed Project Modification's visual effects. According to 1050.1F Desk Reference Chapter 13 (Visual Effects), visual effects are broken into two categories: (1) light emissions and (2) visual resources and visual character. The FAA has not established a significance threshold for visual effects; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts. For light emissions, the factors to consider include, but are not limited to, the following:

- "The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions"; and
- "The degree to which the action would have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources."

Factors to consider when evaluating the context and intensity of potential environmental impacts for visual resources and visual character include, but are not limited to, the following factors:

- "The degree to which the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources."
- "The degree to which the action would have the potential to contrast with the visual resources and/or visual character in the study area."
- "The degree to which the action would have the potential to block or obstruct the views of visual."

4.2.9.2 Alternative 1: Proposed Project Modifications (Roundabout)

The Proposed Project Modifications include the installation of additional lighting to enhance the safety of vehicles and people, which would increase the total number of roadway lights along Evans Avenue and Airport Connector Road. Lighting will also be added to the exterior of the salt shed. Existing trees will be replaced after construction is complete, which will create a natural barrier to block light emissions; therefore, no significant impacts on light emissions will occur.

Due to the Proposed Project Modifications, lighting would also be introduced temporarily through a construction staging area, construction vehicles, and related construction equipment. Light emissions generated during nighttime construction could potentially create annoyance; however, the area surrounding the project is primarily airport property surrounded by commercial areas and roadways. To avoid negative impacts, construction would take place during daylight hours when practical. No impact on light emissions will occur because of the Proposed Project Modifications.

Visual resources and visual character impacts are normally related to a decrease in the aesthetic quality of an area resulting from development, construction, or demolition. Impacts on visual resources and visual character caused by construction will be temporary in nature. The Proposed Project Modifications will not have a significant impact on visual resources and visual character.

4.2.9.3 Alternative 2: No Action Alternative

Under the No Action Alternative, the Proposed Project Modifications would not be constructed or utilized in the future. Therefore, impacts on light emissions or visual resources and visual character would be consistent with the Original Proposed Action. Significant impacts would not occur.

4.2.10 Stormwater

Water resources are surface waters and groundwater, which are important in providing drinking water, water recreation areas, essential wildlife habitats, transportation avenues, and aquatic ecosystems. Wild and scenic rivers, surface water, groundwater, floodplains, and wetlands are included under the water resources category. As discussed in the Affected Environment chapter, a field visit verified that there are no wetlands, floodplains, jurisdictional surface waters, wild & scenic rivers, or groundwater resources within DSA. Therefore, the water resources section will focus on stormwater.

4.2.10.1 Alternative 1: Proposed Project Modifications (Roundabout)

The Proposed Project Modifications will reduce existing impervious area by 0.9 acres. The bioretention basin will be constructed as part of the Proposed Project Modifications to meet both water quality and quantity standards. The DSA topography and the proposed geometry of the roundabout itself will require a traditional curb, catch basin, and pipe drainage system. This system will collect the runoff from the paved areas and convey it to the bioretention basin with a pre-treatment hydrodynamic separator. The soil within the bioretention basin will drain, and all runoff from the 100-year storm event will be infiltrated. The bioretention basin will also have an emergency overflow piped to the existing PVD drainage system.

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 practice and ensure that the stormwater management systems are protected. The Soil Erosion and Sedimentation Control Plan will require best management practices, such as inlet sediment control devices, sediment barriers (such as filter socks), and street sweeping/water for dust control.

4.2.10.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no significant impacts would occur.

4.2.11 Cumulative Impacts

According to the FAA Order 1050.1F Desk Reference, CEQ regulations define a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Cumulative impacts can be viewed as the total combined impacts on the environment of the Project Modifications or alternative(s) and other known or reasonably foreseeable actions." Reasonably foreseeable actions should not be limited to those from actual proposals but must also include impacts from actions being contemplated. CEQ regulations further require that NEPA environmental analyses examine connected, cumulative, and similar actions in the same document, as has been completed through the evaluation of potential future commercial development of the site. This requirement prohibits the segmentation of the project into smaller components to avoid required environmental analysis.

CEQ suggests analyzing only those resources that could be incrementally affected by the Project Modifications and other actions within the same geographic area and time. On its own, the Sponsor's Project Modifications, as documented throughout this Supplemental EA, would not cause a significant impact on any of the resource categories. Projects located at the airport that have occurred within the past five years (2018-2023), are currently underway, or are reasonably foreseeable within the next three years (2025-2028) have been reviewed for cumulative impacts.

4.2.11.1 Past, Present, and Reasonably Foreseeable Projects

The projects included in the cumulative impact analysis were identified through a review of the Original Proposed Action EA, a review of the most recent Airports Capital Improvement Plan for PVD, and coordination with the RIAC. Projects located at the airport that have occurred within the past five years (2018-2023), are currently underway (2024), or are reasonably foreseeable within the next three years (2025-2028) are listed below.

<u>Project Completed in the Past Five Years (2018-2023)</u>

- Runway 16-34 Reconstruction
- Parking Lot E Improvements
- Residential Sound Insulation Program

<u>On-going Projects (2024)</u>

- Stormwater Conveyance System Improvements
- Taxiway C Realignment & Rehabilitation
- ADA Compliance Modifications for Passenger Loading Zones

<u>Projects within the next 3-years (2025-2028)</u>

- South Cargo Facility
- Runway 5-23 & Taxiways A, M, and N Rehabilitation
- Electrical Vault Relocation
- Ring Road Drainage & Pavement Improvements

- Apron Joint Replacement
- Taxiway T Rehabilitation - Phase 1

4.2.11.2 Potential Cumulative Impacts

The following sections describe the review of potential cumulative impacts for each environmental category of interest.

- **Air Quality:** The Proposed Project Modifications include construction activity that would temporarily increase air emissions. Since the temporary increase in emissions would be below applicable de minimis levels, no cumulative emissions are anticipated. As shown in Table 4-2, there would be no cumulative impacts to air quality when combining the original Proposed Action (construction and operation of the South Cargo Facility) and the Proposed Project Modifications discussed in this Supplemental EA.
- **Climate:** There would be a temporary increase in GHG emissions during construction; however, the Proposed Project Modifications are not anticipated to result in a significant increase in GHG emissions cumulatively.
- **Hazardous Materials, Solid Waste, and Pollution Prevention:** If the filled UST is encountered or removed during construction and previously unknown hazardous substances are identified, RIAC would remove, manage, and properly dispose of contaminated material in accordance with its Hazardous Waste Contingency Plan (HWCP). However, cumulative impacts are not anticipated.
- **Historic, Architectural, Archaeological, and Cultural Resources:** No impacts on historic, architectural, archaeological, and cultural resources would occur from the Proposed Project Modifications; therefore, cumulative impacts are not anticipated.
- **Socioeconomic, Environmental Justice, and Children's Health and Safety Risks:** The Proposed Project Modifications site is surrounded by aviation and commercial development. No disproportionate adverse impacts on minority or low-income populations have been identified. The construction traffic will be temporary, and the Proposed Project Modifications is expected to improve LOS at that intersection; therefore, cumulative effects are unlikely to occur.
- **Water Resources:** No wetlands or streams would be directly impacted by the Proposed Project Modifications. The Proposed Project Modifications would cause additional stormwater run-off; however, any increase in stormwater run-off would be addressed by the bioretention basin, which will drain into the Airport's stormwater collection system and would be within NPDES permit limits. Therefore, no impacts on water resources or water quality would occur from the Proposed Project Modifications. Therefore, cumulative effects would not occur.

The cumulative impacts of the Proposed Project Modifications when combined with past, present, or reasonably foreseeable projects are not significant.

4.2.12 Mitigation

No mitigation measures would be required, as effects of the Proposed Project Modifications on all the resources categories presented in Chapter 4 would be less than significant.

5.0 PUBLIC OUTREACH

Agency coordination and public involvement efforts have been conducted during the completion of the 2023 Final EA and the Supplemental EA process.

5.1 Early Agency Coordination

As part of the Original Proposed Action, several agencies and organizations were consulted. These agencies include the following:

- U.S. Department of the Interior, U.S. Fish & Wildlife Services (IPaC)
- Rhode Island Historical Preservation & Heritage Commission
- Rhode Island Tribal Historic Preservation Officer, Narragansett Indian Tribe
- Rhode Island Department of Transportation
- FedEx
- UPS

These regulatory agencies and stakeholders were asked to review the Original Proposed Action for potential impacts on resources under their jurisdiction. Agency correspondence was provided as part of the 2023 Final EA. In March 2024, at the beginning of the Supplemental EA process, early agency letters were sent to various agencies to solicit comments on the Proposed Project Modifications and how the project elements could impact the resources within each agency's jurisdiction. These entities included the following:

- Rhode Island Department of Transportation
- U.S. Department of the Interior, U.S. Fish & Wildlife Services (IPaC)
- Rhode Island Historical Preservation & Heritage Commission

The letters included two figures depicting the study limits. Agencies were asked to submit any specific concerns they had with the project, any available technical information that would aid in the development of the Supplemental EA, or any permitting or mitigation requirements that would be necessary for implementation. Agency responses were received through e-mail and have been included in **APPENDIX B**

5.2 Draft Supplemental EA

The Draft Supplemental EA was made available for review via a public Notice of Availability, which was published in the Warwick Beacon on Thursday May 9, 2024. The Draft Supplemental EA was also made available at https://flyri.com/riac/improvement/. Hard copies were made available at the following address:

- 600 Sandy Lane, Warwick, RI 02889; (Warwick Public Library)

Written comments received before May 28, 2024, with responses to each comment, will be included in the Final Supplemental EA.

6.0 LIST OF PREPARERS

Table 6-1 identifies the individuals primarily responsible for preparing this EA and those who provided an independent review of this EA. The list is organized by company or organization and provides a summary of everyone's responsibilities.

Table 6-1. List of Preparers

Preparer	Title	Responsibility
Rhode Island Airport Corporation		
Dawn Mineker, P.E.	VP of Engineering and Architecture	Owner Project Manager
Federal Aviation Administration		
Cheryl Quaine	Environmental Protection Specialist	FAA Document Review & FONSI
CHA Consulting, Inc.		
Mark Heckroth, ENV SP	Senior Project Manager	Purpose & Need, Alternatives, Quality Control
Taylor Koutropoulos, ENV SP	Assistant Project Manager	Lead Author/ Environmental Planner
Meredith Zendlo, ENV SP	Environmental Planner	Affected Environment
Simon Davies, LEED AP; ENV SP	Senior Scientist	Water & Biological Resources
Rob McGormley	Senior Principal Scientist	Hazardous Waste
Calvin Kuang	Airport Planner	Early Coordination & Graphics
Kevin Morris	Senior Scientist	Air Quality

APPENDIX A

2023 South Cargo Facility FONSI

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

Cheryl Quaine
U.S. Department of Transportation
Federal Aviation Administration
New England Region
Cheryl.J.Quaine@FAA.gov

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 Digitally signed by Cheryl Quaine
Date: 2023.06.12 10:29:41 -04'00'

Cheryl Quaine
Environmental Program Manager
FAA New England Region
Office of Airports

Date

DISAPPROVED:

Cheryl Quaine
Environmental Program Manager
FAA New England Region
Office of Airports

Date

APPENDIX B

Biological Resources

APPENDIX B

Biological Resources

Technical Memorandum

Prepared By:	Simon Davies, ENV SP; LEED AP Senior Environmental Planner
Date:	May 1, 2024
Re:	Field Visit Supplemental Environmental Assessment South Cargo Facility Rhode Island T. F. Green International Airport

On March 13, 2024, CHA conducted a field walkover of the Detailed Study Area (DSA) associated with the Supplemental Environmental Assessment (EA) for the South Cargo Facility at Rhode Island T. F. Green International Airport (PVD) in Warwick, Rhode Island. The Proposed Action includes reconfiguring traffic flow at the Airport Connector Road/Evans Avenue intersection by constructing a roundabout to replace the southern intersection of Airport Connector Road and the service road leading towards Evans Ave and Aviation Ave. Additionally, a salt storage shed will be constructed to replace an existing shed that will be removed due to the realigned cargo access road. The work will be phased allowing the existing roadway to remain open throughout construction with no impact to the arrival or departure lanes (see 2 includes reconfiguring traffic flow at the Airport Connector Road/Evans Avenue intersection by constructing a roundabout to replace the southern intersection of Airport Connector Road and the service road leading towards Evans Ave and Aviation Ave. Additionally, a salt storage shed will be constructed to replace an existing shed that will be removed due to the realigned cargo access road. The work will be phased allowing the existing roadway to remain open throughout construction with no impact to the arrival or departure lanes.). Representative ground level photographs of the DSA have also been included in **Attachment A**.

Existing Conditions

The DSA is characterized by previous development. The site consists entirely of a previously paved vacant lot, existing public roadways and sidewalks, existing parking lots & road interchanges, and linear areas of existing landscaping. No significant or unique natural features were observed within the DSA.

The portions of the DSA that are not currently impervious surface consist entirely of planted and managed landscapes. Areas of mown fescue turf (*Festuca arundinacea,* non-native) are interspersed with landscape plantings of perennial plant species, shrubs, and trees. Representative species include silvergrass (*Miscanthus sinensis,* non-native), rose of Sharon (*Hibiscus syriacus,* non-native), arrowwood viburnum (*Viburnum dentatum,* native), red twig dogwood (*Cornus sericea,* native), Japanese spirea (*Spirea japonica*, non-native), star magnolia

(*Magnolia stellata*), *inkberry* (*Ilex glabra*, native), Japanese zelkova (*Zelkova serrata*, non-native), eastern black oak (*Quercus velutina,* native), and Norway maple (*Acer platanoides,* non-native). These species represent a typical managed landscape and include a mix of native and non-native species. However, due to the regular landscape management, and the presence of non-native and potentially invasive species, this vegetative community does not provide quality habitat for either plant or animal species.

The existing aquatic resources within the DSA were also evaluated during the field visit. As previously described, the area has been previously disturbed, with the current land use divided between impervious surface and adjacent managed landscape areas. No wetlands, streams, stormwater drainage areas or other aquatic resources were observed within the DSA during the field visit. The closest wetland or surface water feature is the headwaters of Three Ponds Brook, located approximately one-half mile to the west outside of airport property. The existing stormwater runoff within the DSA is managed through stormwater collection systems.

Biological Resources

In accordance with FAA Order 1050.1F *Environmental Impacts: Policies and* its Desk Reference, this section describes the biological resources valued for their intrinsic, aesthetic, economic and/or recreational qualities and include both plant and animal species (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.

Regulatory Setting

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

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

The Proposed Action being evaluated as part of this Supplemental EA will not involve any activity that has the potential to harass or otherwise impact marine mammals; therefore no authorization under the MMPA will be sought and will not be discussed further. Similarly, the Proposed Action 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 was completed using the Information for Planning and Consultation (IPaC) website. This informal consultation identified a total of three listed species: the northern long-eared bat (*Myotis septentrionalis*) an endangered species, the tricolored bat (*Perimyotis subflavus*) a proposed endangered species, and the monarch butterfly (*Danaus plexippus*), a

candidate species for protection under the ESA. The official species list is attached to this document (see **Attachment B**). No critical habitat for any of the listed species was identified within or adjacent to the DSA.

As part of the informal consultation process, the northern long-eared bat (NLEB) range wide determination key was utilized to evaluate the potential effect of the proposed action on the listed species. Based on the IPaC submission and a standing USFWS analysis, the project has been determined to have "No Effect" on the northern long-eared bat. The consistency letter from the USFWS for this determination can be found in **Attachment B**. This determination was confirmed during the field visit as the level of anthropogenic disturbance and the low-quality habitat observed within the DSA indicates that no suitable summer habitat for the NLEB is located within the project area.

The tricolored bat (TCB) has been recently proposed for listing as an endangered species by the USFWS. At the time of this evaluation, a final determination key for this species has not been released. However, a preliminary determination key for both the NLEB has been included in the beta version of the IPaC operated by the USFWS. The project information was entered into the beta IPaC and the determination key was evaluated resulting in a determination of "No Effect" on the tricolored bat. The consistency letter from the USFWS for this determination can be found in **Attachment B.** This was confirmed during the field visit as no suitable habitat for this species was identified within the project area for the tricolored bat, which utilizes caves for winter roosting and forested habitat for summer roosting. The manicured and managed landscaping trees within the DSA do not provide appropriate summer roosting habitat, and no caves or culverts were identified.

The DSA does not include suitable habitat for the monarch butterfly. This species requires the presence of milkweed (*Asclepias*) plant species as the larvae are obligated to utilize these plants as a food source.

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. Although the IPaC lists bald eagles, as potentially present, a review of the available information in the Rhode Island Natural History Survey indicates no known reports for the presence of bald eagle or golden eagle within the DSA. The Rhode Island Geographic Information System (RIGIS) does not include mapped data for the species within the vicinity of the Airport. Additionally, visits by these species to such an urbanized area would be unusual. No direct observations of these species were made during the field visit. No further coordination with the USFWS is recommended.

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. A total of seven species of migratory birds, including the bald eagle previously discussed, were identified by the USFWS

IPaC website as having the potential to occur within the DSA. A list of these species is included in Attachment B of this document.

The managed landscape setting and extensive impervious surface within the DSA does not support plant or animal diversity and does not provide suitable nesting or stopover habitat for any of the migratory bird species of concern. During the field visit, the bird species observed within the DSA included house sparrow (*Passer domesticus*, non-native), American robin (*Turdus migratorius,* native), European starling (*Sturnus vulgaris,* non-native), and rock dove (*Columba livia*, non-native).

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.

The only vegetative communities identified within the DSA were intentionally planted and managed landscaped areas; therefore, unlikely to be negatively impacted by invasive species, However, there were several potentially invasive species identified within these landscapes. These included Norway maple (*Acer plantanoides*), silvergrass (*Miscanthus sinensis*), and rose of Sharon *(Hibiscus syriacus*).

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. Per a review of the available GIS information contained in the RIGIS Natural Heritage Areas database indicates that there are no known populations of state endangered species in the Project Area. During the field visit, no observations of state listed species or the habitats required were made.

Wildlife Hazard Management

Airport wildlife hazard management seeks to reduce to the greatest degree possible the potential for wildlife strikes to aircraft operating at the airport. The primary tool for the management of potentially hazardous wildlife is the passive modification of the habitat within and adjacent to the Air Operations Area of the airport.

PVD has a current and active Wildlife Hazard Management Plan (WHMP) in place. As part of that plan, the establishment of any new landscaping (or the replacement of any existing landscaping) should avoid the installation of trees and shrubs that have the potential to attract wildlife of a size or number that could pose a threat to aircraft. This includes trees and/or shrubs that produce significant quantities of fruit that would provide feeding opportunities, or that due to the growth structure of the tree provide roosting opportunities for flocking birds such as starlings or crows.

Within the existing landscape areas of the DSA, the small number of shrubs that do produce fruit do not appear likely to produce quantities sufficient to create a potential wildlife hazard.

Potential roosting habitat for migrating flocks of starlings (or other blackbird species) was observed within the DSA. The two planting areas of Japanese zelkova trees located between the Airport Connector Road and the AOA fence do provide potential roosting sites for such flocking species. This is magnified by the unique upright spreading growth habit of these trees, which results in a large canopy spread for the relative size of the tree. The removal of this species from the project area would reduce this potential.

Potential Impacts

The project will only convert small areas of marginal urban wildlife habitat to non-habitat. No impact is anticipated on individuals of species protected under the Federal ESA, the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, or the local Rhode Island Endangered Species Act. No significant impact to local or regional biodiversity is anticipated to result from the proposed road improvements.

Aquatic Resources

In accordance with FAA Order 1050.1F *Environmental Impacts: Policies and* its Desk Reference, 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.

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 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). A review of the National Wetland Inventory maps and available GIS information through RIDEM, along with direct observations of the DSA indicate that no wetlands were present.

Floodplain

The federal regulatory programs designed to protect floodplains include the National Flood Insurance Act and Executive Order 11988, Floodplain Management. Floodplains are 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. Direct observation of the DSA indicates that no surface waters were present.

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). Review of the EPA and RIDEM Sole Source Aquifer mapping resources indicates that the DSA is not within the limits of a sole source aquifer. RIDEM groundwater mapping resources does indicate that the Providence/Warwick Groundwater Aquifer is located adjacent to the DSA but does not underlie the proposed project area. This aquifer is not used for local public drinking water, and the proposed reduction in impervious surface area would have a positive effect upon the groundwater recharge.

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.

Potential Impacts

Impacts to water resources can be direct, such as placement of fill into a wetland, or indirect related to construction activities such as accelerated soil erosion or may be long-term and permanent such as stormwater quality impacts.

Since water resources were not observed within or directly adjacent to the DSA, any 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 for construction of the Proposed Action. 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.

As part of the proposed road improvements, a 0.4-acre bioretention basin will constructed within the existing paved abandoned lot. The proposed basin 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 basin will also be designed to have less than a 36-hour stormwater retention time to reduce the potential for attracting hazardous wildlife. The Proposed Action will be designed to comply with the Clean Water Act.

ATTACHMENT A: Proposed Action Exhibit and Photo Log

Rhode Island Airport Corporation

CHA

Proposed Salt Shed

POST RD

AIRPORT CONNECTOR RD

1

2

3

Proposed Pavement Removal

5

Proposed Stormwater Basin

4

8

AIRPORT CONNECTOR RD
ARRIVALS (LOWER LEVEL)

AIRPORT CONNECTOR RD
DEPARTURES (UPPER LEVEL)

7

EVANS AVE

6

Proposed At-Grade Roundabout

GRAPHIC SCALE (FEET)

0 50 100 200

LEGEND

Airport Property Line

Supplemental EA Study Limits

1 **Photo Point**

Proposed Action

PP1 looking east

PP1 looking south

PP2 looking east

PP2 looking south

PP3 looking east

PP3 looking north

PP4 looking north

PP4 looking south

PP4 looking west

PP5 looking east

PP5 looking south

PP5 looking west

PP6 looking north

PP7 looking south

PP7 looking west

PP8 looking east

PP8 looking north

PP8 looking south

PP8 looking west

ATTACHMENT B: USFWS IPaC Coordination

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: 04/03/2024 15:48:23 UTC
Project Code: 2024-0058355
Project Name: PVD Supplemental EA - Roundabout Construction

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2024-0058355
Project Name: PVD Supplemental EA - Roundabout Construction
Project Type: Road/Hwy - Maintenance/Modification
Project Description: Construction of a roundabout to route truck traffic from PVD cargo terminal away from local surface streets.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.72463495,-71.43839754324651,14z

Counties: Kent County, Rhode Island

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Endangered
No critical habitat has been designated for this species.	
This species only needs to be considered under the following conditions:	
▪ This species only needs to be considered if the project includes wind turbine operations.	
Species profile: https://ecos.fws.gov/ecp/species/9045	
Tricolored Bat *Perimyotis subflavus*	Proposed Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/10515	

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9743	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Rhode Island Airport Corporation
Name: Simon Davies
Address: 201 N. Illinois Street
Address Line 2: Suite 800
City: Indianapolis
State: IN
Zip: 46204
Email sdavies@chacompanies.com
Phone: 3176947654

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

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:
Project code: 2024-0058355
Project Name: PVD Supplemental EA - Roundabout Construction

March 05, 2024

Federal Action Agency (if applicable): Federal Aviation Administration

Subject: Record of project representative's no effect determination for 'PVD Supplemental EA - Roundabout Construction'

Dear Simon Davies:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 05, 2024, for 'PVD Supplemental EA - Roundabout Construction' (here forward, Project). This project has been assigned Project Code 2024-0058355 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed

action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/ coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2024-0058355 associated with this Project.

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

1. Name

PVD Supplemental EA - Roundabout Construction

2. Description

The following description was provided for the project 'PVD Supplemental EA - Roundabout Construction':

> Construction of a roundabout to route truck traffic from PVD cargo terminal away from local surface streets.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.72458295,-71.43842696301084,14z

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (Myotis septentrionalis). Therefore, no consultation with the U.S. Fish and Wildlife 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 for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The proposed action does not intersect an area where the northern long-eared bat is likely to occur, based on the information available to U.S. Fish and Wildlife Service as of the most recent update of this key. If you have data that indicates that northern long-eared bats are likely to be present in the action area, answer "NO" and continue through the key.

   Do you want to make a no effect determination?

   Yes

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Rhode Island Airport Corporation
Name: Simon Davies
Address: 201 N. Illinois Street
Address Line 2: Suite 800
City: Indianapolis
State: IN
Zip: 46204
Email sdavies@chacompanies.com
Phone: 3176947654

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

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: 05/01/2024 19:40:39 UTC
Project code: 2024-0002360
Project Name: PVD Supplemental EA - Roundabout Construction (IPaC Beta)

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Aviation Administration

Subject: Record of project representative's no effect determination for 'PVD Supplemental EA - Roundabout Construction (IPaC Beta)'

Dear Simon Davies:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 01, 2024, for 'PVD Supplemental EA - Roundabout Construction (IPaC Beta)' (here forward, Project). This project has been assigned Project Code 2024-0002360 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Based on your answers and the assistance of the Service's Caribbean DKey, you determined the proposed Action will have "No Effect" on the following species:

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No effect

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2024-0002360 associated with this Project.

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

1. Name

PVD Supplemental EA - Roundabout Construction (IPaC Beta)

2. Description

The following description was provided for the project 'PVD Supplemental EA - Roundabout Construction (IPaC Beta)':

> Construction of a roundabout to route truck traffic from PVD cargo terminal away from local surface streets.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.72458295,-71.43842696301084,14z

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife 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 for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No

12. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

    No

13. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No

14. Will the action result in effects to a culvert or tunnel at any time of year?

    No

15. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    Yes

16. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

17. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

18. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    Yes

19. Will any new road go through any area of contiguous forest that is greater than or equal to 10 acres in total extent?

    Note: "Contiguous forest" of 10 acres or more may includes areas where multiple forest patches are separated by less than 1,000 feet of non-forest if the forested patches, added together, comprise at least 10 acres.

    No

20. Will any new road pass between two patches of contiguous forest that are each greater than or equal to 10 acres in extent and are separated by less than 1,000 feet? Bats may cross a road by flying between forest patches that are up to 1,000 feet apart.

    Note: "Contiguous forest" of 10 acres or more may includes areas where multiple forest patches are separated by less than 1,000 feet of non-forested area if the forested patches, added together, comprise at least 10 acres.

    No

21. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

    Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    Yes

22. Will the increased vehicle traffic occur on any road that lies between any two areas of contiguous forest that are each greater than or equal to 10 acres in extent and are separated by less than 1,000 feet? Bats may cross a road by flying between forest patches that are up to 1,000 feet apart.

    Note: "Contiguous forest" of 10 acres or more may includes areas where multiple forest patches are separated by less than 1,000 feet of non-forested area if the forested patches, added together, comprise at least 10 acres.

    No

23. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

24. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

25. Will the action include drilling or blasting?

    No

26. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    No

27. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

28. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: For a complete definition of suitable summer habitat for the northern long-eared bat or tricolored bat, please see Appendix A in the USFWS' Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    No

29. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: For a complete definition of suitable summer habitat for the northern long-eared bat or tricolored bat, please see Appendix A in the USFWS' Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    Yes

30. Will the action use only downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting)
    when installing new or replacing existing permanent lights?

    Or for those transportation agencies using the Backlight, Uplight, Glare (BUG) system developed by the Illuminating Engineering Society, will all three ratings (backlight, uplight, and glare) be as close to zero as is possible, with a priority of "uplight" of 0?

    Yes

31. Will the action direct any temporary lighting away from suitable northern long-eared bat or tricolored bat roosting habitat when bats may be present?

    Note: Bat activity periods for your state can be found in Appendix L of the USFWS' Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    Yes

32. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

33. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

34. [Semantic] Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

35. [Semantic] Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    Yes

36. [Semantic] Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    No

37. [Semantic] Does the project intersect with the 30.0- 39.9% forest density category map?

    Automatically answered
    No

38. [Semantic] Does the project intersect with the 40.0- 49.9% forest density category map?

    Automatically answered
    No

39. [Semantic] Does the project intersect with the 50.0- 59.9% forest density category map?

    Automatically answered
    No

40. [Semantic] Does the project intersect with the 60.0- 69.9% forest density category map?

    Automatically answered
    No

41. [Semantic] Does the project intersect with the 70.0- 100.0% forest density category map?

    Automatically answered
    No

42. Will the action result in the use of prescribed fire?

    No

43. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

44. [Semantic] Is the action area wholly within the range where the Project should only consider impacts to northern long-eared bat from wind projects?

    Note: If the proposed project is not a wind project, no additional impacts need to be considered.

    Automatically answered
    Yes

45. Does the action area intersect the tricolored bat species list area?

    Automatically answered
    Yes

46. [Semantic] Is the action area wholly within the range where the Project should only consider impacts to tricolored bats from wind projects?

    Note: If the proposed project is not a wind project, no additional impacts need to be considered."

    Automatically answered
    No

47. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

48. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
    (If unsure, answer ""Yes."")

    Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (Tillandsia usneoides), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

49. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

0.9

IPAC USER CONTACT INFORMATION

Agency: State of Rhode Island
Name: Simon Davies
Address: 201 N. Illinois Street
Address Line 2: Suite 800
City: Indianapolis
State: IN
Zip: 46204
Email sdavies@chacompanies.com
Phone: 3174933312

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

APPENDIX C

Hazardous Materials

Technical Memorandum

Prepared by:	Robert McGormley, Senior Principal Scientist
Date:	April 3, 2024
Re:	Summary of RCRA and UST Data Within GSA Supplemental Environmental Assessment South Cargo Facility T.F. Green International Airport

On March 27, 2024, CHA reviewed online environmental database resources maintained by the U.S. Environmental Protection Agency (EPA) and Rhode Island Department of Environmental Management (RIDEM) to inventory data relevant to the Supplemental Environmental Assessment (EA) for proposed roadway improvements along Airport Connector Road at T.F. Green International Airport (PVD) in Warwick, Rhode Island. This memo presents a summary of Resource Conservation and Recovery Act (RCRA) data for hazardous waste generators, transporters, treaters, storers, and disposers of hazardous waste located within the Detailed Study Area (DSA) (see **Attachment 1**) and the Generalized Study Area (GSA). The GSA includes an approximate ½-mile area surrounding the DSA. Additionally, this memo also presents a summary of underground storage tank (UST) and leaking underground storage tank (LUST) data for facilities identified within the DSA and GSA.

RCRA Data

CHA used the following EPA online environmental database resources to identify and summarize available RCRA data for facilities within the DSA and surrounding GSA:

- NEPAssist [1]
- Cleanups in My Community [2]
- RCRAInfo [3]
- Enforcement and Compliance History Online (ECHO) [4]

CHA's review identified only hazardous waste generators operating within the GSA. None were operating within the DSA, and two were in the immediate vicinity of the DSA but appear to have had no documented impact on it. No transporter, treater, storer, or disposer of hazardous waste was identified as operating within the DSA or GSA. The three types of hazardous waste generators operating within the GSA included the following:

- Large Quantity Generator – generates 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

[1] nepassisttool.epa.gov/nepassist/nepamap.aspx
[2] epa.gov/cleanups/cleanups-my-community
[3] enviro.epa.gov/envirofacts/rcrainfo
[4] echo.epa.gov

- Small Quantity Generator – generates more than 100 kilograms, but less than 1,000 kilograms of hazardous waste per month.
- Very Small Quantity Generator – generates 100 kilograms or less per month of hazardous waste or one kilogram or less per month of acutely hazardous waste.

In addition to the hazardous waste generator types described above, the generator type for some generators was unknown. A complete list of CHA's findings is summarized in **Table 1**.

Table 1. RCRA Hazardous Waste Generators Within the GSA

Facility	Address	Generator Type
Verizon MH - Post Rd. & Airport Rd.	Post Rd. Warwick, RI	Large Quantity Generator
Verizon New England Inc. Manhole	MH13-3376 Post Rd. Warwick, RI	Large Quantity Generator
American Airlines - Providence	2000 Post Rd. Belly Cargo 8 Warwick, RI	Small Quantity Generator
Bonns Industrial Valve	65 Montebello Rd. Warwick, RI	Small Quantity Generator
Jan D. Cervenka, MD	2212 Post Rd. Warwick, RI	Small Quantity Generator
Cross A T	815 Jefferson Blvd. Warwick, RI	Small Quantity Generator
D'Ambra Construction	800 Jefferson Blvd. Warwick, RI	Small Quantity Generator
Delta Air Lines Inc.	2000 Post Rd. Belly Cargo 1 Warwick, RI	Small Quantity Generator
Droitcour Company	28 Graystone St. Warwick, RI	Small Quantity Generator
Droitcour Company Cone Dept.	33 Graystone St. Warwick, RI	Small Quantity Generator
Hertz Corp.	2000 Post Rd. QTA 3 Warwick, RI	Small Quantity Generator
Hillsgrove Servicenter	1965 Post Rd. Warwick, RI	Small Quantity Generator
Kenney Manufacturing Company	1000 Jefferson Blvd. Warwick, RI	Small Quantity Generator
Kent Occupational Health & Rehab	2191 Post Rd., Ste. 3 Warwick, RI	Small Quantity Generator
Lucas-Milhaupt	235 Kilvert St Warwick, RI	Small Quantity Generator
Mobil Sta/ Patriot Mobil	1776 Post Rd. Warwick, RI	Small Quantity Generator
Ocean State Aviation Inc.	2000 Post Rd. Belly Cargo 5 Warwick, RI	Small Quantity Generator
RI Airport Corp.	2000 Post Rd. Warwick, RI	Small Quantity Generator
Sandstrom Carbide Products Corp. Inc.	140 Imera Ave. Warwick, RI	Small Quantity Generator
US Air Inc.	2000 Post Rd. Belly Cargo 7 Warwick, RI	Small Quantity Generator
United Airlines Inc.	2000 Post Rd. Belly Cargo 3 Warwick, RI	Small Quantity Generator
US Department of Homeland Security / TSA	2000 Post Rd. Screening Warwick, RI	Small Quantity Generator
Robert J Varone DDS Ltd.	615 Jefferson Blvd. Warwick, RI	Small Quantity Generator
Chipotle 1873	1800 Post Rd. Warwick, RI	Very Small Quantity Generator

Table 1. RCRA Hazardous Waste Generators Within the GSA (cont.)

Facility:	Address:	Generator Status
21st Century Environmental Management	25 Graystone St. Warwick, RI	Unknown
AAA Oil Service Inc.	25 Lauderdale Blvd. Warwick, RI	Unknown
Apponaug Chiropractic Center	1923 Post Rd. Warwick, RI	Unknown
Avis Rent A Car	2000 Post Rd. QTA 2 Warwick, RI	Unknown
Bud Industries, Inc.	697 Jefferson Blvd. Warwick, RI	Unknown
Budget Rent A Car	708 Jefferson Blvd. Warwick, RI	Unknown
Budget Rent A Car Systems Inc.	2000 Post Rd. QTA 1 Warwick, RI	Unknown
Business Express Inc.	2000 Post Rd. Belly Cargo 4 Warwick, RI	Unknown
Camera Exchange Service Center	1800 Post Rd., Ste. 15A Warwick, RI	Unknown
Continental Airlines	2000 Post Rd. Belly Cargo 6 Warwick, RI	Unknown
Courtesy Cleaners LLC	1889 Post Rd. Warwick, RI	Unknown
Eastern Airlines	2000 Post Rd. Belly Cargo 2 Warwick, RI	Unknown
The Entwistle Co.	3890 Post Rd. Warwick, RI	Unknown
Exxon Co U S A 39869	2003 Post Rd. Warwick, RI	Unknown
Fort Barton Holdings Inc.	33 Graystone St. Warwick, RI	Unknown
Fred's Autohaus Inc.	2283 Post Rd. Warwick, RI	Unknown
Karick Corp.	30 Coronado Rd. Warwick, RI	Unknown
Leviton Mfg. Co. Inc.	745 Jefferson Blvd. Warwick, RI	Unknown
Matec Instruments	60 Montebello Rd. Warwick, RI	Unknown
New England Wood Preserving Co.	93 Imera Ave. Warwick, RI	Unknown
Northeast Paper Converting Corp.	303 Kilvert St Warwick, RI	Unknown
PJS Automotive Service Inc.	30 Coronado Rd. Warwick, RI	Unknown
Rhode Island Recovery, LLC	40 Fresno Rd. Warwick, RI	Unknown
Shell Sta/Airport Shell Food Mart	2025 Post Rd. Warwick, RI	Unknown
Sotis Chiropractic	1865 Post Rd., Ste. 103 Warwick, RI	Unknown
Sullivan Tire Co Inc.	1102 Jefferson Blvd. Warwick, RI	Unknown
THBC Inc.	61 Glenham Ave. Warwick, RI	Unknown
Thrifty Car Rental	2329 Post Rd. Warwick, RI	Unknown
Dr. John Turchetta	1865 Post Rd., Ste. 204 Warwick, RI	Unknown
United Wire Supply Corp.	Jefferson Blvd. & Kilvert St Warwick, RI	Unknown
Drs. Wade & Saccoccio	1865 Post Rd., Ste. 202 Warwick, RI	Unknown
Warwick Hydraulics Co Inc.	25 Coronado Rd. Warwick, RI	Unknown
Warwick Medical Walk In Room	1800 Post Rd. Warwick, RI	Unknown

UST and LUST Data

CHA used the following EPA and RIDEM online environmental database resources to identify and summarize available UST and LUST data for facilities within the DSA and surrounding GSA:

- UST Finder [5]
- Environmental Site Search [6]
- Environmental Resource Map [7]

For some facilities, data indicated the facility had one or more USTs that were in use, while one or more other UST had been permanently closed. For facilities that had permanently closed USTs, data indicated that some permanently closed USTs were also LUSTs. The LUST status varied between active – monitored natural attenuation, inactive, inactive/soil removal only, and soil removal only. CHA identified one permanently closed 10,000-gallon UST that had previously contained #2 fuel oil at the former Johnson & Wales College - Carlton House located at 2082 Post Road, which is within the DSA. A Certificate of Closure for Underground Storage Facilities dated May 11, 1989, indicated the UST was taken out of service permanently and filled in situ in compliance with the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials (see **Attachment 2**). No available records identified the UST as a LUST or indicated that the UST affected subsurface soils or groundwater within the DSA. A complete list of CHA's findings is summarized in **Table 2**.

Table 2. USTs and LUSTs Within the GSA

Facility:	Address:	UST Status:	LUST Status:
Shell - Colbea #41	2027 Post Rd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Not Applicable
Former Gaspee Auto Parts Store	93 Imera Ave. Warwick, RI	Permanently Closed	Active - Monitored Natural Attenuation
Kenney Manufacturing Company	1000 Jefferson Blvd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Inactive
National Car Rental	2053 Post Rd. Warwick, RI	Permanently Closed	Inactive
Global Montello Group #210	2003 Post Rd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Inactive / Soil Removal Only
Former Leviton Manufacturing Company - Lot 2	745 Jefferson Blvd. Warwick, RI	Permanently Closed	Inactive / Soil Removal Only
Warwick Inter-Modal Station	700 Jefferson Blvd. Warwick, RI	In Use	Not Applicable
		Permanently Closed	Soil Removal Only
Hertz Corporation	2000 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
T. F. Green Airport	2000 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Fast Gas	1995 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Hillsgrove Servicenter, Inc.	1965 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only

[5] epa.maps.arcgis.com/apps/webappviewer/index.html?id=c220c67462e14763a8e0c4df75550278
[6] eplover.dem.ri.gov/ploverpublic/search.aspx
[7] ridemgis.maps.arcgis.com/apps/webappviewer/index.html?id=87e104c8adb449eb9f905e5f18020de5

Table 2. USTs and LUSTs Within the GSA (cont.)

Facility:	Address:	UST Status:	LUST Status:
Bud Industries, Inc.	697 Jefferson Blvd. Warwick, RI	Permanently Closed	Soil Removal Only
Thrifty Car Rental	2329 Post Rd. Warwick, RI	Permanently Closed	Soil Removal Only
Sea-Pro Boats	103 Glenham Ave. Warwick, RI	Permanently Closed	Not applicable
T.H. Baylis	61 Glenham Ave. Warwick, RI	Permanently Closed	Not applicable
D'Ambra Construction	800 Jefferson Blvd. Warwick, RI	Permanently Closed	Not applicable
Jade Manufacturing Co. Inc.	2313 Post Rd Warwick, RI	Permanently Closed	Not applicable
Redwood Lodge Motel	2282 Post Rd Warwick, RI	Permanently Closed	Not applicable
Fred's Autohouse (Formerly)	2283 Post Rd Warwick, RI	Permanently Closed	Not applicable
National Velour Corp.	36 Bellair Ave Warwick, RI	Permanently Closed	Not applicable
Leonard Sholes	2138 Post Rd Warwick, RI	Permanently Closed	Not applicable
Sholes Skating (Formerly)	2100 Post Rd Warwick, RI	Permanently Closed	Not applicable
Johnson & Wales College - Carlton House (Formerly)	2082 Post Rd Warwick, RI	Permanently Closed	Not applicable
Luis Molina Property	45 Montebello Rd. Warwick, RI	Permanently Closed	Not applicable
103 Glenham Avenue	103 Glenham Ave. Warwick, RI	Permanently Closed	Not applicable
Avis Rent-A-Car	2033 Post Rd. Warwick, RI	Permanently Closed	Not applicable
New England Industries, Inc.	28 Alhambra St. Warwick, RI	Permanently Closed	Not applicable
Depco (Abandoned Site)	57 Kilvert St. Warwick, RI	Permanently Closed	Not applicable
Supreme Dairy Farms Co., Inc.	111 Kilvert St. Warwick, RI	Permanently Closed	Not applicable
St. Francis Church	596 Jefferson Blvd. Warwick, RI	Permanently Closed	Not applicable
Alamo Rent A Car (Formerly)	1900 Post Rd. Warwick, RI	Permanently Closed	Not applicable
Janco - (Former Valle's Steakhouse)	1880 Post Rd. Warwick, RI	Permanently Closed	Not applicable
Sheraton Airport Inn	1850 Post Rd. Warwick, RI	Permanently Closed	Not applicable
Airport Plaza	1800 Post Rd. Warwick, RI	Permanently Closed	Not applicable
Lincoln Facility (Depot)	Jefferson Blvd. Warwick, RI	Permanently Closed	Not applicable
Matec Building (Johnson & Wales Univ.)	60 Montebello Rd. Warwick, RI	Permanently Closed	Not applicable
RIAC Fuel Farm	Delivery Rd. Warwick, RI	Permanently Closed	Not applicable

ATTACHMENT 1 – DETAILED STUDY AREA

Rhode Island Airport Corporation

CHA

GRAPHIC SCALE (FEET)

0 50 100 200

LEGEND

Supplemental EA Study Limits

Figure 1-1: Project Modifications

ATTACHMENT 2 – CERTIFICATE OF CLOSURE FOR UNDERGROUND STORAGE FACILITIES AT 2082 POST ROAD, WARWICK, RI

DE[illegible]TMENT OF ENVIRONMENTAL MANAGE[illegible]
DIVISION OF GROUNDWATER AND FRESHWATER WETLANDS
291 Promenade Street
Providence, Rhode Island 02908
(401) 277-2234

FACILITY ID X 2417 no more 15,702

CERTIFICATE OF CLOSURE
FOR UNDERGROUND STORAGE FACILITIES

In compliance with Chapter 46-12 of the Rhode Island General Laws, as amended, and the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials,

Johnson + Wales College

owner/operator of an underground storage facility located at

2082 Post Rd.
Warwick

is issued this Certificate of Closure indicating that the storage tanks described below have been taken out of service permanently, in compliance with the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials.

TANK ID NUMBER	VOLUME	STORED MATERIAL	DATE LAST USED	STATUS OF TANK F=Filled R=Removed
001 1	10,000	#2 fuel oil	1 / 89	F
			/ /	
			/ /	
			/ /	
			/ /	

Signed this 11th day of May, 1989

Reviewed by: Mary Toti

Approved: for S. Morin
Chief, Division of Groundwater and Freshwater Wetlands
Department of Environmental Management

CLOSE1 _____

CLOSE2 _____

CLOSE2 _____

APPENDIX D

Traffic Analysis

October 9, 2023

Rhode Island Airport Corporation
2000 Post Road
Warwick, RI 02886

Re: Rhode Island T. F. Green International Airport South Cargo Ramp Development – Traffic Assessment
CHA File: 79556

Rhode Island Airport Corporation:

CHA Consulting, Inc., (CHA) has prepared this intersection evaluation to support the design and development of the South Cargo Ramp development project located at Rhode Island T. F. Green International Airport (PVD) in Warwick, Rhode Island. Improvements are planned at the intersections of Evans Avenue at Airport Connector Road and Evans Avenue at Aviation Avenue as part of the project. The purpose of this memorandum is to provide an analysis of future traffic impacts resulting from additional traffic at the above referenced intersections as a result of relocating and expanding air cargo operations at PVD. This memorandum also provides recommendations for intersection controls to accommodate the traffic resulting from the air cargo development. As part of the study, CHA investigated the following intersection treatments:

- Maintaining existing traffic control at the intersections (two-way stop control at Evans Avenue and Aviation Avenue and signal control at Evans Avenue and Airport Connector Road);
- Changing operations to an all-way stop condition for both intersections; and
- Installing a roundabout at the Evans Avenue and Airport Connector Road intersection.

The existing intersections are shown on Figure 1.

Figure 1: Study Location Map

272 West Exchange Street, Suite 101, Providence, RI 02903
T 860.206.2412 • www.chacompanies.com

EXISTING CONDITIONS

Roadways

Evans Avenue is classified as a local road and is maintained by the Rhode Island Department of Transportation (RIDOT). Evans Ave runs north to south, beginning at the intersection with Airport Connector Road and terminating at Long Term Parking Lot E. The intersection at Aviation Ave and the intersection at Airport Connector Road are spaced approximately 1,000 feet apart. Evans Avenue provides 12-foot travel lanes and 1-foot shoulders in each direction. A 5-foot sidewalk is located along the eastern side of the roadway and begins at Long Term Parking Lot E. The sidewalk bypasses the Airport Connector Road intersection and continues to the airport.

Aviation Avenue is a short, approximately 700-ft long local road. It provides access from Post Road to Evans Avenue, as well as ramp access to Airport Connector Road for drivers wishing to reach airport terminals and short-term parking. Aviation Avenue provides 12-foot travel lanes and 1-foot shoulders in each direction. A 5-foot sidewalk is present on the southern side of the roadway, beginning at Post Road and ending at the Aviation Avenue intersection.

Airport Connector Road is maintained by RIDOT and has mixed classifications. This roadway begins as a freeway ramp, providing airport access to and from Interstate-95. It runs east to west from I-95 to Post Road, then continues north where it splits into two levels. The upper level continues one-way to Departures, whereas the lower level continues two-way to Arrivals and forms the southern leg of the Evans Avenue and Airport Connector Road intersection.

Past the airport terminal, the lower-level Airport Connector Road provides an exit to Post Road via Coronado Road, or continues to join the upper level road as it loops around to form the western leg of the Evans Avenue and Airport Connector Road intersection. This roadway segment is also referred to as Airport Ring Road. Airport Ring Road contains two 12-foot travel lanes in each direction with varying shoulder widths.

Intersections

The intersection of Airport Connector Road and Evans Avenue is currently a four-legged signalized intersection. The northern leg is outbound only, providing access to the Arrivals passenger pick up location, the bus and ride-share pickup lanes, and short-term parking. Airport Ring Road forms the western leg of the intersection, containing a through lane, a left-only lane, and a right-only bypass lane with an exclusive receiving lane. Airport Connector Road forms the southern leg of the intersection, which contains one through/right lane. Evans Avenue forms the eastern leg of the intersection and contains one right-only lane and one left-only lane. No pedestrian or bicycle accommodations are present at the intersection.

The intersection of Aviation Avenue and Evans Avenue is currently a three-legged intersection. Aviation Avenue is stop-controlled while Evans Avenue runs free. The southern leg of the intersection provides access to and from Long Term Parking Lot E. The northern leg of the intersection provides access to and from the airport. Aviation Avenue contains one right-only lane and one left-only lane. Aviation Avenue outbound loops around to connect back to the Upper Level Airport Connector Road, providing access back to the airport. A crosswalk is striped across Evans Avenue, connecting the Evans Avenue sidewalk to the Aviation Avenue sidewalk.

Intersection Sight Distance

CHA measured approximate intersection sight distances at each approach for both intersections. These sight distances were compared to guidelines in the Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets,* 2018, for a speed limit of 25 MPH. These evaluations are summarized in **Table 1** below.

Table 1: Intersection Sight Distance Evaluation

AASHTO Recommended Intersection Sight Distance for 25 MPH
Left turn from stop: **280 FT**
Right turn from stop: **240 FT**

Intersection	Measured Intersection Sight Distance (FT)	Obstructions
Airport Connector Road at Evans Avenue		
Airport Ring Road: Eastbound Looking Right	**210***	Median, support columns
Airport Connector Road: Northbound: Looking Left	**220***	Median, vegetation
Airport Connector Road: Northbound: Looking Right	**110***	Geometry, vegetation
Evans Avenue Westbound: Looking Left	425	
Aviation Avenue at Evans Avenue		
Aviation Avenue Eastbound: Looking Left	420	
Aviation Avenue Eastbound: Looking Right	340	

*ISD is less than recommended.

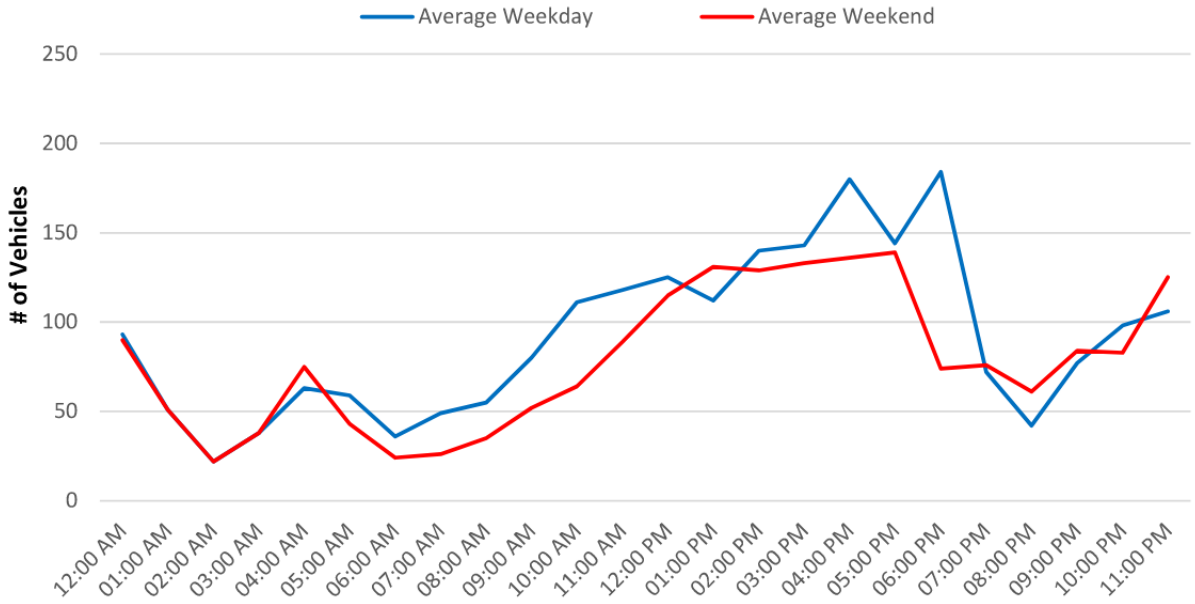
As noted in the table, several approaches at the Evans Avenue at Airport Connector Road intersection do not meet the recommended intersection sight distance of 240 feet for right turns and 280 feet for left turns. This can be attributed to atypical lane geometry, along with visual obstructions provided by median barriers, vegetation, and overpass support columns.

DATA COLLECTION

Traffic Counts

Data collection included conducting automatic traffic recorder counts (ATCs) from Saturday, August 12, 2023, through Friday, August 18, 2023, to indicate daily variations in traffic adjacent to the project site. The ATCs were conducted on Evans Avenue, just north of the Aviation Avenue intersection. Average counts reflect increasing traffic throughout the day for both weekdays and weekends. **Figure 2** shows the hourly traffic variation.

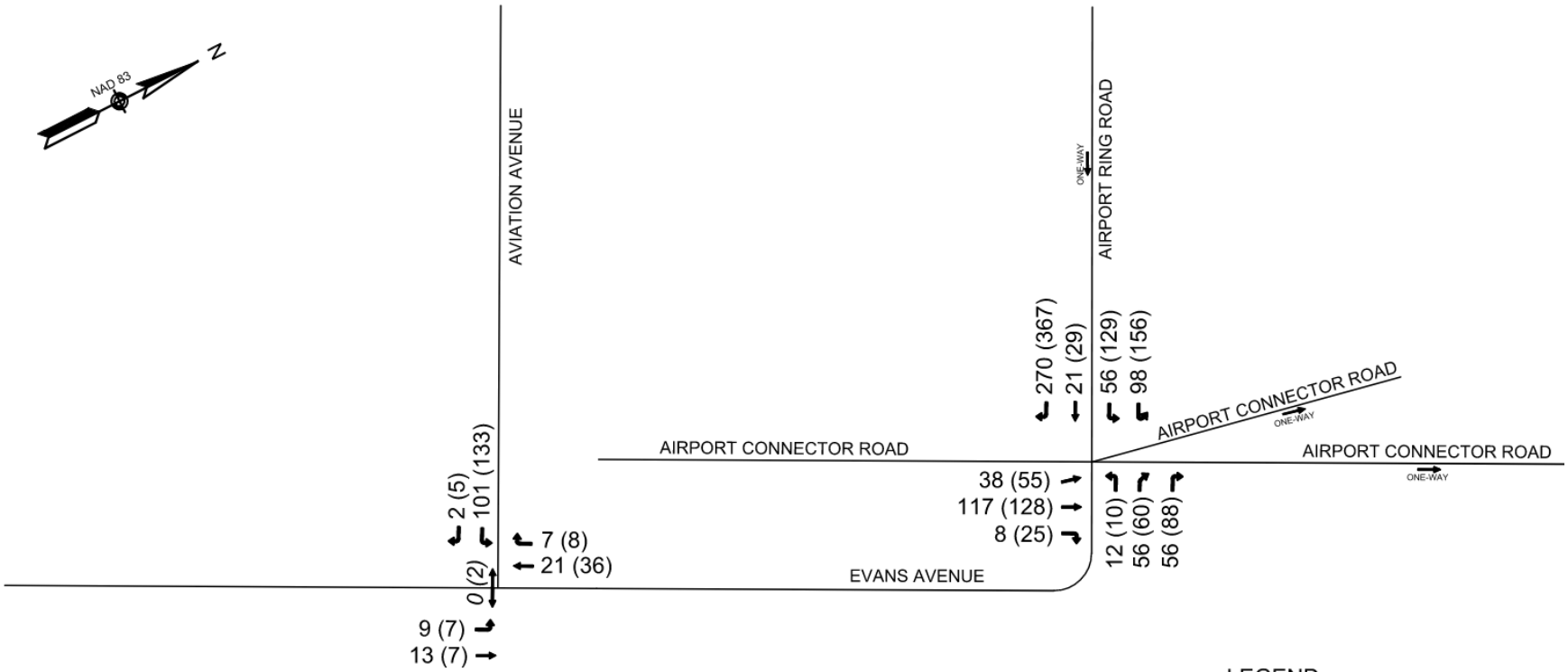
Figure 2: Evans Avenue Average Hourly Traffic Variation



Peak hour turning movement counts (TMCs) were then conducted from 7:00 AM to 6:00 PM on Thursday, August 17, 2023, by Transportation Data Corporation. These counts included cars, heavy vehicles, pedestrians, and bicycles at each intersection.

According to the TMCs, the resulting peak hours for the roadway network are from 9:45-10:45 AM and 3:45-4:45 PM as shown in **Figure 3**.

Figure 3: 2023 Existing Peak Hour Traffic Volumes



Overall, both intersections experience relatively low traffic volumes. The highest volumes are currently eastbound on Airport Ring Road and using the channelized right-turn to continue along Airport Connector Road. Pedestrian volumes were low, with only two pedestrians crossing Evans Avenue at the Aviation Avenue intersection during the afternoon peak hour. No bicyclists were observed.

2043 No-Build Traffic Volumes

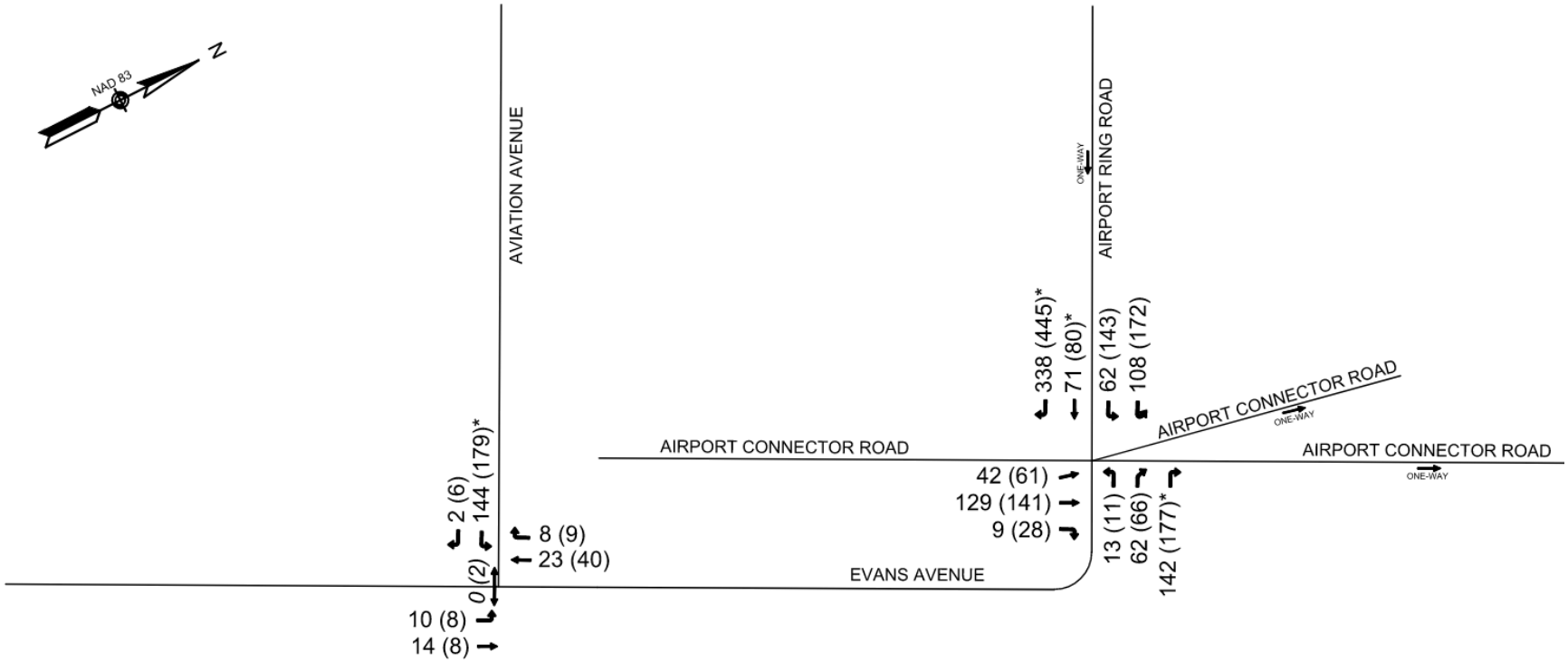
CHA modeled traffic conditions at each intersection for a 20-year No-Build growth condition assuming no changes as part of the Project. A 0.50% annual growth rate was provided by the Rhode Island Airport Corporation (RIAC) to account for anticipated background growth. This growth rate accounts for planned airport improvements and general increases in airport usage. This growth rate was compounded annually and applied to the 2023 traffic volumes to determine the 2043 traffic volumes.

RIAC indicated their cell phone lot, currently located off-site, will be relocated to Evans Avenue just north of the Aviation Avenue intersection prior to the completion of the South Cargo Development. The new cell phone lot will contain 40 parking spaces. No volumes or usage data was provided, and very limited information on trip generation for cell phone lots was found. As a result, CHA made the following assumptions for the generation of traffic volumes due to the new cell phone parking lot:

- 30-minute maximum dwell time
- Each space to be occupied twice per hour to result in 80 vehicles per hour
- 32 (40%) trips enter from Aviation Avenue, 48 (60%) trips enter from Airport Connector Road consistent with existing traffic patterns entering the airport today.
- All trips exit parking lot towards Airport Connector Road intersection and then turn right to enter the Arrivals pick-up location
- 40 (50%) of vehicles per hour then exit to Post Road, with remaining 40 (50%) vehicles per hour continuing on Airport Ring Road to Airport Connector Road, exiting to I-95

The proposed cell phone lot volumes are included in both the No-Build and Build models. No-Build traffic volumes can be seen in **Figure 4**.

Figure 4: 2043 No-Build Peak Hour Traffic Volumes



Trip Generation and Distribution

Traffic Volumes for the 2043 Build conditions were adjusted to reflect the anticipated traffic generated by the planned South Cargo Development. The air cargo development is expected to accommodate UPS and FedEx. The cargo operations will be supported by loading docks and 281 parking spaces. The cargo operations will operate with shift changes throughout the day. The project will include a new access road at the Aviation Avenue and Evans Avenue intersection. As a result, the intersection will have four legs in the future.

CHA received expected employee and truck trips from UPS and FedEx, as well as the corresponding AM and PM shifts. The FedEx employee morning shift is from 4:00 AM-12:00 PM and the evening shift from 6:00 PM-2:00 AM. The UPS morning shift is from 5:00-10:00 AM and the evening shift from 6:00-11:00 PM. CHA made the following assumptions for the trip generation:

- Employees would arrive for their shift within 30 minutes of it starting and leave within 30 minutes of it ending;
- The total employee traffic was added to the traffic model if the shift change occurred in or around the study peak hours of 9:45-10:45 AM and 3:45-4:45 PM;
- 5% of the total employee traffic was added at the peak hours to account for miscellaneous traffic, such as visitors, employees entering or exiting late, employees breaks, etc.
- All truck and van traffic would arrive or leave within the study peak hours in order to be conservative. It is anticipated that truck volumes will vary by day and be less than analyzed herein.

The resulting trip generation for the proposed South Cargo Development is summarized in **Table 2** below.

Table 2: Trip Generation Summary

	In	Out	Total
AM Peak Hour			
UPS Employees	38	38	76
UPS Trucks	8	0	8
FedEx Employees	3	3	6
FedEx Vans	5	5	10
FedEx Trucks	18	0	18
Total	72	46	118
PM Peak Hour			
UPS Employees	1	1	2
UPS Trucks	0	10	10
FedEx Employees	4	4	8
FedEx Vans	0	0	0
FedEx Trucks	0	12	12
Total	5	27	32

These trips were distributed to the 2043 traffic volumes based on the following metrics:

- All trucks enter from Airport Connector Road, turn right onto Evans Avenue, and left onto the Cargo Facility Access Road;
- All trucks depart the Cargo Facility Access Road by turning right onto Evans Avenue and left onto Airport Connector Road;
- Consistent with existing traffic patterns, 40% of inbound employee trips enter from Aviation Avenue, 60% enter from Evans Avenue; and
- 50% of outbound employee trips exit to I-95 via Evans Avenue, 50% exit to Post Road via Airport Ring Road.

Project generated trips are shown in **Figure 5**.

The distributed trips were then applied to the 2043 traffic volumes and used for the Build model. These volumes can be viewed in **Figure 6.**

Figure 5: Project Generated Trips

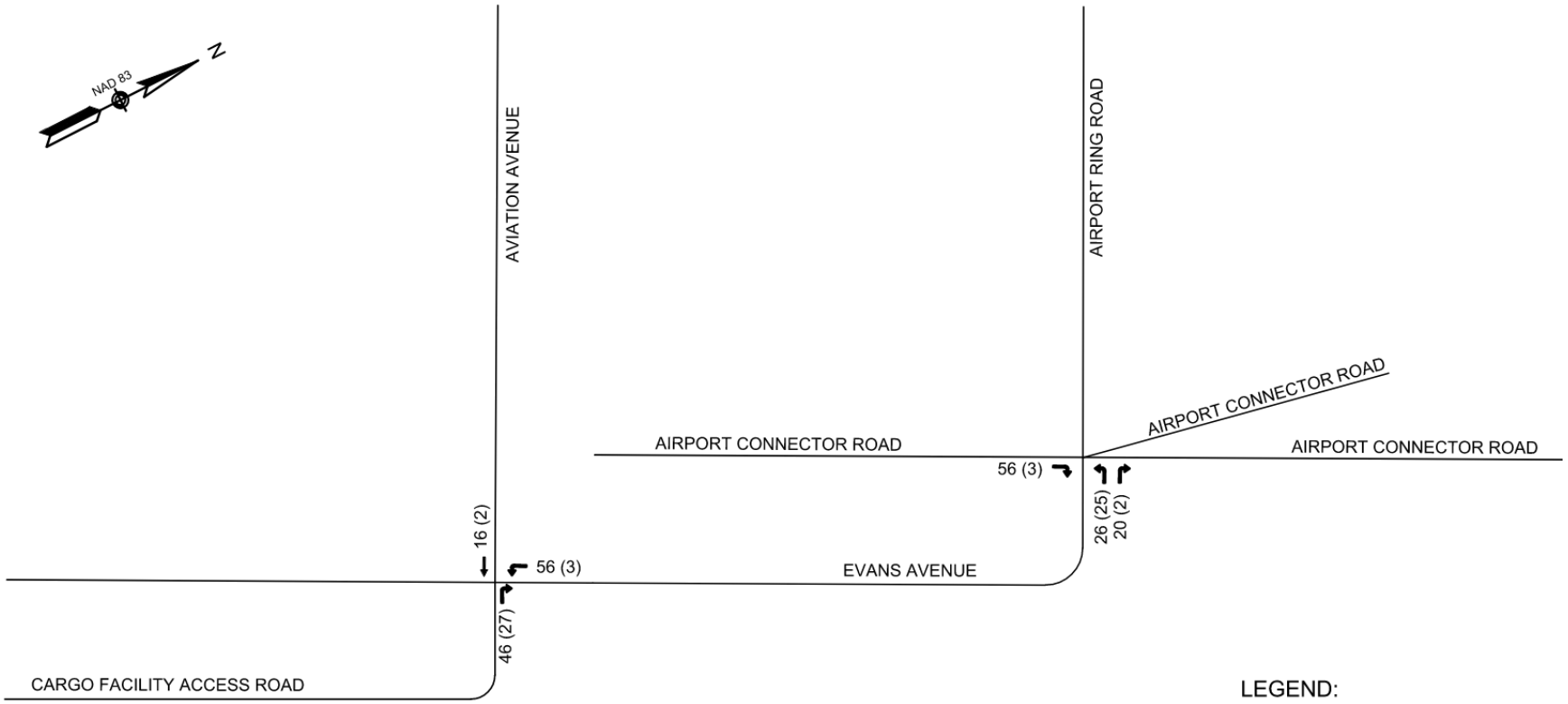
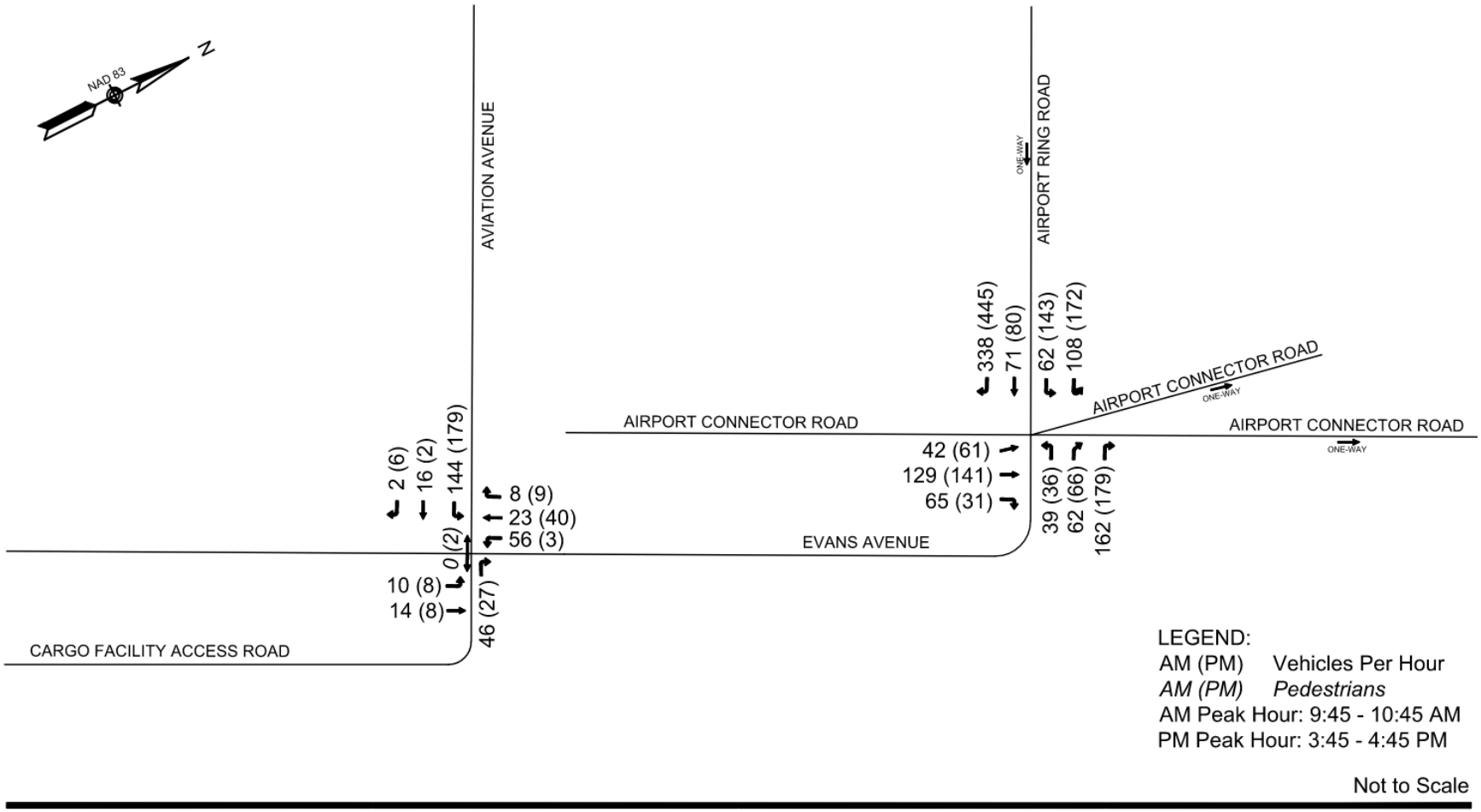


Figure 6: 2043 Build Peak Hour Traffic Volumes



FUTURE INTERSECTION OPERATIONS

Multi-Way Stop Warrant

The Manual of Uniform Traffic Control Devices (MUTCD) provides guidance on criteria to consider for a multi-way stop installation. The criteria includes minimum traffic volumes or a need to increase safety based on limited sight distance. Multi-way stops can be efficient at controlling traffic when sight distance is limited such that a driver cannot see conflicting traffic and navigate safely through an intersection. CHA investigated if minor street stops would be acceptable at the study area intersections, or if multi-way stops would be required.

Evans Avenue at Aviation Avenue and Cargo Facility Access Road

It was determined the Evans Avenue at Aviation Avenue intersection does not meet the minimum traffic volumes required for an all-way stop condition even with the addition of the South Cargo Development and Access Road. In addition, the intersection has acceptable sight distance as a two-way stop intersection. An all-way stop condition is not recommended for at Evans Avenue at Aviation Avenue.

Evans Avenue at Airport Connector Road

The intersection of Evans Avenue at Airport Connector Road does not meet the minimum volume requirements for an all-way stop condition. However, due to the curvature of Evans Avenue as it approaches the intersection, atypical lane geometry at the intersection, and sight obstructions such as overhead columns, median barriers, and vegetation, the sight distance at Airport Ring Road, Airport Connector Road and Evans Avenue is not acceptable. Due to sight distance limitations, CHA concluded this intersection could feasibly operate as an all-way stop and performed an operational analysis (see Level of Service Traffic Operations).

Traffic Signal Warrant

The MUTCD regulates the criteria for new traffic signal installation and maintaining signal operations. Signal warrants were reviewed in conjunction with traffic volumes, geometric and speed conditions to determine if a signal could be maintained at the Evans Avenue and Airport Connector Road intersection. There are nine individual warrants that need to be considered to justify the installation of a traffic control signal. Meeting the requirements of one or more warrants alone does not mean that signals are required at a given location. Note, Airport Ring Road has a channelized right turn lane with dedicated receiving lane, so these volumes were removed from consideration. **Table 3** summarizes the finding for the traffic signal warrant analysis.

Table 3: MUTCD Traffic Signal Control Warrant Summary

	Evans Avenue at Airport Connector Road
Warrant	Satisfied?
Warrant 1: Eight-Hour Vehicular Volume	No
Warrant 2: Four-Hour Vehicular Volume	No
Warrant 3: Peak Hour	No
Warrant 4: Pedestrian Volume	N/A
Warrant 5: School Crossing	N/A
Warrant 6: Coordinate Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

Evans Avenue at Airport Connector Road does not meet any of the signal warrants, so it is not considered viable to maintain a signal. CHA notes the signal may improve safety due to the sight distance issues, atypical lane geometry, and context of the intersection; however, since there are viable other intersection controls (all-way stop and roundabout), CHA did not perform an operational analysis for the signal at this time.

Level of Service Operational Analysis

CHA conducted operational assessments using the unadjusted existing 2023 and projected 2043 AM and PM peak hour volumes. Adjustments were made to the models to include characteristics of the study area such as heavy vehicles and pedestrian crossings. Existing (2023), No-Build (2043), and Build (2043) analysis(es) were performed for each intersection as described below. Consistent with accepted traffic analysis software, the stop-controlled and signalized scenarios were evaluated using Synchro 11 software and the roundabout was evaluated using the Georgia Department of Transportation (GDOT) roundabout spreadsheet. The GDOT roundabout spreadsheet was used because it is industry recognized as an acceptable tool to perform a capacity analysis on mini, single-lane, and multi-lane roundabouts. The spreadsheet utilizes Highway Capacity Manual (HCM) 2010 Edition methodology for mini roundabouts and HCM 6th Edition methodology for single-lane and multi-lane roundabouts.

Level of service (LOS) is a qualitative measure of control delay at an intersection providing an index to the operational qualities of a roadway or intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. A LOS of D or better is generally considered acceptable for signalized and unsignalized movements during peak periods. LOS E indicates vehicles experience significant delay while LOS F suggests unacceptable delay for the average vehicle. **Table 4** below presents the level of service delay threshold criteria as defined in the 2000 Highway Capacity Manual (HCM).

Table 4: HCM Intersection Level of Service

LOS	Control Delay per Vehicle (Seconds)	
	Signalized	**Unsignalized**
A	10 or less	10 or less
B	10-20	10-15
C	20-35	15-25
D	35-55	25-35
E	55-80	35-50
F	> 80	> 50

The Build (2043) operational analyses evaluated the feasibility of one treatment at the Aviation Avenue intersection and two treatments at the Airport Connector Road intersection. The operational analysis Build scenarios for each intersection are summarized below:

Evans Avenue at Aviation Avenue and Cargo Facility Access Road

- Two-way stop with new Cargo Facility Access Road stop-controlled.

Evans Avenue at Airport Connector Road

- Single-lane roundabout with bypass right-only lane from Airport Ring Road eastbound to Airport Connector Road southbound.
- Maintain existing geometry; all-way stop, with bypass right-only lane from Airport Ring Road eastbound to Airport Connector Road southbound.

The capacity analysis results are shown in **Table 5** below.

Table 5: Level of Service Comparison

				Existing (2023)					No Build (2043)					Build Alt 1 (2043)					Build Alt 2 (2043)				
Peak Period		Intersection & Approach		Lane Group	LOS	v/c Ratio	Delay (sec/veh)	95th Queue Length (ft)	LOS	v/c Ratio	Delay (sec/veh)	95th Queue Length (ft)	Lane Group	LOS	v/c Ratio	Delay (sec/veh)	95th Queue Length (ft)	Lane Group	LOS	v/c Ratio	Delay (sec/veh)	95th Queue Length (ft)
AM Peak	1	Evans Avenue & Airport Connector Road (Existing & No-Build Signalized, Build Alt 1 Roundabout, Build Alt 2 All Way Stop)																				
		Ring Road	Eastbound	L	B	0.16	14.5	48	B	0.20	14.6	55	T	A	0.20	4.4	18	L	B	0.33	12.1	35
				T	B	0.05	14.0	20	B	0.16	14.3	46	R	A	0.27	0.0	27	T	A	0.13	9.4	10
				R	A	0.18	0.2	0	A	0.23	0.3	0	-	-	-	-	-	R	B	0.52	13.3	75
		Connector Road	Northbound	TR	C	0.69	26.3	93	C	0.70	26.6	103	TR	A	0.28	6.8	34	TR	B	0.46	14.8	60
		Evans Avenue	Westbound	L	B	0.03	11.6	12	B	0.03	11.6	13	TR	A	0.33	7.7	37	L	B	0.08	11.0	8
				R	B	0.10	12.0	28	B	0.23	12.6	57	-	-	-	-	-	R	B	0.41	13.1	50
		Overall Intersection			**B**	**0.34**	**11.8**	**-**	**B**	**0.38**	**11.4**	**-**	**-**	**A**	**-**	**6.4**	**-**	**-**	**B**	**-**	**13.1**	**-**
	2	Evans Avenue & Aviation Avenue (Minor Street Stop)																				
		Aviation Avenue	Eastbound	LR	A	0.15	9.6	14	A	0.17	9.6	15	L	B	0.22	11.6	21	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	TR	B	0.03	10.3	2	-	-	-	-	-
		Evans Avenue	Northbound	LT	A	0.01	3.1	1	A	0.01	3.1	1	LTR	A	0.01	3.1	1	-	-	-	-	-
		Evans Avenue	Southbound	TR	A	0.02	0.0	0	A	0.02	0.0	0	LTR	A	0.05	5.2	4	-	-	-	-	-
		Cargo Facility Access Road	Westbound	-	-	-	-	-	-	-	-	-	LTR	B	0.10	12.7	8	-	-	-	-	-
		Overall Intersection			**A**	**-**	**6.8**	**-**	**A**	**-**	**7.3**	**-**	**-**	**A**		**9.3**	**-**	**-**	**-**	**-**	**-**	**-**
PM Peak	1	Evans Avenue & Airport Connector Road (Existing & No-Build Signalized, Build Alt 1 Roundabout, Build Alt 2 All Way Stop)																				
		Ring Road	Eastbound	L	B	0.53	18.1	116	B	0.58	19.0	152	T	A	0.33	5.7	36	L	C	0.62	19.1	103
				T	B	0.07	15.1	25	B	0.19	15.7	51	R	A	0.35	0.0	40	T	A	0.15	9.7	13
				R	A	0.26	0.4	0	A	0.30	0.5	0	-	-	-	-	-	R	C	0.71	19.7	145
		Connector Road	Northbound	TR	C	0.62	21.6	116	C	0.67	23.3	144	TR	A	0.29	7.2	31	TR	C	0.50	16.9	70
		Evans Avenue	Westbound	L	B	0.02	12.6	11	B	0.02	12.7	12	TR	B	0.44	11.2	61	L	B	0.10	12.6	8
				R	B	0.19	13.5	42	B	0.28	14.1	63	-	-	-	-	-	R	C	0.49	15.8	68
		Overall Intersection			**B**	**0.48**	**11.7**	**-**	**B**	**0.53**	**12.4**	**-**	**-**	**A**	**-**	**7.8**	**-**	**-**	**C**	**-**	**17.6**	**-**
	2	Evans Avenue & Aviation Avenue (Minor Street Stop)																				
		Aviation Avenue	Eastbound	LR	A	0.17	9.6	15	A	0.21	9.9	20	L	B	0.22	10.3	21	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	TR	A	0.01	8.8	1	-	-	-	-	-
		Evans Avenue	Northbound	LT	A	0.01	3.7	0	A	0.01	3.7	0	LTR	A	0.01	3.7	0	-	-	-	-	-
		Evans Avenue	Southbound	TR	A	0.03	0.0	0	A	0.03	0.0	0	LTR	A	0.00	0.4	0	-	-	-	-	-
		Cargo Facility Access Road	Westbound	-	-	-	-	-	-	-	-	-	LTR	B	0.07	13.7	5	-	-	-	-	-
		Overall Intersection			**A**	**-**	**7.6**	**-**	**A**	**-**	**7.6**	**-**	**-**	**A**	**-**	**8.4**	**-**	**-**	**-**	**-**	**-**	**-**

Notes: L = Left Turn, T= Through, R = Right Turn; LOS = Level of Service.

1. The results were reported using HCM 2000 methodology.
2. Queue lengths at signalized intersections were reported using Synchro 11.
3. The results for Build Alt 2, All-Way Stop, were reported using HCM 2010 methodology.

The 2023 Existing Conditions analysis results indicate that the Evans Avenue at Airport Connector Road intersection performs at a level of service (LOS) B in both the morning and afternoon peak hours with the existing traffic signal. The 2043 No-Build conditions are comparable, also operating at LOS B with no significant change in delays. The Build condition with the construction of a roundabout shows an improvement over existing conditions, with the intersection operating at LOS A with lower delays in both the morning and afternoon. The Build condition with an all-way stop conditions operates at a LOS B in the morning peak hour and a LOS C in the afternoon peak hour, a slight downgrade in performance. This scenario would result in slightly higher delays than the existing conditions; however, both the all-way stop condition and roundabout operate with minimal delays and acceptable levels of service.

The intersection of Evans Avenue at Aviation Avenue operates at a LOS A today in the Existing Conditions with very little delay. The 2043 No-Build condition also operates at LOS A. The 2043 Build Condition with the addition of the Cargo Facility Access Road maintains LOS A for both peak hours; however, there is a slight increase in delays for Aviation Avenue. Although this is the case, the performance of this approach and the Access Road are each LOS B and no noticeable traffic impacts are expected.

CONCLUSION

The results of this study indicate the intersection of Evans Avenue and Aviation Avenue should be maintained as a two-way stop condition and will operate with minimal delays with the addition of the South Cargo Development. The addition of the Access Road and increased traffic volumes due to the addition of the South Cargo Development is not expected to have a significant impact on capacity. It is recommended the design proceed with Aviation Avenue and the Cargo Facility Access Road being stop-controlled.

The results of this study indicate the intersection of Evans Avenue and Airport Connector Road should not be signalized in the future. The intersection will operate with minimal delays with the roundabout alternative. Increased traffic volumes due to the addition of the South Cargo Development and relocated cell phone lot are not expected to have a significant impact on capacity. The all-way stop control alternative is a viable alternative with slightly increased delays over existing signalized operations and the roundabout alternative. The roundabout alternative will result in slower speeds and improved safety by reducing conflicts between turning vehicles. For this reason, it is recommended the design proceed with the roundabout alternative.

We hope this information is helpful. Please do not hesitate to let us know if you have any questions

ATTACHMENTS

- Traffic Counts
- Warrant Analysis
- Synchro Analysis
- Roundabout Analysis

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport)
just north of Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

05739Avolume
Site Code: 79556.001

Start Time	12-Aug-23 Sat	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.	13-Aug Sun	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.
12:00		***26***	33	5	9	***31***	42		14	21	3	4	17	25
12:15		***39***	24	8	9	***47***	33		8	18	0	4	8	22
12:30		***30***	24	3	7	***33***	31		0	16	0	4	0	20
12:45		***36***	20	3	***7***	***39***	27		3	26	1	3	4	29
01:00		14	28	4	***6***	18	34		15	30	1	6	16	36
01:15		14	26	0	***12***	14	38		22	33	1	6	23	39
01:30		7	23	1	***11***	8	34		10	35	0	2	10	37
01:45		2	8	1	6	3	14		9	22	1	7	10	29
02:00		1	12	0	5	1	17		9	27	2	6	11	33
02:15		6	13	0	6	6	19		9	16	1	5	10	21
02:30		1	26	1	11	2	37		7	19	2	5	9	24
02:45		0	44	1	9	1	53		3	41	1	12	4	53
03:00		2	35	5	7	7	42		0	39	1	6	1	45
03:15		3	24	6	5	9	29		2	33	5	4	7	37
03:30		2	27	10	6	12	33		6	20	9	4	15	24
03:45		5	24	***10***	6	15	30		3	20	7	6	10	26
04:00		5	27	***16***	5	21	32		4	15	10	3	14	18
04:15		4	20	***11***	7	15	27		5	14	***13***	6	18	20
04:30		5	***45***	***17***	8	22	***53***		0	28	***25***	***9***	25	37
04:45		7	***40***	10	5	17	***45***		5	34	***12***	***6***	17	40
05:00		4	***38***	8	4	12	***42***		3	32	***11***	***8***	14	***40***
05:15		3	***29***	14	2	17	***31***		1	27	5	***7***	6	***34***
05:30		3	16	11	9	14	25		0	38	4	8	4	***46***
05:45		1	6	8	4	9	10		2	45	8	4	10	***49***
06:00		2	9	6	5	8	14		0	23	5	4	5	27
06:15		2	14	4	5	6	19		0	11	6	5	6	16
06:30		1	11	6	5	7	16		2	18	0	2	2	20
06:45		3	5	6	2	9	7		4	25	1	3	5	28
07:00		1	9	2	2	3	11		4	22	1	6	5	28
07:15		3	8	2	2	5	10		3	25	3	3	6	28
07:30		2	14	6	1	8	15		0	23	6	4	6	27
07:45		2	21	4	4	6	25		4	8	8	0	12	8
08:00		6	17	0	3	6	20		4	2	2	2	6	4
08:15		6	12	7	1	13	13		11	7	1	1	12	8
08:30		5	14	3	1	8	15		2	20	3	2	5	22
08:45		5	15	8	2	13	17		4	20	2	3	6	23
09:00		2	16	5	3	7	19		6	28	3	7	9	35
09:15		7	34	0	1	7	35		18	26	3	4	21	30
09:30		9	13	3	2	12	15		17	8	3	0	20	8
09:45		10	19	4	3	14	22		12	4	2	0	14	4
10:00		17	21	4	2	21	23		3	7	1	1	4	8
10:15		7	26	7	0	14	26		15	8	7	1	22	9
10:30		6	28	6	4	12	32		11	18	4	2	15	20
10:45		9	23	9	2	18	25		***17***	20	4	2	21	22
11:00		8	33	3	1	11	34		***13***	***33***	6	3	***19***	36
11:15		15	18	8	2	23	20		***15***	***41***	7	4	***22***	45
11:30		15	14	11	1	26	15		***13***	***41***	7	3	***20***	44
11:45		25	17	8	1	33	18		15	***37***	8	1	***23***	38
Total		388	1023	275	221	663	1244		333	1124	216	198	549	1322
Day Total		1411		496		1907			1457		414		1871	
% Total		20.3%	53.6%	14.4%	11.6%				17.8%	60.1%	11.5%	10.6%		
Peak	-	12:00	04:30	03:45	00:45	12:00	04:30	-	10:45	11:00	04:15	04:30	11:00	05:00
Vol.	-	131	152	54	36	150	171	-	58	152	61	30	84	169
P.H.F.		0.840	0.844	0.794	0.750	0.798	0.807		0.659	0.844	0.610	0.833	0.913	0.862

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport)
just north of Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

05739Avolume
Site Code: 79556.001

Start Time	14-Aug-23 Mon	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.	15-Aug Tue	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.
12:00		***32***	14	5	6	***37***	20		14	35	0	5	14	40
12:15		***33***	12	2	2	***35***	14		15	22	2	3	17	25
12:30		***29***	22	3	6	***32***	28		34	19	3	8	37	27
12:45		***20***	29	2	14	***22***	43		28	14	2	9	30	23
01:00		21	30	4	5	25	35		27	22	1	7	28	29
01:15		12	29	1	4	13	33		16	26	1	4	17	30
01:30		10	13	1	3	11	16		1	19	0	3	1	22
01:45		5	16	0	4	5	20		1	17	0	3	1	20
02:00		0	14	0	5	0	19		0	35	0	5	0	40
02:15		2	29	0	9	2	38		5	35	1	3	6	38
02:30		5	30	1	6	6	36		3	38	1	7	4	45
02:45		6	36	3	5	9	41		5	37	2	9	7	46
03:00		14	32	1	***7***	15	39		5	35	2	10	7	45
03:15		0	26	4	***9***	4	35		11	23	4	9	15	32
03:30		6	15	7	***7***	13	22		10	20	4	***11***	14	31
03:45		5	19	11	***8***	16	27		3	14	5	***9***	8	23
04:00		3	***27***	8	4	11	31		4	15	9	***11***	13	26
04:15		3	***43***	***14***	10	17	***53***		0	27	13	***10***	13	37
04:30		4	***40***	***20***	6	24	***46***		4	53	5	7	9	***60***
04:45		7	***42***	***16***	8	23	***50***		2	17	6	7	8	***24***
05:00		4	26	***11***	7	15	***33***		2	42	***10***	11	12	***53***
05:15		3	14	11	2	14	16		3	62	***13***	10	16	***72***
05:30		4	13	8	4	12	17		2	37	***14***	3	16	40
05:45		1	34	13	5	14	39		5	***28***	***8***	2	13	30
06:00		3	44	4	6	7	50		6	***47***	5	9	11	56
06:15		1	45	4	3	5	48		1	***70***	2	3	3	73
06:30		1	26	0	2	1	28		3	***43***	4	3	7	46
06:45		4	19	2	2	6	21		7	21	4	4	11	25
07:00		4	15	3	3	7	18		9	12	7	1	16	13
07:15		6	21	2	3	8	24		7	25	5	2	12	27
07:30		7	9	2	1	9	10		6	9	6	3	12	12
07:45		8	8	1	3	9	11		8	10	4	2	12	12
08:00		5	9	5	1	10	10		8	7	4	0	12	7
08:15		9	15	5	1	14	16		9	8	5	0	14	8
08:30		7	11	4	1	11	12		6	23	2	1	8	24
08:45		7	11	10	4	17	15		5	6	9	1	14	7
09:00		9	19	1	3	10	22		12	11	9	0	21	11
09:15		28	11	6	1	34	12		17	23	2	3	19	26
09:30		12	4	1	0	13	4		***25***	32	7	3	***32***	35
09:45		11	10	4	2	15	12		***20***	16	2	4	***22***	20
10:00		13	27	3	6	16	33		***21***	8	5	1	***26***	9
10:15		15	14	2	2	17	16		***49***	23	9	3	***58***	26
10:30		12	21	8	1	20	22		17	23	8	5	25	28
10:45		11	17	5	2	16	19		10	27	8	3	18	30
11:00		14	11	6	1	20	12		12	33	10	5	22	38
11:15		30	15	5	3	35	18		13	29	9	1	22	30
11:30		32	20	5	3	37	23		26	18	8	2	34	20
11:45		21	19	6	4	27	23		35	18	3	2	38	20
Total		499	1026	240	204	739	1230		532	1234	243	227	775	1461
Day Total		1525		444		1969			1766		470		2236	
% Total		25.3%	52.1%	12.2%	10.4%				23.8%	55.2%	10.9%	10.2%		
Peak	-	12:00	04:00	04:15	03:00	12:00	04:15	-	09:30	05:45	05:00	03:30	09:30	04:30
Vol.	-	114	152	61	31	126	182	-	115	188	45	41	138	209
P.H.F.		0.864	0.884	0.763	0.554	0.851	0.858		0.587	0.671	0.804	0.932	0.595	0.726

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	16-Aug-23	NB		SB		Combined		17-Aug	NB		SB		Combined	
Time	Wed	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		16	32	3	9	19	41		18	30	3	6	21	36
12:15		14	44	1	10	15	54		32	21	3	5	35	26
12:30		7	18	0	4	7	22		22	20	3	3	25	23
12:45		2	49	0	5	2	54		27	36	4	7	31	43
01:00		4	26	0	8	4	34		10	41	1	8	11	49
01:15		25	19	3	8	28	27		8	28	2	6	10	34
01:30		18	29	1	5	19	34		8	13	2	10	10	23
01:45		18	12	2	2	20	14		4	21	0	6	4	27
02:00		14	19	3	8	17	27		3	17	0	7	3	24
02:15		22	35	5	8	27	43		1	19	0	9	1	28
02:30		12	21	2	7	14	28		2	19	2	4	4	23
02:45		1	28	1	11	2	39		0	33	4	10	4	43
03:00		4	32	2	5	6	37		1	49	2	12	3	61
03:15		6	33	5	14	11	47		5	45	2	11	7	56
03:30		6	11	5	7	11	18		6	28	4	8	10	36
03:45		4	11	9	8	13	19		5	33	8	9	13	42
04:00		6	29	8	9	14	38		3	32	5	8	8	40
04:15		5	***53***	13	***10***	18	***63***		3	42	15	9	18	51
04:30		4	***39***	***12***	***12***	16	***51***		9	37	13	***14***	22	51
04:45		5	***40***	***11***	***7***	16	***47***		4	31	***21***	***9***	25	40
05:00		2	***49***	***4***	***13***	6	***62***		1	19	***13***	***12***	14	31
05:15		2	33	***19***	5	21	38		3	10	***17***	***13***	20	23
05:30		5	34	7	2	12	36		3	12	***15***	5	18	17
05:45		3	22	10	4	13	26		5	39	14	8	19	47
06:00		6	30	9	4	15	34		5	***45***	6	5	11	***50***
06:15		1	43	7	4	8	47		2	***76***	5	12	7	***88***
06:30		6	24	3	2	9	26		5	***65***	5	7	10	***72***
06:45		4	11	4	2	8	13		10	***51***	9	3	19	***54***
07:00		12	14	10	2	22	16		8	25	5	1	13	26
07:15		8	26	7	5	15	31		4	14	1	2	5	16
07:30		5	8	4	3	9	11		7	20	3	3	10	23
07:45		9	9	6	0	15	9		14	13	6	4	20	17
08:00		9	3	3	1	12	4		7	8	6	0	13	8
08:15		5	9	10	1	15	10		9	4	5	0	14	4
08:30		9	10	8	0	17	10		10	10	6	0	16	10
08:45		11	16	5	1	16	17		10	10	9	2	19	12
09:00		13	29	9	1	22	30		8	14	8	2	16	16
09:15		15	30	5	3	20	33		6	23	13	2	19	25
09:30		***24***	20	5	1	***29***	21		15	7	5	0	20	7
09:45		***22***	16	7	1	***29***	17		***34***	17	8	2	***42***	19
10:00		***15***	12	3	1	***18***	13		***26***	21	4	0	***30***	21
10:15		***29***	10	8	1	***37***	11		***27***	11	9	0	***36***	11
10:30		15	22	7	2	22	24		***31***	40	8	1	***39***	41
10:45		12	29	7	2	19	31		24	37	11	2	35	39
11:00		8	22	7	3	15	25		18	37	11	1	29	38
11:15		9	31	7	3	16	34		16	25	6	3	22	28
11:30		14	29	8	1	22	30		22	18	6	2	28	20
11:45		31	26	7	3	38	29		28	24	10	0	38	24
Total		497	1197	282	228	779	1425		529	1290	318	253	847	1543
Day Total		1694		510		2204			1819		571		2390	
% Total		22.5%	54.3%	12.8%	10.3%				22.1%	54.0%	13.3%	10.6%		
Peak	-	09:30	04:15	04:30	04:15	09:30	04:15	-	09:45	06:00	04:45	04:30	09:45	06:00
Vol.	-	90	181	46	42	113	223	-	118	237	66	48	147	264
P.H.F.		0.776	0.854	0.605	0.808	0.764	0.885		0.868	0.780	0.786	0.857	0.875	0.750

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport)
just north of Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

05739Avolume
Site Code: 79556.001

Start Time	18-Aug-23 Fri	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.	19-Aug Sat	NB A.M.	NB P.M.	SB A.M.	SB P.M.	Combined A.M.	Combined P.M.
12:00		20	46	3	2	23	48		*	*	*	*	*	*
12:15		11	16	0	3	11	19		*	*	*	*	*	*
12:30		22	11	1	11	23	22		*	*	*	*	*	*
12:45		28	11	3	7	31	18		*	*	*	*	*	*
01:00		19	14	0	2	19	16		*	*	*	*	*	*
01:15		6	13	1	9	7	22		*	*	*	*	*	*
01:30		9	34	2	8	11	42		*	*	*	*	*	*
01:45		8	30	1	5	9	35		*	*	*	*	*	*
02:00		1	20	0	8	1	28		*	*	*	*	*	*
02:15		2	27	0	6	2	33		*	*	*	*	*	*
02:30		1	31	0	8	1	39		*	*	*	*	*	*
02:45		1	33	1	8	2	41		*	*	*	*	*	*
03:00		1	32	1	8	2	40		*	*	*	*	*	*
03:15		1	25	0	9	1	34		*	*	*	*	*	*
03:30		3	31	6	***13***	9	44		*	*	*	*	*	*
03:45		2	21	8	***7***	10	28		*	*	*	*	*	*
04:00		2	35	16	***10***	18	45		*	*	*	*	*	*
04:15		5	34	10	***12***	15	46		*	*	*	*	*	*
04:30		4	51	8	8	12	59		*	*	*	*	*	*
04:45		1	33	***15***	9	16	42		*	*	*	*	*	*
05:00		2	20	***11***	9	13	29		*	*	*	*	*	*
05:15		2	15	***11***	6	13	21		*	*	*	*	*	*
05:30		2	19	***16***	5	18	24		*	*	*	*	*	*
05:45		4	***56***	11	8	15	***64***		*	*	*	*	*	*
06:00		8	***45***	8	6	16	***51***		*	*	*	*	*	*
06:15		2	***41***	7	6	9	***47***		*	*	*	*	*	*
06:30		6	***48***	5	9	11	***57***		*	*	*	*	*	*
06:45		4	30	2	3	6	33		*	*	*	*	*	*
07:00		8	14	5	3	13	17		*	*	*	*	*	*
07:15		3	30	4	2	7	32		*	*	*	*	*	*
07:30		8	17	2	6	10	23		*	*	*	*	*	*
07:45		15	10	7	2	22	12		*	*	*	*	*	*
08:00		15	5	2	1	17	6		*	*	*	*	*	*
08:15		10	14	5	2	15	16		*	*	*	*	*	*
08:30		6	10	4	0	10	10		*	*	*	*	*	*
08:45		6	6	6	0	12	6		*	*	*	*	*	*
09:00		4	6	4	0	8	6		*	*	*	*	*	*
09:15		5	17	4	2	9	19		*	*	*	*	*	*
09:30		11	27	2	2	13	29		*	*	*	*	*	*
09:45		7	18	2	2	9	20		*	*	*	*	*	*
10:00		12	12	5	1	17	13		*	*	*	*	*	*
10:15		27	26	4	3	***31***	29		*	*	*	*	*	*
10:30		39	34	12	3	***51***	37		*	*	*	*	*	*
10:45		15	37	9	2	***24***	39		*	*	*	*	*	*
11:00		***37***	22	5	5	***42***	27		*	*	*	*	*	*
11:15		***26***	22	3	1	29	23		*	*	*	*	*	*
11:30		***24***	35	8	4	32	39		*	*	*	*	*	*
11:45		***38***	25	5	3	43	28		*	*	*	*	*	*
Total		493	1209	245	249	738	1458		0	0	0	0	0	0
Day Total		1702		494		2196			0		0		0	
% Total		22.4%	55.1%	11.2%	11.3%				0.0%	0.0%	0.0%	0.0%		
Peak	-	11:00	05:45	04:45	03:30	10:15	05:45	-	-	-	-	-	-	-
Vol.	-	125	190	53	42	148	219	-	-	-	-	-	-	-
P.H.F.		0.801	0.848	0.828	0.808	0.725	0.855							

ADT	ADT 2,110	AADT 2,110

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	12-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Sat	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		26	33			5	9				
12:15		39	24			8	9				
12:30		30	24			3	7				
12:45		36	20	131	101	3	7	19	32	150	133
01:00		14	28			4	6				
01:15		14	26			0	12				
01:30		7	23			1	11				
01:45		2	8	37	85	1	6	6	35	43	120
02:00		1	12			0	5				
02:15		6	13			0	6				
02:30		1	26			1	11				
02:45		0	44	8	95	1	9	2	31	10	126
03:00		2	35			5	7				
03:15		3	24			6	5				
03:30		2	27			10	6				
03:45		5	24	12	110	10	6	31	24	43	134
04:00		5	27			16	5				
04:15		4	20			11	7				
04:30		5	45			17	8				
04:45		7	40	21	132	10	5	54	25	75	157
05:00		4	38			8	4				
05:15		3	29			14	2				
05:30		3	16			11	9				
05:45		1	6	11	89	8	4	41	19	52	108
06:00		2	9			6	5				
06:15		2	14			4	5				
06:30		1	11			6	5				
06:45		3	5	8	39	6	2	22	17	30	56
07:00		1	9			2	2				
07:15		3	8			2	2				
07:30		2	14			6	1				
07:45		2	21	8	52	4	4	14	9	22	61
08:00		6	17			0	3				
08:15		6	12			7	1				
08:30		5	14			3	1				
08:45		5	15	22	58	8	2	18	7	40	65
09:00		2	16			5	3				
09:15		7	34			0	1				
09:30		9	13			3	2				
09:45		10	19	28	82	4	3	12	9	40	91
10:00		17	21			4	2				
10:15		7	26			7	0				
10:30		6	28			6	4				
10:45		9	23	39	98	9	2	26	8	65	106
11:00		8	33			3	1				
11:15		15	18			8	2				
11:30		15	14			11	1				
11:45		25	17	63	82	8	1	30	5	93	87
Total		388	1023			275	221			663	1244
Combined Total		1411				496				1907	
Percentage	0.0%										

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	13-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Sun	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		14	21			3	4				
12:15		8	18			0	4				
12:30		0	16			0	4				
12:45		3	26	25	81	1	3	4	15	29	96
01:00		15	30			1	6				
01:15		22	33			1	6				
01:30		10	35			0	2				
01:45		9	22	56	120	1	7	3	21	59	141
02:00		9	27			2	6				
02:15		9	16			1	5				
02:30		7	19			2	5				
02:45		3	41	28	103	1	12	6	28	34	131
03:00		0	39			1	6				
03:15		2	33			5	4				
03:30		6	20			9	4				
03:45		3	20	11	112	7	6	22	20	33	132
04:00		4	15			10	3				
04:15		5	14			13	6				
04:30		0	28			25	9				
04:45		5	34	14	91	12	6	60	24	74	115
05:00		3	32			11	8				
05:15		1	27			5	7				
05:30		0	38			4	8				
05:45		2	45	6	142	8	4	28	27	34	169
06:00		0	23			5	4				
06:15		0	11			6	5				
06:30		2	18			0	2				
06:45		4	25	6	77	1	3	12	14	18	91
07:00		4	22			1	6				
07:15		3	25			3	3				
07:30		0	23			6	4				
07:45		4	8	11	78	8	0	18	13	29	91
08:00		4	2			2	2				
08:15		11	7			1	1				
08:30		2	20			3	2				
08:45		4	20	21	49	2	3	8	8	29	57
09:00		6	28			3	7				
09:15		18	26			3	4				
09:30		17	8			3	0				
09:45		12	4	53	66	2	0	11	11	64	77
10:00		3	7			1	1				
10:15		15	8			7	1				
10:30		11	18			4	2				
10:45		17	20	46	53	4	2	16	6	62	59
11:00		13	33			6	3				
11:15		15	41			7	4				
11:30		13	41			7	3				
11:45		15	37	56	152	8	1	28	11	84	163
Total		333	1124			216	198			549	1322
Combined Total		1457				414				1871	
Percentage	0.0%										

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	14-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Mon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		32	14			5	6				
12:15		33	12			2	2				
12:30		29	22			3	6				
12:45		20	29	114	77	2	14	12	28	126	105
01:00		21	30			4	5				
01:15		12	29			1	4				
01:30		10	13			1	3				
01:45		5	16	48	88	0	4	6	16	54	104
02:00		0	14			0	5				
02:15		2	29			0	9				
02:30		5	30			1	6				
02:45		6	36	13	109	3	5	4	25	17	134
03:00		14	32			1	7				
03:15		0	26			4	9				
03:30		6	15			7	7				
03:45		5	19	25	92	11	8	23	31	48	123
04:00		3	27			8	4				
04:15		3	43			14	10				
04:30		4	40			20	6				
04:45		7	42	17	152	16	8	58	28	75	180
05:00		4	26			11	7				
05:15		3	14			11	2				
05:30		4	13			8	4				
05:45		1	34	12	87	13	5	43	18	55	105
06:00		3	44			4	6				
06:15		1	45			4	3				
06:30		1	26			0	2				
06:45		4	19	9	134	2	2	10	13	19	147
07:00		4	15			3	3				
07:15		6	21			2	3				
07:30		7	9			2	1				
07:45		8	8	25	53	1	3	8	10	33	63
08:00		5	9			5	1				
08:15		9	15			5	1				
08:30		7	11			4	1				
08:45		7	11	28	46	10	4	24	7	52	53
09:00		9	19			1	3				
09:15		28	11			6	1				
09:30		12	4			1	0				
09:45		11	10	60	44	4	2	12	6	72	50
10:00		13	27			3	6				
10:15		15	14			2	2				
10:30		12	21			8	1				
10:45		11	17	51	79	5	2	18	11	69	90
11:00		14	11			6	1				
11:15		30	15			5	3				
11:30		32	20			5	3				
11:45		21	19	97	65	6	4	22	11	119	76
Total		499	1026			240	204			739	1230
Combined Total		1525				444				1969	
Percentage	0.0%										

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	15-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		14	35			0	5				
12:15		15	22			2	3				
12:30		34	19			3	8				
12:45		28	14	91	90	2	9	7	25	98	115
01:00		27	22			1	7				
01:15		16	26			1	4				
01:30		1	19			0	3				
01:45		1	17	45	84	0	3	2	17	47	101
02:00		0	35			0	5				
02:15		5	35			1	3				
02:30		3	38			1	7				
02:45		5	37	13	145	2	9	4	24	17	169
03:00		5	35			2	10				
03:15		11	23			4	9				
03:30		10	20			4	11				
03:45		3	14	29	92	5	9	15	39	44	131
04:00		4	15			9	11				
04:15		0	27			13	10				
04:30		4	53			5	7				
04:45		2	17	10	112	6	7	33	35	43	147
05:00		2	42			10	11				
05:15		3	62			13	10				
05:30		2	37			14	3				
05:45		5	28	12	169	8	2	45	26	57	195
06:00		6	47			5	9				
06:15		1	70			2	3				
06:30		3	43			4	3				
06:45		7	21	17	181	4	4	15	19	32	200
07:00		9	12			7	1				
07:15		7	25			5	2				
07:30		6	9			6	3				
07:45		8	10	30	56	4	2	22	8	52	64
08:00		8	7			4	0				
08:15		9	8			5	0				
08:30		6	23			2	1				
08:45		5	6	28	44	9	1	20	2	48	46
09:00		12	11			9	0				
09:15		17	23			2	3				
09:30		25	32			7	3				
09:45		20	16	74	82	2	4	20	10	94	92
10:00		21	8			5	1				
10:15		49	23			9	3				
10:30		17	23			8	5				
10:45		10	27	97	81	8	3	30	12	127	93
11:00		12	33			10	5				
11:15		13	29			9	1				
11:30		26	18			8	2				
11:45		35	18	86	98	3	2	30	10	116	108
Total		532	1234			243	227			775	1461
Combined Total		1766				470				2236	
Percentage	0.0%										

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	16-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		16	32			3	9				
12:15		14	44			1	10				
12:30		7	18			0	4				
12:45		2	49	39	143	0	5	4	28	43	171
01:00		4	26			0	8				
01:15		25	19			3	8				
01:30		18	29			1	5				
01:45		18	12	65	86	2	2	6	23	71	109
02:00		14	19			3	8				
02:15		22	35			5	8				
02:30		12	21			2	7				
02:45		1	28	49	103	1	11	11	34	60	137
03:00		4	32			2	5				
03:15		6	33			5	14				
03:30		6	11			5	7				
03:45		4	11	20	87	9	8	21	34	41	121
04:00		6	29			8	9				
04:15		5	53			13	10				
04:30		4	39			12	12				
04:45		5	40	20	161	11	7	44	38	64	199
05:00		2	49			4	13				
05:15		2	33			19	5				
05:30		5	34			7	2				
05:45		3	22	12	138	10	4	40	24	52	162
06:00		6	30			9	4				
06:15		1	43			7	4				
06:30		6	24			3	2				
06:45		4	11	17	108	4	2	23	12	40	120
07:00		12	14			10	2				
07:15		8	26			7	5				
07:30		5	8			4	3				
07:45		9	9	34	57	6	0	27	10	61	67
08:00		9	3			3	1				
08:15		5	9			10	1				
08:30		9	10			8	0				
08:45		11	16	34	38	5	1	26	3	60	41
09:00		13	29			9	1				
09:15		15	30			5	3				
09:30		24	20			5	1				
09:45		22	16	74	95	7	1	26	6	100	101
10:00		15	12			3	1				
10:15		29	10			8	1				
10:30		15	22			7	2				
10:45		12	29	71	73	7	2	25	6	96	79
11:00		8	22			7	3				
11:15		9	31			7	3				
11:30		14	29			8	1				
11:45		31	26	62	108	7	3	29	10	91	118
Total		497	1197			282	228			779	1425
Combined Total		1694				510				2204	
Percentage	0.0%										

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	17-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		18	30			3	6				
12:15		32	21			3	5				
12:30		22	20			3	3				
12:45		27	36	99	107	4	7	13	21	112	128
01:00		10	41			1	8				
01:15		8	28			2	6				
01:30		8	13			2	10				
01:45		4	21	30	103	0	6	5	30	35	133
02:00		3	17			0	7				
02:15		1	19			0	9				
02:30		2	19			2	4				
02:45		0	33	6	88	4	10	6	30	12	118
03:00		1	49			2	12				
03:15		5	45			2	11				
03:30		6	28			4	8				
03:45		5	33	17	155	8	9	16	40	33	195
04:00		3	32			5	8				
04:15		3	42			15	9				
04:30		9	37			13	14				
04:45		4	31	19	142	21	9	54	40	73	182
05:00		1	19			13	12				
05:15		3	10			17	13				
05:30		3	12			15	5				
05:45		5	39	12	80	14	8	59	38	71	118
06:00		5	45			6	5				
06:15		2	76			5	12				
06:30		5	65			5	7				
06:45		10	51	22	237	9	3	25	27	47	264
07:00		8	25			5	1				
07:15		4	14			1	2				
07:30		7	20			3	3				
07:45		14	13	33	72	6	4	15	10	48	82
08:00		7	8			6	0				
08:15		9	4			5	0				
08:30		10	10			6	0				
08:45		10	10	36	32	9	2	26	2	62	34
09:00		8	14			8	2				
09:15		6	23			13	2				
09:30		15	7			5	0				
09:45		34	17	63	61	8	2	34	6	97	67
10:00		26	21			4	0				
10:15		27	11			9	0				
10:30		31	40			8	1				
10:45		24	37	108	109	11	2	32	3	140	112
11:00		18	37			11	1				
11:15		16	25			6	3				
11:30		22	18			6	2				
11:45		28	24	84	104	10	0	33	6	117	110
Total		529	1290			318	253			847	1543
Combined Total		1819				571				2390	
Percentage	0.0%										

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport) 05739Avolume
just north of Aviation Avenue Site Code: 79556.001
City, State: Warwick, RI
Client: CHA/E. Moshier

Start	18-Aug-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Fri	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		20	46			3	2				
12:15		11	16			0	3				
12:30		22	11			1	11				
12:45		28	11	81	84	3	7	7	23	88	107
01:00		19	14			0	2				
01:15		6	13			1	9				
01:30		9	34			2	8				
01:45		8	30	42	91	1	5	4	24	46	115
02:00		1	20			0	8				
02:15		2	27			0	6				
02:30		1	31			0	8				
02:45		1	33	5	111	1	8	1	30	6	141
03:00		1	32			1	8				
03:15		1	25			0	9				
03:30		3	31			6	13				
03:45		2	21	7	109	8	7	15	37	22	146
04:00		2	35			16	10				
04:15		5	34			10	12				
04:30		4	51			8	8				
04:45		1	33	12	153	15	9	49	39	61	192
05:00		2	20			11	9				
05:15		2	15			11	6				
05:30		2	19			16	5				
05:45		4	56	10	110	11	8	49	28	59	138
06:00		8	45			8	6				
06:15		2	41			7	6				
06:30		6	48			5	9				
06:45		4	30	20	164	2	3	22	24	42	188
07:00		8	14			5	3				
07:15		3	30			4	2				
07:30		8	17			2	6				
07:45		15	10	34	71	7	2	18	13	52	84
08:00		15	5			2	1				
08:15		10	14			5	2				
08:30		6	10			4	0				
08:45		6	6	37	35	6	0	17	3	54	38
09:00		4	6			4	0				
09:15		5	17			4	2				
09:30		11	27			2	2				
09:45		7	18	27	68	2	2	12	6	39	74
10:00		12	12			5	1				
10:15		27	26			4	3				
10:30		39	34			12	3				
10:45		15	37	93	109	9	2	30	9	123	118
11:00		37	22			5	5				
11:15		26	22			3	1				
11:30		24	35			8	4				
11:45		38	25	125	104	5	3	21	13	146	117
Total		493	1209			245	249			738	1458
Combined Total		1702				494				2196	
Percentage	0.0%										
Total		3271	8103			1819	1580			5090	9683
Percent		28.8%	71.2%			53.5%	46.5%			34.5%	65.5%
ADT		ADT 2,110		AADT 2,110							

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport)
just north of Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

05739Avolume
Site Code: 79556.001

Start	07-Aug-23		08-Aug-23		09-Aug-23		10-Aug-23		11-Aug-23		Weekday Average		12-Aug-23		13-Aug-23	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	*	*	*	*	*	*	*	*	**131**	19	25	4
01:00	*	*	*	*	*	*	*	*	*	*	*	*	37	6	**56**	3
02:00	*	*	*	*	*	*	*	*	*	*	*	*	8	2	28	6
03:00	*	*	*	*	*	*	*	*	*	*	*	*	12	31	11	22
04:00	*	*	*	*	*	*	*	*	*	*	*	*	21	**54**	14	**60**
05:00	*	*	*	*	*	*	*	*	*	*	*	*	11	41	6	28
06:00	*	*	*	*	*	*	*	*	*	*	*	*	8	22	6	12
07:00	*	*	*	*	*	*	*	*	*	*	*	*	8	14	11	18
08:00	*	*	*	*	*	*	*	*	*	*	*	*	22	18	21	8
09:00	*	*	*	*	*	*	*	*	*	*	*	*	28	12	53	11
10:00	*	*	*	*	*	*	*	*	*	*	*	*	39	26	46	16
11:00	*	*	*	*	*	*	*	*	*	*	*	*	63	30	56	28
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	101	32	81	15
01:00	*	*	*	*	*	*	*	*	*	*	*	*	85	**35**	120	21
02:00	*	*	*	*	*	*	*	*	*	*	*	*	95	31	103	**28**
03:00	*	*	*	*	*	*	*	*	*	*	*	*	110	24	112	20
04:00	*	*	*	*	*	*	*	*	*	*	*	*	**132**	25	91	24
05:00	*	*	*	*	*	*	*	*	*	*	*	*	89	19	142	27
06:00	*	*	*	*	*	*	*	*	*	*	*	*	39	17	77	14
07:00	*	*	*	*	*	*	*	*	*	*	*	*	52	9	78	13
08:00	*	*	*	*	*	*	*	*	*	*	*	*	58	7	49	8
09:00	*	*	*	*	*	*	*	*	*	*	*	*	82	9	66	11
10:00	*	*	*	*	*	*	*	*	*	*	*	*	98	8	53	6
11:00	*	*	*	*	*	*	*	*	*	*	*	*	82	5	**152**	11
Total	0	0	0	0	0	0	0	0	0	0	0	0	1411	496	1457	414
Day	0		0		0		0		0		0		1907		1871	
AM Peak	-	-	-	-	-	-	-	-	-	-	-	-	00:00	04:00	01:00	04:00
Vol.	-	-	-	-	-	-	-	-	-	-	-	-	131	54	56	60
PM Peak	-	-	-	-	-	-	-	-	-	-	-	-	16:00	13:00	23:00	14:00
Vol.	-	-	-	-	-	-	-	-	-	-	-	-	132	35	152	28

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

Evans Avenue (T. F. Green Airport)
just north of Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

05739Avolume
Site Code: 79556.001

Start	14-Aug-23		15-Aug-23		16-Aug-23		17-Aug-23		18-Aug-23		Weekday Average		19-Aug-23		20-Aug-23	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	**114**	12	91	7	39	4	99	13	81	7	85	9	*	*	*	*
01:00	48	6	45	2	65	6	30	5	42	4	46	5	*	*	*	*
02:00	13	4	13	4	49	11	6	6	5	1	17	5	*	*	*	*
03:00	25	23	29	15	20	21	17	16	7	15	20	18	*	*	*	*
04:00	17	**58**	10	33	20	**44**	19	54	12	**49**	16	**48**	*	*	*	*
05:00	12	43	12	**45**	12	40	12	**59**	10	49	12	47	*	*	*	*
06:00	9	10	17	15	17	23	22	25	20	22	17	19	*	*	*	*
07:00	25	8	30	22	34	27	33	15	34	18	31	18	*	*	*	*
08:00	28	24	28	20	34	26	36	26	37	17	33	23	*	*	*	*
09:00	60	12	74	20	**74**	26	63	34	27	12	60	21	*	*	*	*
10:00	51	18	**97**	30	71	25	**108**	32	93	30	84	27	*	*	*	*
11:00	97	22	86	30	62	29	84	33	**125**	21	**91**	27	*	*	*	*
12:00 PM	77	28	90	25	143	28	107	21	84	23	100	25	*	*	*	*
01:00	88	16	84	17	86	23	103	30	91	24	90	22	*	*	*	*
02:00	109	25	145	24	103	34	88	30	111	30	111	29	*	*	*	*
03:00	92	**31**	92	**39**	87	34	155	**40**	109	37	107	**36**	*	*	*	*
04:00	**152**	28	112	35	**161**	**38**	142	40	153	**39**	144	36	*	*	*	*
05:00	87	18	169	26	138	24	80	38	110	28	117	27	*	*	*	*
06:00	134	13	**181**	19	108	12	**237**	27	**164**	24	**165**	19	*	*	*	*
07:00	53	10	56	8	57	10	72	10	71	13	62	10	*	*	*	*
08:00	46	7	44	2	38	3	32	2	35	3	39	3	*	*	*	*
09:00	44	6	82	10	95	6	61	6	68	6	70	7	*	*	*	*
10:00	79	11	81	12	73	6	109	3	109	9	90	8	*	*	*	*
11:00	65	11	98	10	108	10	104	6	104	13	96	10	*	*	*	*
Total	1525	444	1766	470	1694	510	1819	571	1702	494	1703	499	0	0	0	0
Day	1969		2236		2204		2390		2196		2202		0		0	
AM Peak	00:00	04:00	10:00	05:00	09:00	04:00	10:00	05:00	11:00	04:00	11:00	04:00	-	-	-	-
Vol.	114	58	97	45	74	44	108	59	125	49	91	48	-	-	-	-
PM Peak	16:00	15:00	18:00	15:00	16:00	16:00	18:00	15:00	18:00	16:00	18:00	15:00	-	-	-	-
Vol.	152	31	181	39	161	38	237	40	164	39	165	36	-	-	-	-

Comb. Total	1969	2236	2204	2390	2196	2202	1907	1871
ADT	ADT 2,110	AADT 2,110						

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	5	0	1	2	0	0	6	0	14
07:15 AM	0	1	0	1	0	0	0	4	0	6
07:30 AM	1	3	0	0	0	0	0	7	0	11
07:45 AM	0	6	0	2	2	0	0	12	0	22
Total	1	15	0	4	4	0	0	29	0	53
08:00 AM	1	4	0	0	2	0	1	7	0	15
08:15 AM	0	6	0	1	1	0	0	7	0	15
08:30 AM	1	5	0	0	3	0	1	11	0	21
08:45 AM	2	7	0	0	2	0	1	9	0	21
Total	4	22	0	1	8	0	3	34	0	72
09:00 AM	0	7	0	1	4	0	3	8	0	23
09:15 AM	2	12	0	0	4	0	0	8	0	26
09:30 AM	3	3	0	1	2	0	2	12	0	23
09:45 AM	3	7	0	0	4	0	0	36	0	50
Total	8	29	0	2	14	0	5	64	0	122
10:00 AM	0	4	0	1	0	0	0	21	0	26
10:15 AM	3	4	0	7	2	0	1	23	0	40
10:30 AM	1	6	0	5	3	0	1	21	0	37
10:45 AM	2	7	0	5	2	0	0	19	0	35
Total	6	21	0	18	7	0	2	84	0	138
11:00 AM	1	9	0	2	1	0	0	18	0	31
11:15 AM	1	3	0	0	3	0	1	14	0	22
11:30 AM	1	6	0	2	1	0	2	19	0	31
11:45 AM	4	6	0	0	2	0	2	28	0	42
Total	7	24	0	4	7	0	5	79	0	126
12:00 PM	1	5	0	3	2	0	0	25	0	36
12:15 PM	2	4	0	1	2	0	0	20	0	29
12:30 PM	1	2	0	1	1	0	1	15	0	21
12:45 PM	1	5	0	1	1	0	2	37	0	47
Total	5	16	0	6	6	0	3	97	0	133
01:00 PM	2	6	0	5	1	0	1	38	0	53
01:15 PM	2	5	0	4	1	1	0	23	0	36
01:30 PM	3	7	0	1	2	0	1	14	0	28
01:45 PM	0	2	0	1	2	0	1	21	0	27
Total	7	20	0	11	6	1	3	96	0	144
02:00 PM	3	3	0	0	1	0	0	15	0	22
02:15 PM	3	2	0	4	1	0	2	14	0	26
02:30 PM	0	6	0	0	1	0	1	19	0	27
02:45 PM	1	9	0	2	1	0	0	36	0	49
Total	7	20	0	6	4	0	3	84	0	124
03:00 PM	2	8	0	1	2	0	1	38	0	52
03:15 PM	3	9	0	6	2	0	0	40	0	60
03:30 PM	1	6	0	0	1	0	0	26	0	34
03:45 PM	2	9	0	3	1	0	1	27	0	43
Total	8	32	0	10	6	0	2	131	0	189

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	2	9	0	1	2	2	2	31	0	49
04:15 PM	2	8	0	1	2	0	2	39	0	54
04:30 PM	2	10	0	2	2	0	0	36	0	52
04:45 PM	2	9	0	2	2	0	1	28	0	44
Total	8	36	0	6	8	2	5	134	0	199
05:00 PM	2	10	0	6	2	0	1	14	0	35
05:15 PM	3	8	0	0	1	0	0	10	0	22
05:30 PM	2	4	0	1	1	0	1	12	0	21
05:45 PM	0	7	0	5	0	0	0	34	0	46
Total	7	29	0	12	4	0	2	70	0	124
Grand Total	68	264	0	80	74	3	33	902	0	1424
Apprch %	20.5	79.5	0	51	47.1	1.9	3.5	96.5	0	
Total %	4.8	18.5	0	5.6	5.2	0.2	2.3	63.3	0	
Cars & Peds	67	264	0	79	74	3	32	846	0	1365
% Cars & Peds	98.5	100	0	98.8	100	100	97	93.8	0	95.9
Trucks & Buses	1	0	0	1	0	0	1	56	0	59
% Trucks & Buses	1.5	0	0	1.2	0	0	3	6.2	0	4.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 09:00 AM													
09:00 AM	0	7	0	7	**1**	**4**	0	**5**	**3**	8	0	11	23
09:15 AM	2	**12**	0	**14**	0	4	0	4	0	8	0	8	26
09:30 AM	**3**	3	0	6	1	2	0	3	2	12	0	14	23
09:45 AM	3	7	0	10	0	4	0	4	0	**36**	0	**36**	**50**
Total Volume	8	29	0	37	2	14	0	16	5	64	0	69	122
% App. Total	21.6	78.4	0		12.5	87.5	0		7.2	92.8	0		
PHF	.667	.604	.000	.661	.500	.875	.000	.800	.417	.444	.000	.479	.610
Cars & Peds	8	29	0	37	2	14	0	16	5	59	0	64	117
% Cars & Peds	100	100	0	100	100	100	0	100	100	92.2	0	92.8	95.9
Trucks & Buses	0	0	0	0	0	0	0	0	0	5	0	5	5
% Trucks & Buses	0	0	0	0	0	0	0	0	0	7.8	0	7.2	4.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:45 PM													
12:45 PM	1	5	0	6	1	1	0	2	**2**	37	0	**39**	47
01:00 PM	2	6	0	8	**5**	1	0	**6**	1	**38**	0	39	**53**
01:15 PM	2	5	0	7	4	1	**1**	6	0	23	0	23	36
01:30 PM	**3**	**7**	0	**10**	1	**2**	0	3	1	14	0	15	28
Total Volume	8	23	0	31	11	5	1	17	4	112	0	116	164
% App. Total	25.8	74.2	0		64.7	29.4	5.9		3.4	96.6	0		
PHF	.667	.821	.000	.775	.550	.625	.250	.708	.500	.737	.000	.744	.774
Cars & Peds	8	23	0	31	11	5	1	17	4	109	0	113	161
% Cars & Peds	100	100	0	100	100	100	100	100	100	97.3	0	97.4	98.2
Trucks & Buses	0	0	0	0	0	0	0	0	0	3	0	3	3
% Trucks & Buses	0	0	0	0	0	0	0	0	0	2.7	0	2.6	1.8
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 3

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**2**	9	0	11	1	**2**	**2**	**5**	**2**	31	0	33	49
04:15 PM	2	8	0	10	1	2	0	3	2	**39**	0	**41**	**54**
04:30 PM	2	**10**	0	**12**	**2**	2	0	4	0	36	0	36	52
04:45 PM	2	9	0	11	2	2	0	4	1	28	0	29	44
Total Volume	8	36	0	44	6	8	2	16	5	134	0	139	199
% App. Total	18.2	81.8	0		37.5	50	12.5		3.6	96.4	0		
PHF	1.00	.900	.000	.917	.750	1.00	.250	.800	.625	.859	.000	.848	.921
Cars & Peds	8	36	0	44	6	8	2	16	5	130	0	135	195
% Cars & Peds	100	100	0	100	100	100	100	100	100	97.0	0	97.1	98.0
Trucks & Buses	0	0	0	0	0	0	0	0	0	4	0	4	4
% Trucks & Buses	0	0	0	0	0	0	0	0	0	3.0	0	2.9	2.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Cars & Peds

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	5	0	1	2	0	0	4	0	12
07:15 AM	0	1	0	1	0	0	0	3	0	5
07:30 AM	1	3	0	0	0	0	0	5	0	9
07:45 AM	0	6	0	2	2	0	0	11	0	21
Total	1	15	0	4	4	0	0	23	0	47
08:00 AM	1	4	0	0	2	0	1	6	0	14
08:15 AM	0	6	0	1	1	0	0	6	0	14
08:30 AM	1	5	0	0	3	0	1	7	0	17
08:45 AM	2	7	0	0	2	0	1	8	0	20
Total	4	22	0	1	8	0	3	27	0	65
09:00 AM	0	7	0	1	4	0	3	6	0	21
09:15 AM	2	12	0	0	4	0	0	7	0	25
09:30 AM	3	3	0	1	2	0	2	11	0	22
09:45 AM	3	7	0	0	4	0	0	35	0	49
Total	8	29	0	2	14	0	5	59	0	117
10:00 AM	0	4	0	1	0	0	0	21	0	26
10:15 AM	3	4	0	7	2	0	1	22	0	39
10:30 AM	1	6	0	5	3	0	1	19	0	35
10:45 AM	2	7	0	5	2	0	0	17	0	33
Total	6	21	0	18	7	0	2	79	0	133
11:00 AM	1	9	0	2	1	0	0	16	0	29
11:15 AM	1	3	0	0	3	0	1	13	0	21
11:30 AM	1	6	0	2	1	0	2	18	0	30
11:45 AM	4	6	0	0	2	0	2	25	0	39
Total	7	24	0	4	7	0	5	72	0	119
12:00 PM	1	5	0	3	2	0	0	23	0	34
12:15 PM	2	4	0	1	2	0	0	19	0	28
12:30 PM	1	2	0	1	1	0	1	14	0	20
12:45 PM	1	5	0	1	1	0	2	36	0	46
Total	5	16	0	6	6	0	3	92	0	128
01:00 PM	2	6	0	5	1	0	1	37	0	52
01:15 PM	2	5	0	4	1	1	0	23	0	36
01:30 PM	3	7	0	1	2	0	1	13	0	27
01:45 PM	0	2	0	1	2	0	0	19	0	24
Total	7	20	0	11	6	1	2	92	0	139
02:00 PM	3	3	0	0	1	0	0	15	0	22
02:15 PM	3	2	0	3	1	0	2	12	0	23
02:30 PM	0	6	0	0	1	0	1	18	0	26
02:45 PM	1	9	0	2	1	0	0	36	0	49
Total	7	20	0	5	4	0	3	81	0	120
03:00 PM	2	8	0	1	2	0	1	36	0	50
03:15 PM	3	9	0	6	2	0	0	39	0	59
03:30 PM	1	6	0	0	1	0	0	24	0	32
03:45 PM	2	9	0	3	1	0	1	27	0	43
Total	8	32	0	10	6	0	2	126	0	184

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 2

Groups Printed- Cars & Peds

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	2	9	0	1	2	2	2	29	0	47
04:15 PM	2	8	0	1	2	0	2	38	0	53
04:30 PM	2	10	0	2	2	0	0	35	0	51
04:45 PM	2	9	0	2	2	0	1	28	0	44
Total	8	36	0	6	8	2	5	130	0	195
05:00 PM	2	10	0	6	2	0	1	12	0	33
05:15 PM	3	8	0	0	1	0	0	10	0	22
05:30 PM	1	4	0	1	1	0	1	10	0	18
05:45 PM	0	7	0	5	0	0	0	33	0	45
Total	6	29	0	12	4	0	2	65	0	118
Grand Total	67	264	0	79	74	3	32	846	0	1365
Apprch %	20.2	79.8	0	50.6	47.4	1.9	3.6	96.4	0	
Total %	4.9	19.3	0	5.8	5.4	0.2	2.3	62	0	

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 09:00 AM													
09:00 AM	0	7	0	7	**1**	**4**	0	**5**	**3**	6	0	9	21
09:15 AM	2	**12**	0	**14**	0	4	0	4	0	7	0	7	25
09:30 AM	**3**	3	0	6	1	2	0	3	2	11	0	13	22
09:45 AM	3	7	0	10	0	4	0	4	0	**35**	0	**35**	**49**
Total Volume	8	29	0	37	2	14	0	16	5	59	0	64	117
% App. Total	21.6	78.4	0		12.5	87.5	0		7.8	92.2	0		
PHF	.667	.604	.000	.661	.500	.875	.000	.800	.417	.421	.000	.457	.597
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:45 PM													
12:45 PM	1	5	0	6	1	1	0	2	**2**	36	0	**38**	46
01:00 PM	2	6	0	8	**5**	1	0	**6**	1	**37**	0	38	**52**
01:15 PM	2	5	0	7	4	1	**1**	6	0	23	0	23	36
01:30 PM	**3**	**7**	0	**10**	1	**2**	0	3	1	13	0	14	27
Total Volume	8	23	0	31	11	5	1	17	4	109	0	113	161
% App. Total	25.8	74.2	0		64.7	29.4	5.9		3.5	96.5	0		
PHF	.667	.821	.000	.775	.550	.625	.250	.708	.500	.736	.000	.743	.774
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**2**	9	0	11	1	**2**	**2**	**5**	**2**	29	0	31	47
04:15 PM	2	8	0	10	1	2	0	3	2	**38**	0	**40**	**53**
04:30 PM	2	**10**	0	**12**	**2**	2	0	4	0	35	0	35	51
04:45 PM	2	9	0	11	2	2	0	4	1	28	0	29	44
Total Volume	8	36	0	44	6	8	2	16	5	130	0	135	195
% App. Total	18.2	81.8	0		37.5	50	12.5		3.7	96.3	0		
PHF	1.00	.900	.000	.917	.750	1.00	.250	.800	.625	.855	.000	.844	.920

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Trucks & Buses

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	2	0	2
07:15 AM	0	0	0	0	0	0	0	1	0	1
07:30 AM	0	0	0	0	0	0	0	2	0	2
07:45 AM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	6	0	6
08:00 AM	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	4	0	4
08:45 AM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	7	0	7
09:00 AM	0	0	0	0	0	0	0	2	0	2
09:15 AM	0	0	0	0	0	0	0	1	0	1
09:30 AM	0	0	0	0	0	0	0	1	0	1
09:45 AM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	5	0	5
10:00 AM	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1	0	1
10:30 AM	0	0	0	0	0	0	0	2	0	2
10:45 AM	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	0	0	0	0	5	0	5
11:00 AM	0	0	0	0	0	0	0	2	0	2
11:15 AM	0	0	0	0	0	0	0	1	0	1
11:30 AM	0	0	0	0	0	0	0	1	0	1
11:45 AM	0	0	0	0	0	0	0	3	0	3
Total	0	0	0	0	0	0	0	7	0	7
12:00 PM	0	0	0	0	0	0	0	2	0	2
12:15 PM	0	0	0	0	0	0	0	1	0	1
12:30 PM	0	0	0	0	0	0	0	1	0	1
12:45 PM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	5	0	5
01:00 PM	0	0	0	0	0	0	0	1	0	1
01:15 PM	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	1	0	1
01:45 PM	0	0	0	0	0	0	1	2	0	3
Total	0	0	0	0	0	0	1	4	0	5
02:00 PM	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	1	0	0	0	2	0	3
02:30 PM	0	0	0	0	0	0	0	1	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	3	0	4
03:00 PM	0	0	0	0	0	0	0	2	0	2
03:15 PM	0	0	0	0	0	0	0	1	0	1
03:30 PM	0	0	0	0	0	0	0	2	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	5	0	5

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Trucks & Buses

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	2	0	2
04:15 PM	0	0	0	0	0	0	0	1	0	1
04:30 PM	0	0	0	0	0	0	0	1	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	4	0	4
05:00 PM	0	0	0	0	0	0	0	2	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	1	0	0	0	0	0	0	2	0	3
05:45 PM	0	0	0	0	0	0	0	1	0	1
Total	1	0	0	0	0	0	0	5	0	6
Grand Total	1	0	0	1	0	0	1	56	0	59
Apprch %	100	0	0	100	0	0	1.8	98.2	0	
Total %	1.7	0	0	1.7	0	0	1.7	94.9	0	

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:15 AM													
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	**4**	0	**4**	**4**
08:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
09:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	8	0	8	8
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.500
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 10:15 AM													
10:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
10:30 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	**2**
10:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
11:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	7	0	7	7
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.875	.000	.875	.875
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:15 PM													
02:15 PM	0	0	0	0	**1**	0	0	**1**	0	**2**	0	**2**	**3**
02:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	1	0	0	1	0	5	0	5	6
% App. Total	0	0	0		100	0	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.625	.000	.625	.500

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Bikes by Direction

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Bikes by Direction

	Evans Avenue From North			Evans Avenue (Long Term Parking E) From South			Aviation Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 10:00 AM													
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:00 PM													
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

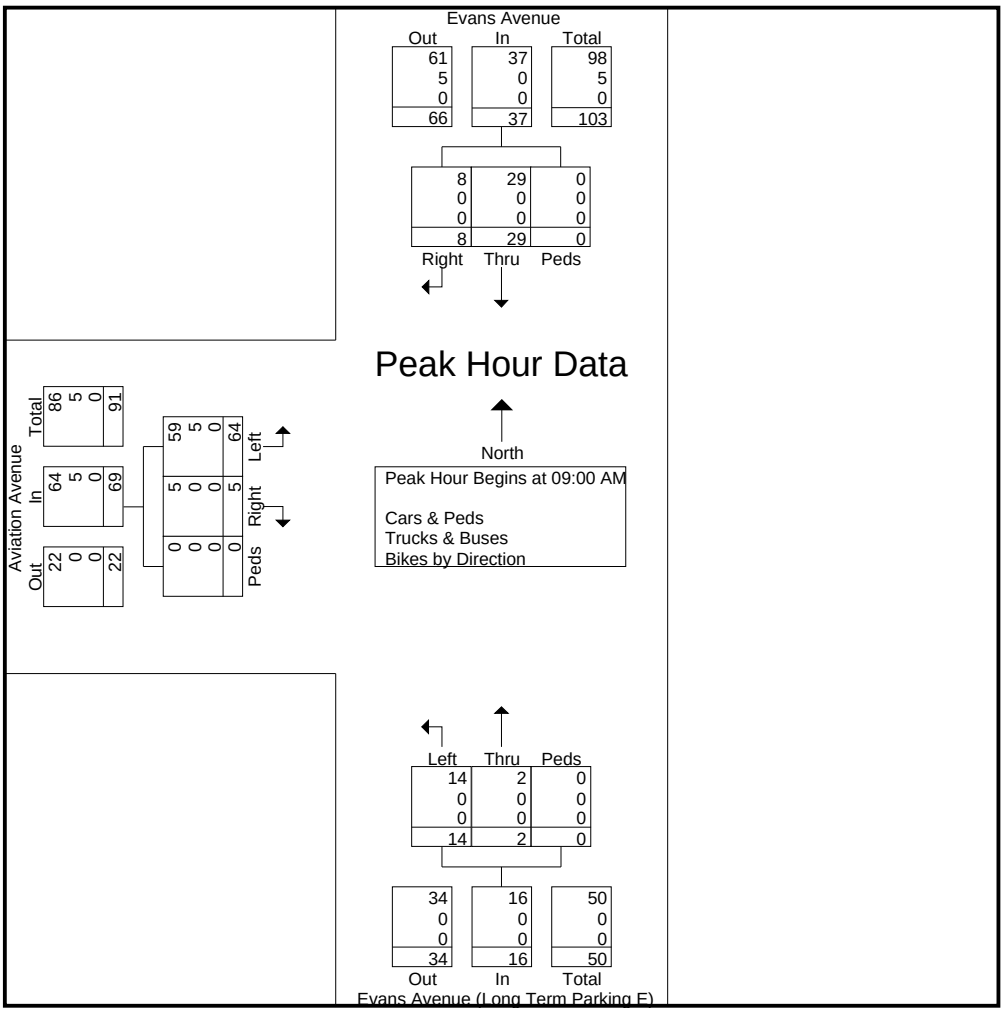
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 09:00 AM													
09:00 AM	0	7	0	7	**1**	**4**	0	**5**	**3**	8	0	11	23
09:15 AM	2	**12**	0	**14**	0	4	0	4	0	8	0	8	26
09:30 AM	**3**	3	0	6	1	2	0	3	2	12	0	14	23
09:45 AM	3	7	0	10	0	4	0	4	0	**36**	0	**36**	**50**
Total Volume	8	29	0	37	2	14	0	16	5	64	0	69	122
% App. Total	21.6	78.4	0		12.5	87.5	0		7.2	92.8	0		
PHF	.667	.604	.000	.661	.500	.875	.000	.800	.417	.444	.000	.479	.610
Cars & Peds	8	29	0	37	2	14	0	16	5	59	0	64	117
% Cars & Peds	100	100	0	100	100	100	0	100	100	92.2	0	92.8	95.9
Trucks & Buses	0	0	0	0	0	0	0	0	0	5	0	5	5
% Trucks & Buses	0	0	0	0	0	0	0	0	0	7.8	0	7.2	4.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0



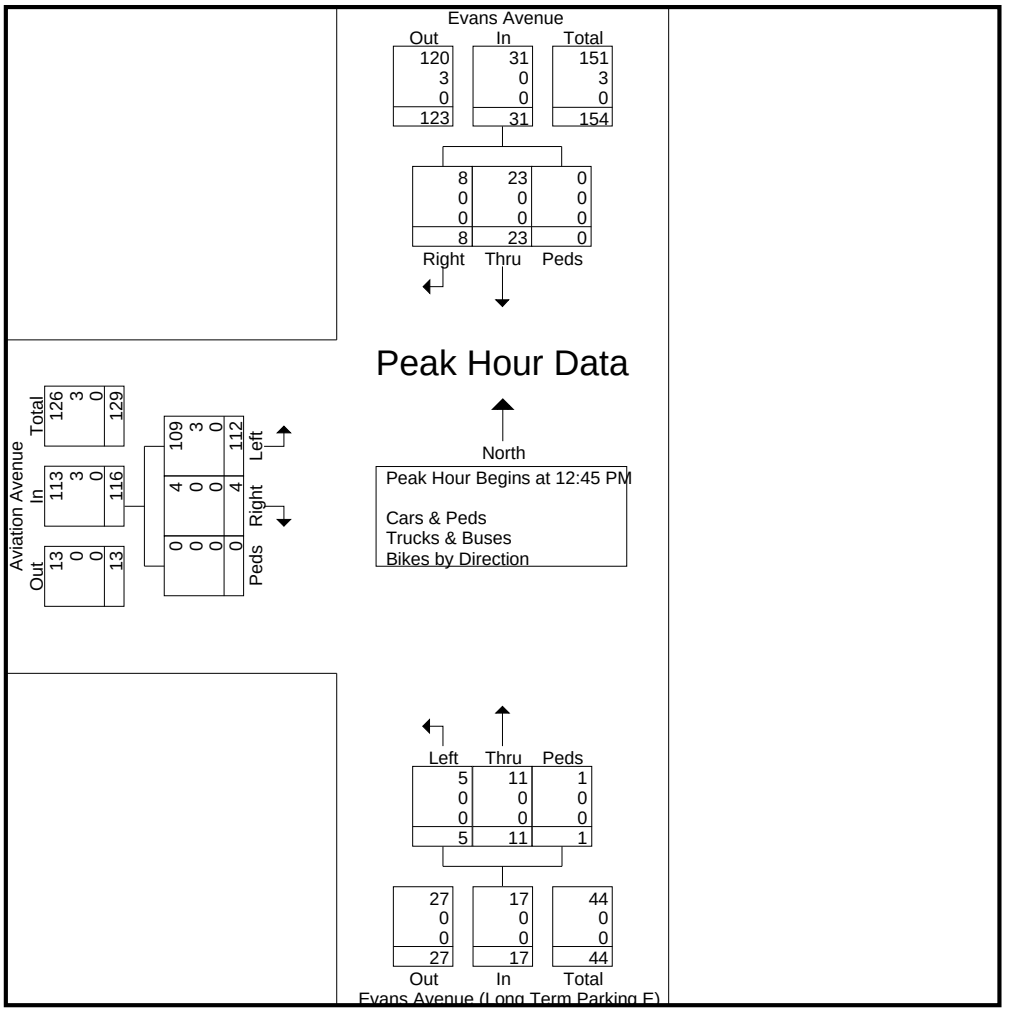
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023
Page No : 2

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:45 PM													
12:45 PM	1	5	0	6	1	1	0	2	**2**	37	0	**39**	47
01:00 PM	2	6	0	8	**5**	1	0	**6**	1	**38**	0	39	**53**
01:15 PM	2	5	0	7	4	1	**1**	6	0	23	0	23	36
01:30 PM	**3**	**7**	0	**10**	1	**2**	0	3	1	14	0	15	28
Total Volume	8	23	0	31	11	5	1	17	4	112	0	116	164
% App. Total	25.8	74.2	0		64.7	29.4	5.9		3.4	96.6	0		
PHF	.667	.821	.000	.775	.550	.625	.250	.708	.500	.737	.000	.744	.774
Cars & Peds	8	23	0	31	11	5	1	17	4	109	0	113	161
% Cars & Peds	100	100	0	100	100	100	100	100	100	97.3	0	97.4	98.2
Trucks & Buses	0	0	0	0	0	0	0	0	0	3	0	3	3
% Trucks & Buses	0	0	0	0	0	0	0	0	0	2.7	0	2.6	1.8
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0



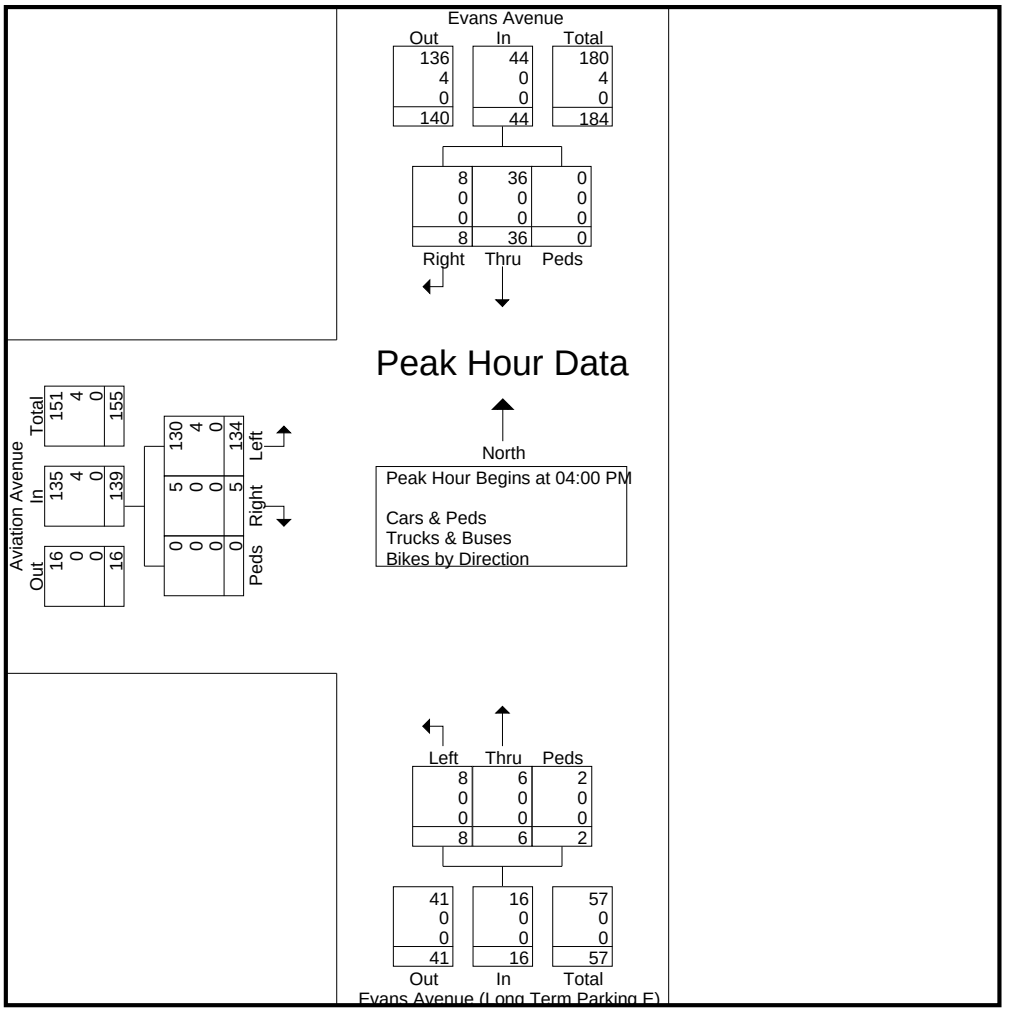
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Evans Avenue/Long Term Lot E
W: Aviation Avenue
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739B
Site Code : 79556001
Start Date : 8/17/2023

	Evans Avenue From North				Evans Avenue (Long Term Parking E) From South				Aviation Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**2**	9	0	11	1	**2**	**2**	**5**	**2**	31	0	33	49
04:15 PM	2	8	0	10	1	2	0	3	2	**39**	0	**41**	**54**
04:30 PM	2	**10**	0	**12**	**2**	2	0	4	0	36	0	36	52
04:45 PM	2	9	0	11	2	2	0	4	1	28	0	29	44
Total Volume	8	36	0	44	6	8	2	16	5	134	0	139	199
% App. Total	18.2	81.8	0		37.5	50	12.5		3.6	96.4	0		
PHF	1.00	.900	.000	.917	.750	1.00	.250	.800	.625	.859	.000	.848	.921
Cars & Peds	8	36	0	44	6	8	2	16	5	130	0	135	195
% Cars & Peds	100	100	0	100	100	100	100	100	100	97.0	0	97.1	98.0
Trucks & Buses	0	0	0	0	0	0	0	0	0	4	0	4	4
% Trucks & Buses	0	0	0	0	0	0	0	0	0	3.0	0	2.9	2.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0



Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	2	3	0	0	0	3	4	6	0	0	19	4	11	3	0	0	0	0	0	0	55
07:15 AM	0	0	0	0	0	1	3	0	0	0	2	5	8	0	0	14	1	6	0	0	0	0	0	0	0	40
07:30 AM	0	0	0	0	0	1	3	0	0	0	2	5	12	0	0	12	1	6	0	0	0	0	0	0	0	42
07:45 AM	0	0	0	0	0	1	12	0	1	0	5	9	13	0	0	21	4	6	2	0	0	0	0	0	0	74
Total	0	0	0	0	0	5	21	0	1	0	12	23	39	0	0	66	10	29	5	0	0	0	0	0	0	211
08:00 AM	0	0	0	0	0	4	2	0	0	0	4	6	14	0	0	33	2	4	0	0	0	0	0	0	0	69
08:15 AM	0	0	0	0	0	2	9	0	0	0	5	11	12	0	0	24	1	14	3	0	0	0	0	0	0	81
08:30 AM	0	0	0	0	0	1	8	0	0	0	3	12	9	0	0	41	4	14	2	0	0	0	0	0	0	94
08:45 AM	0	0	0	0	0	4	3	0	0	0	5	2	8	0	0	42	4	24	3	0	0	0	0	0	0	95
Total	0	0	0	0	0	11	22	0	0	0	17	31	43	0	0	140	11	56	8	0	0	0	0	0	0	339
09:00 AM	0	0	0	0	0	4	7	0	0	0	5	14	2	0	0	44	3	17	3	0	0	0	0	0	0	99
09:15 AM	0	0	0	0	0	1	3	0	1	0	7	10	14	0	0	35	5	11	3	0	0	0	0	0	0	90
09:30 AM	0	0	0	0	0	7	6	0	0	0	3	15	20	0	0	35	3	14	8	0	0	0	0	0	0	111
09:45 AM	0	0	0	0	0	16	21	0	0	0	3	27	9	0	0	65	4	18	26	0	0	0	0	0	0	189
Total	0	0	0	0	0	28	37	0	1	0	18	66	45	0	0	179	15	60	40	0	0	0	0	0	0	489
10:00 AM	0	0	0	0	0	10	13	0	0	0	1	31	9	0	0	66	3	10	20	0	0	0	0	0	0	163
10:15 AM	0	0	0	0	0	14	14	0	5	0	2	34	13	0	0	69	8	15	21	0	0	0	0	0	0	195
10:30 AM	0	0	0	0	0	16	8	0	7	0	2	25	7	0	0	70	6	13	31	0	0	0	0	0	0	185
10:45 AM	0	0	0	0	0	10	11	0	3	0	6	15	9	0	0	76	5	20	14	0	0	0	0	0	0	169
Total	0	0	0	0	0	50	46	0	15	0	11	105	38	0	0	281	22	58	86	0	0	0	0	0	0	712
11:00 AM	0	0	0	0	0	9	12	0	2	0	7	19	14	0	0	52	4	22	7	0	0	0	0	0	0	148
11:15 AM	0	0	0	0	0	5	11	0	1	0	3	11	11	0	0	59	4	22	8	0	0	0	0	0	0	135
11:30 AM	0	0	0	0	0	7	13	0	7	0	4	12	9	0	0	41	3	27	11	0	0	0	0	0	0	134
11:45 AM	0	0	0	0	0	13	14	0	2	0	3	29	14	0	0	55	8	18	26	0	0	0	0	0	0	182
Total	0	0	0	0	0	34	50	0	12	0	17	71	48	0	0	207	19	89	52	0	0	0	0	0	0	599
12:00 PM	0	0	0	0	0	12	13	0	2	0	3	27	3	0	0	76	4	23	30	0	0	0	0	0	0	193
12:15 PM	0	0	0	0	0	8	11	0	2	0	2	32	15	0	0	92	4	21	13	0	0	0	0	0	0	200
12:30 PM	0	0	0	0	0	9	6	0	2	0	2	26	17	0	0	51	1	22	26	0	0	0	0	0	0	162
12:45 PM	0	0	0	0	0	28	9	0	1	0	5	26	15	0	0	62	5	18	49	0	0	0	0	0	0	218
Total	0	0	0	0	0	57	39	0	7	0	12	111	50	0	0	281	14	84	118	0	0	0	0	0	0	773
01:00 PM	0	0	0	0	0	21	17	0	4	0	2	28	12	0	0	116	6	21	54	0	0	0	0	0	0	281
01:15 PM	0	0	0	0	0	13	16	0	3	0	4	11	12	0	0	98	4	18	8	0	0	0	0	0	0	187
01:30 PM	0	0	0	0	0	5	14	0	0	0	4	12	7	0	0	58	6	21	4	0	0	0	0	0	0	131
01:45 PM	0	0	0	0	0	7	17	0	1	0	4	21	10	0	0	62	2	27	3	0	0	0	0	0	0	154
Total	0	0	0	0	0	46	64	0	8	0	14	72	41	0	0	334	18	87	69	0	0	0	0	0	0	753
02:00 PM	0	0	0	0	0	7	8	0	2	0	2	20	15	0	0	69	6	15	4	0	0	0	0	0	0	148
02:15 PM	0	0	0	0	0	5	11	0	1	0	2	15	13	0	0	45	4	24	19	0	0	0	0	0	0	139
02:30 PM	0	0	0	0	0	12	6	0	2	0	3	11	14	0	0	49	5	34	27	0	0	0	0	0	0	163
02:45 PM	0	0	0	0	0	27	9	0	1	0	8	23	16	0	0	64	4	24	34	0	0	0	0	0	0	210
Total	0	0	0	0	0	51	34	0	6	0	15	69	58	0	0	227	19	97	84	0	0	0	0	0	0	660
03:00 PM	0	0	0	0	0	22	25	0	2	0	3	24	17	0	0	103	9	25	30	0	0	0	0	0	0	260
03:15 PM	0	0	0	0	0	19	19	0	4	0	6	24	18	0	0	81	6	27	27	0	0	0	0	0	0	231

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
03:30 PM	0	0	0	0	0	18	10	0	4	0	2	34	17	0	0	103	4	27	38	0	0	0	0	0	0	257
03:45 PM	0	0	0	0	0	17	14	0	2	0	6	26	17	0	0	87	5	27	41	0	0	0	0	0	0	242
Total	0	0	0	0	0	76	68	0	12	0	17	108	69	0	0	374	24	106	136	0	0	0	0	0	0	990
04:00 PM	0	0	0	0	0	23	14	0	1	0	4	37	16	0	0	83	9	19	49	0	0	0	0	0	0	255
04:15 PM	0	0	0	0	0	23	14	0	3	0	6	29	13	0	0	91	5	35	37	0	0	0	0	0	0	256
04:30 PM	0	0	0	0	0	25	18	0	4	0	9	36	9	0	0	106	10	48	29	0	0	0	0	0	0	294
04:45 PM	0	0	0	0	0	17	12	0	4	0	4	24	9	0	0	112	6	25	25	0	0	0	0	0	0	238
Total	0	0	0	0	0	88	58	0	12	0	23	126	47	0	0	392	30	127	140	0	0	0	0	0	0	1043
05:00 PM	0	0	0	0	0	6	10	0	6	0	7	32	24	0	0	88	6	22	5	1	0	0	0	0	0	207
05:15 PM	0	0	0	0	0	9	3	0	0	0	6	14	9	0	0	48	6	13	15	0	0	0	0	0	0	123
05:30 PM	0	0	0	0	0	7	4	0	1	0	3	23	23	0	0	56	5	23	33	0	0	0	0	0	0	178
05:45 PM	0	0	0	0	0	24	12	0	2	0	4	34	19	0	0	74	5	28	35	1	0	0	0	0	0	238
Total	0	0	0	0	0	46	29	0	9	0	20	103	75	0	0	266	22	86	88	2	0	0	0	0	0	746
Grand Total	0	0	0	0	0	492	468	0	83	0	176	885	553	0	0	2747	204	879	826	2	0	0	0	0	0	7315
Apprch %	0	0	0	0	0	47.2	44.9	0	8	0	10.9	54.8	34.3	0	0	59	4.4	18.9	17.7	0	0	0	0	0	0	
Total %	0	0	0	0	0	6.7	6.4	0	1.1	0	2.4	12.1	7.6	0	0	37.6	2.8	12	11.3	0	0	0	0	0	0	
Cars & Peds	0	0	0	0	0	490	411	0	82	0	175	884	508	0	0	2747	204	878	826	2	0	0	0	0	0	7207
% Cars & Peds	0	0	0	0	0	99.6	87.8	0	98.8	0	99.4	99.9	91.9	0	0	100	100	99.9	100	100	0	0	0	0	0	98.5
Trucks & Buses	0	0	0	0	0	2	57	0	1	0	1	1	45	0	0	0	0	1	0	0	0	0	0	0	0	108
% Trucks & Buses	0	0	0	0	0	0.4	12.2	0	1.2	0	0.6	0.1	8.1	0	0	0	0	0.1	0	0	0	0	0	0	0	1.5
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 09:00 AM																															
09:00 AM	0	0	0	0	0	0	4	7	0	0	0	11	5	14	2	0	0	21	44	3	17	3	0	67	0	0	0	0	0	0	99
09:15 AM	0	0	0	0	0	0	1	3	0	**1**	0	5	**7**	10	14	0	0	31	35	**5**	11	3	0	54	0	0	0	0	0	0	90
09:30 AM	0	0	0	0	0	0	7	6	0	0	0	13	3	15	**20**	0	0	38	35	3	14	8	0	60	0	0	0	0	0	0	111
09:45 AM	0	0	0	0	0	0	**16**	**21**	0	0	0	**37**	3	**27**	9	0	0	**39**	**65**	4	**18**	**26**	0	**113**	0	0	0	0	0	0	**189**
Total Volume	0	0	0	0	0	0	28	37	0	1	0	66	18	66	45	0	0	129	179	15	60	40	0	294	0	0	0	0	0	0	489
% App. Total	0	0	0	0	0		42.4	56.1	0	1.5	0		14	51.2	34.9	0	0		60.9	5.1	20.4	13.6	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.438	.440	.000	.250	.000	.446	.643	.611	.563	.000	.000	.827	.688	.750	.833	.385	.000	.650	.000	.000	.000	.000	.000	.000	.647
Cars & Peds	0	0	0	0	0	0	28	33	0	1	0	62	18	66	41	0	0	125	179	15	60	40	0	294	0	0	0	0	0	0	481
% Cars & Peds	0	0	0	0	0	0	100	89.2	0	100	0	93.9	100	100	91.1	0	0	96.9	100	100	100	100	0	100	0	0	0	0	0	0	98.4
Trucks & Buses	0	0	0	0	0	0	0	4	0	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
% Trucks & Buses	0	0	0	0	0	0	0	10.8	0	0	0	6.1	0	0	8.9	0	0	3.1	0	0	0	0	0	0	0	0	0	0	0	0	1.6
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 3

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 12:15 PM																														
12:15 PM	0	0	0	0	0	0	8	11	0	2	0	21	2	**32**	15	0	0	**49**	92	4	21	13	0	130	0	0	0	0	0	0	200
12:30 PM	0	0	0	0	0	0	9	6	0	2	0	17	2	26	**17**	0	0	45	51	1	**22**	26	0	100	0	0	0	0	0	0	162
12:45 PM	0	0	0	0	0	0	**28**	9	0	1	0	38	**5**	26	15	0	0	46	62	5	18	49	0	134	0	0	0	0	0	0	218
01:00 PM	0	0	0	0	0	0	21	**17**	0	**4**	0	**42**	2	28	12	0	0	42	**116**	**6**	21	**54**	0	**197**	0	0	0	0	0	0	**281**
Total Volume	0	0	0	0	0	0	66	43	0	9	0	118	11	112	59	0	0	182	321	16	82	142	0	561	0	0	0	0	0	0	861
% App. Total	0	0	0	0	0		55.9	36.4	0	7.6	0		6	61.5	32.4	0	0		57.2	2.9	14.6	25.3	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.589	.632	.000	.563	.000	.702	.550	.875	.868	.000	.000	.929	.692	.667	.932	.657	.000	.712	.000	.000	.000	.000	.000	.000	.766
Cars & Peds	0	0	0	0	0	0	66	39	0	8	0	113	11	112	55	0	0	178	321	16	82	142	0	561	0	0	0	0	0	0	852
% Cars & Peds	0	0	0	0	0	0	100	90.7	0	88.9	0	95.8	100	100	93.2	0	0	97.8	100	100	100	100	0	100	0	0	0	0	0	0	99.0
Trucks & Buses	0	0	0	0	0	0	0	4	0	1	0	5	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
% Trucks & Buses	0	0	0	0	0	0	0	9.3	0	11.1	0	4.2	0	0	6.8	0	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 03:45 PM																														
03:45 PM	0	0	0	0	0	0	17	14	0	2	0	33	6	26	**17**	0	0	49	87	5	27	41	0	160	0	0	0	0	0	0	242
04:00 PM	0	0	0	0	0	0	23	14	0	1	0	38	4	**37**	16	0	0	**57**	83	9	19	**49**	0	160	0	0	0	0	0	0	255
04:15 PM	0	0	0	0	0	0	23	14	0	3	0	40	6	29	13	0	0	48	91	5	35	37	0	168	0	0	0	0	0	0	256
04:30 PM	0	0	0	0	0	0	**25**	**18**	0	**4**	0	**47**	**9**	36	9	0	0	54	**106**	**10**	**48**	29	0	**193**	0	0	0	0	0	0	**294**
Total Volume	0	0	0	0	0	0	88	60	0	10	0	158	25	128	55	0	0	208	367	29	129	156	0	681	0	0	0	0	0	0	1047
% App. Total	0	0	0	0	0		55.7	38	0	6.3	0		12	61.5	26.4	0	0		53.9	4.3	18.9	22.9	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.880	.833	.000	.625	.000	.840	.694	.865	.809	.000	.000	.912	.866	.725	.672	.796	.000	.882	.000	.000	.000	.000	.000	.000	.890
Cars & Peds	0	0	0	0	0	0	87	57	0	10	0	154	25	128	51	0	0	204	367	29	129	156	0	681	0	0	0	0	0	0	1039
% Cars & Peds	0	0	0	0	0	0	98.9	95.0	0	100	0	97.5	100	100	92.7	0	0	98.1	100	100	100	100	0	100	0	0	0	0	0	0	99.2
Trucks & Buses	0	0	0	0	0	0	1	3	0	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
% Trucks & Buses	0	0	0	0	0	0	1.1	5.0	0	0	0	2.5	0	0	7.3	0	0	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0.8
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Cars & Peds

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	2	0	0	0	0	3	4	6	0	0	19	4	11	3	0	0	0	0	0	0	52
07:15 AM	0	0	0	0	0	1	2	0	0	0	2	5	6	0	0	14	1	6	0	0	0	0	0	0	0	37
07:30 AM	0	0	0	0	0	1	1	0	0	0	2	5	12	0	0	12	1	6	0	0	0	0	0	0	0	40
07:45 AM	0	0	0	0	0	1	11	0	1	0	5	9	11	0	0	21	4	6	2	0	0	0	0	0	0	71
Total	0	0	0	0	0	5	14	0	1	0	12	23	35	0	0	66	10	29	5	0	0	0	0	0	0	200
08:00 AM	0	0	0	0	0	4	1	0	0	0	4	6	14	0	0	33	2	4	0	0	0	0	0	0	0	68
08:15 AM	0	0	0	0	0	2	7	0	0	0	5	11	10	0	0	24	1	14	3	0	0	0	0	0	0	77
08:30 AM	0	0	0	0	0	1	5	0	0	0	3	12	9	0	0	41	4	14	2	0	0	0	0	0	0	91
08:45 AM	0	0	0	0	0	3	2	0	0	0	5	2	6	0	0	42	4	24	3	0	0	0	0	0	0	91
Total	0	0	0	0	0	10	15	0	0	0	17	31	39	0	0	140	11	56	8	0	0	0	0	0	0	327
09:00 AM	0	0	0	0	0	4	5	0	0	0	5	14	2	0	0	44	3	17	3	0	0	0	0	0	0	97
09:15 AM	0	0	0	0	0	1	2	0	1	0	7	10	12	0	0	35	5	11	3	0	0	0	0	0	0	87
09:30 AM	0	0	0	0	0	7	5	0	0	0	3	15	20	0	0	35	3	14	8	0	0	0	0	0	0	110
09:45 AM	0	0	0	0	0	16	21	0	0	0	3	27	7	0	0	65	4	18	26	0	0	0	0	0	0	187
Total	0	0	0	0	0	28	33	0	1	0	18	66	41	0	0	179	15	60	40	0	0	0	0	0	0	481
10:00 AM	0	0	0	0	0	10	13	0	0	0	1	31	9	0	0	66	3	10	20	0	0	0	0	0	0	163
10:15 AM	0	0	0	0	0	14	13	0	5	0	2	33	11	0	0	69	8	15	21	0	0	0	0	0	0	191
10:30 AM	0	0	0	0	0	16	6	0	7	0	2	25	7	0	0	70	6	13	31	0	0	0	0	0	0	183
10:45 AM	0	0	0	0	0	10	8	0	3	0	6	15	7	0	0	76	5	20	14	0	0	0	0	0	0	164
Total	0	0	0	0	0	50	40	0	15	0	11	104	34	0	0	281	22	58	86	0	0	0	0	0	0	701
11:00 AM	0	0	0	0	0	9	10	0	2	0	7	19	14	0	0	52	4	22	7	0	0	0	0	0	0	146
11:15 AM	0	0	0	0	0	5	10	0	1	0	3	11	9	0	0	59	4	21	8	0	0	0	0	0	0	131
11:30 AM	0	0	0	0	0	7	12	0	7	0	4	12	9	0	0	41	3	27	11	0	0	0	0	0	0	133
11:45 AM	0	0	0	0	0	13	11	0	2	0	3	29	12	0	0	55	8	18	26	0	0	0	0	0	0	177
Total	0	0	0	0	0	34	43	0	12	0	17	71	44	0	0	207	19	88	52	0	0	0	0	0	0	587
12:00 PM	0	0	0	0	0	12	12	0	2	0	3	27	3	0	0	76	4	23	30	0	0	0	0	0	0	192
12:15 PM	0	0	0	0	0	8	10	0	1	0	2	32	13	0	0	92	4	21	13	0	0	0	0	0	0	196
12:30 PM	0	0	0	0	0	9	4	0	2	0	2	26	17	0	0	51	1	22	26	0	0	0	0	0	0	160
12:45 PM	0	0	0	0	0	28	8	0	1	0	5	26	13	0	0	62	5	18	49	0	0	0	0	0	0	215
Total	0	0	0	0	0	57	34	0	6	0	12	111	46	0	0	281	14	84	118	0	0	0	0	0	0	763
01:00 PM	0	0	0	0	0	21	17	0	4	0	2	28	12	0	0	116	6	21	54	0	0	0	0	0	0	281
01:15 PM	0	0	0	0	0	13	15	0	3	0	4	11	10	0	0	98	4	18	8	0	0	0	0	0	0	184
01:30 PM	0	0	0	0	0	5	13	0	0	0	4	12	6	0	0	58	6	21	4	0	0	0	0	0	0	129
01:45 PM	0	0	0	0	0	7	14	0	1	0	4	21	9	0	0	62	2	27	3	0	0	0	0	0	0	150
Total	0	0	0	0	0	46	59	0	8	0	14	72	37	0	0	334	18	87	69	0	0	0	0	0	0	744
02:00 PM	0	0	0	0	0	7	8	0	2	0	2	20	15	0	0	69	6	15	4	0	0	0	0	0	0	148
02:15 PM	0	0	0	0	0	5	8	0	1	0	2	15	11	0	0	45	4	24	19	0	0	0	0	0	0	134
02:30 PM	0	0	0	0	0	12	5	0	2	0	3	11	14	0	0	49	5	34	27	0	0	0	0	0	0	162
02:45 PM	0	0	0	0	0	27	9	0	1	0	8	23	14	0	0	64	4	24	34	0	0	0	0	0	0	208
Total	0	0	0	0	0	51	30	0	6	0	15	69	54	0	0	227	19	97	84	0	0	0	0	0	0	652
03:00 PM	0	0	0	0	0	22	23	0	2	0	3	24	16	0	0	103	9	25	30	0	0	0	0	0	0	257
03:15 PM	0	0	0	0	0	19	18	0	4	0	6	24	16	0	0	81	6	27	27	0	0	0	0	0	0	228

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Cars & Peds

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
03:30 PM	0	0	0	0	0	18	8	0	4	0	2	34	17	0	0	103	4	27	38	0	0	0	0	0	0	255
03:45 PM	0	0	0	0	0	17	14	0	2	0	6	26	15	0	0	87	5	27	41	0	0	0	0	0	0	240
Total	0	0	0	0	0	76	63	0	12	0	17	108	64	0	0	374	24	106	136	0	0	0	0	0	0	980
04:00 PM	0	0	0	0	0	22	13	0	1	0	4	37	15	0	0	83	9	19	49	0	0	0	0	0	0	252
04:15 PM	0	0	0	0	0	23	14	0	3	0	6	29	12	0	0	91	5	35	37	0	0	0	0	0	0	255
04:30 PM	0	0	0	0	0	25	16	0	4	0	9	36	9	0	0	106	10	48	29	0	0	0	0	0	0	292
04:45 PM	0	0	0	0	0	17	12	0	4	0	4	24	8	0	0	112	6	25	25	0	0	0	0	0	0	237
Total	0	0	0	0	0	87	55	0	12	0	23	126	44	0	0	392	30	127	140	0	0	0	0	0	0	1036
05:00 PM	0	0	0	0	0	6	8	0	6	0	7	32	22	0	0	88	6	22	5	1	0	0	0	0	0	203
05:15 PM	0	0	0	0	0	9	3	0	0	0	5	14	8	0	0	48	6	13	15	0	0	0	0	0	0	121
05:30 PM	0	0	0	0	0	7	3	0	1	0	3	23	23	0	0	56	5	23	33	0	0	0	0	0	0	177
05:45 PM	0	0	0	0	0	24	11	0	2	0	4	34	17	0	0	74	5	28	35	1	0	0	0	0	0	235
Total	0	0	0	0	0	46	25	0	9	0	19	103	70	0	0	266	22	86	88	2	0	0	0	0	0	736
Grand Total	0	0	0	0	0	490	411	0	82	0	175	884	508	0	0	2747	204	878	826	2	0	0	0	0	0	7207
Apprch %	0	0	0	0	0	49.8	41.8	0	8.3	0	11.2	56.4	32.4	0	0	59	4.4	18.9	17.7	0	0	0	0	0	0	
Total %	0	0	0	0	0	6.8	5.7	0	1.1	0	2.4	12.3	7	0	0	38.1	2.8	12.2	11.5	0	0	0	0	0	0	

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 09:00 AM																															
09:00 AM	0	0	0	0	0	0	4	5	0	0	0	9	5	14	2	0	0	21	44	3	17	3	0	67	0	0	0	0	0	0	97
09:15 AM	0	0	0	0	0	0	1	2	0	**1**	0	4	**7**	10	12	0	0	29	35	**5**	11	3	0	54	0	0	0	0	0	0	87
09:30 AM	0	0	0	0	0	0	7	5	0	0	0	12	3	15	**20**	0	0	**38**	35	3	14	8	0	60	0	0	0	0	0	0	110
09:45 AM	0	0	0	0	0	0	**16**	**21**	0	0	0	**37**	3	**27**	7	0	0	37	**65**	4	**18**	**26**	0	**113**	0	0	0	0	0	0	**187**
Total Volume	0	0	0	0	0	0	28	33	0	1	0	62	18	66	41	0	0	125	179	15	60	40	0	294	0	0	0	0	0	0	481
% App. Total	0	0	0	0	0		45.2	53.2	0	1.6	0		14.4	52.8	32.8	0	0		60.9	5.1	20.4	13.6	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.438	.393	.000	.250	.000	.419	.643	.611	.513	.000	.000	.822	.688	.750	.833	.385	.000	.650	.000	.000	.000	.000	.000	.000	.643
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 12:15 PM																															
12:15 PM	0	0	0	0	0	0	8	10	0	1	0	19	2	**32**	13	0	0	**47**	92	4	21	13	0	130	0	0	0	0	0	0	196
12:30 PM	0	0	0	0	0	0	9	4	0	2	0	15	2	26	**17**	0	0	45	51	1	**22**	26	0	100	0	0	0	0	0	0	160
12:45 PM	0	0	0	0	0	0	**28**	8	0	1	0	37	**5**	26	13	0	0	44	62	5	18	49	0	134	0	0	0	0	0	0	215
01:00 PM	0	0	0	0	0	0	21	**17**	0	**4**	0	**42**	2	28	12	0	0	42	**116**	**6**	21	**54**	0	**197**	0	0	0	0	0	0	**281**
Total Volume	0	0	0	0	0	0	66	39	0	8	0	113	11	112	55	0	0	178	321	16	82	142	0	561	0	0	0	0	0	0	852
% App. Total	0	0	0	0	0		58.4	34.5	0	7.1	0		6.2	62.9	30.9	0	0		57.2	2.9	14.6	25.3	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.589	.574	.000	.500	.000	.673	.550	.875	.809	.000	.000	.947	.692	.667	.932	.657	.000	.712	.000	.000	.000	.000	.000	.000	.758

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 3

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 03:45 PM																														
03:45 PM	0	0	0	0	0	0	17	14	0	2	0	33	6	26	**15**	0	0	47	87	5	27	41	0	160	0	0	0	0	0	0	240
04:00 PM	0	0	0	0	0	0	22	13	0	1	0	36	4	**37**	15	0	0	**56**	83	9	19	**49**	0	160	0	0	0	0	0	0	252
04:15 PM	0	0	0	0	0	0	23	14	0	3	0	40	6	29	12	0	0	47	91	5	35	37	0	168	0	0	0	0	0	0	255
04:30 PM	0	0	0	0	0	0	**25**	**16**	0	**4**	0	**45**	**9**	36	9	0	0	54	**106**	**10**	**48**	29	0	**193**	0	0	0	0	0	0	**292**
Total Volume	0	0	0	0	0	0	87	57	0	10	0	154	25	128	51	0	0	204	367	29	129	156	0	681	0	0	0	0	0	0	1039
% App. Total	0	0	0	0	0		56.5	37	0	6.5	0		12.3	62.7	25	0	0		53.9	4.3	18.9	22.9	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.870	.891	.000	.625	.000	.856	.694	.865	.850	.000	.000	.911	.866	.725	.672	.796	.000	.882	.000	.000	.000	.000	.000	.000	.890

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Trucks & Buses

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	7	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	11
08:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	0	0	0	0	1	7	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	12
09:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
09:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
09:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	4
10:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10:45 AM	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	6	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	11
11:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	4
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	7	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	12
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
12:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	5	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	10
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
01:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
01:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	0	0	0	0	0	5	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
02:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
03:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
03:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Trucks & Buses

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
03:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	10
04:00 PM	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7
05:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	4	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	10
Grand Total	0	0	0	0	0	2	57	0	1	0	1	1	45	0	0	0	0	1	0	0	0	0	0	0	0	108
Apprch %	0	0	0	0	0	3.3	95	0	1.7	0	2.1	2.1	95.7	0	0	0	0	100	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	1.9	52.8	0	0.9	0	0.9	0.9	41.7	0	0	0	0	0.9	0	0	0	0	0	0	0	

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 08:15 AM																															
08:15 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	**4**
08:30 AM	0	0	0	0	0	0	0	**3**	0	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	0	0	0	0	0	0	**1**	1	0	0	0	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
09:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	1	8	0	0	0	9	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	13
% App. Total	0	0	0	0	0		11.1	88.9	0	0	0		0	0	100	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.667	.000	.000	.000	.750	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.813
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 10:15 AM																															
10:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	**1**	**2**	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	4
10:30 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10:45 AM	0	0	0	0	0	0	0	**3**	0	0	0	**3**	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**5**
11:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	8	0	0	0	8	0	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	13
% App. Total	0	0	0	0	0		0	100	0	0	0		0	20	80	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.667	.000	.000	.000	.667	.000	.250	.500	.000	.000	.417	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.650

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 02:15 PM																															
02:15 PM	0	0	0	0	0	0	0	**3**	0	0	0	**3**	0	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	**5**
02:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	0	0	0	0	0	0	6	0	0	0	6	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	11
% App. Total	0	0	0	0	0		0	100	0	0	0		0	0	100	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.550

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

Groups Printed- Bikes by Direction

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

Groups Printed- Bikes by Direction

	A/B Garages & Arrivals From North					Evans Avenue (to Cargo & Long Term E) From East					Airport Connector Road From South					Airport Connector Road From West					Short Term D & Uber/Lyft/Shuttle Stage From Northwest					
Start Time	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Int. Total
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																										

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:00 AM																															
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 10:00 AM																															
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 02:00 PM																														
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

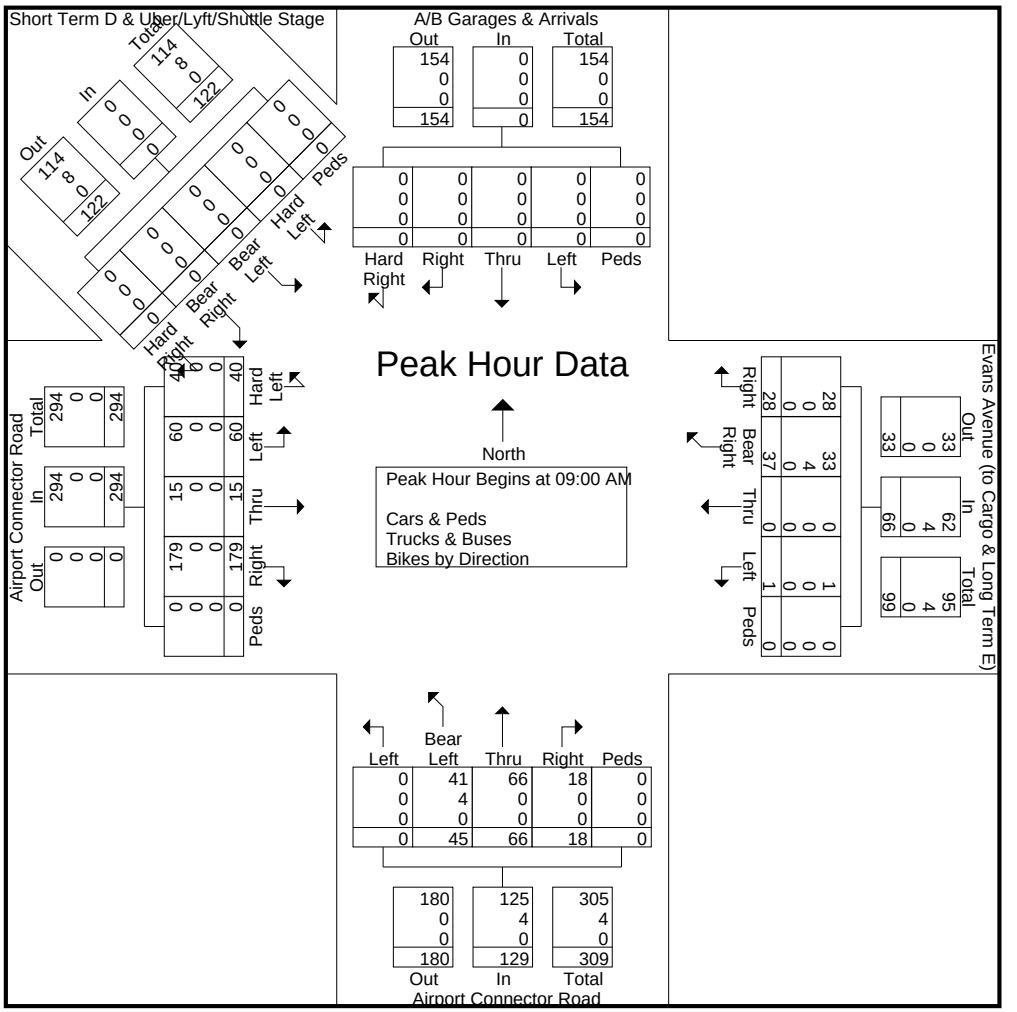
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 1

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 09:00 AM																														
09:00 AM	0	0	0	0	0	0	4	7	0	0	0	11	5	14	2	0	0	21	44	3	17	3	0	67	0	0	0	0	0	0	99
09:15 AM	0	0	0	0	0	0	1	3	0	**1**	0	5	**7**	10	14	0	0	31	35	**5**	11	3	0	54	0	0	0	0	0	0	90
09:30 AM	0	0	0	0	0	0	7	6	0	0	0	13	3	15	**20**	0	0	38	35	3	14	8	0	60	0	0	0	0	0	0	111
09:45 AM	0	0	0	0	0	0	**16**	**21**	0	0	0	**37**	3	**27**	9	0	0	**39**	**65**	4	**18**	**26**	0	**113**	0	0	0	0	0	0	**189**
Total Volume	0	0	0	0	0	0	28	37	0	1	0	66	18	66	45	0	0	129	179	15	60	40	0	294	0	0	0	0	0	0	489
% App. Total	0	0	0	0	0		42.4	56.1	0	1.5	0		14	51.2	34.9	0	0		60.9	5.1	20.4	13.6	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.438	.440	.000	.250	.000	.446	.643	.611	.563	.000	.000	.827	.688	.750	.833	.385	.000	.650	.000	.000	.000	.000	.000	.000	.647
Cars & Peds	0	0	0	0	0	0	28	33	0	1	0	62	18	66	41	0	0	125	179	15	60	40	0	294	0	0	0	0	0	0	481
% Cars & Peds	0	0	0	0	0	0	100	89.2	0	100	0	93.9	100	100	91.1	0	0	96.9	100	100	100	100	0	100	0	0	0	0	0	0	98.4
Trucks & Buses	0	0	0	0	0	0	0	4	0	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
% Trucks & Buses	0	0	0	0	0	0	0	10.8	0	0	0	6.1	0	0	8.9	0	0	3.1	0	0	0	0	0	0	0	0	0	0	0	0	1.6
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



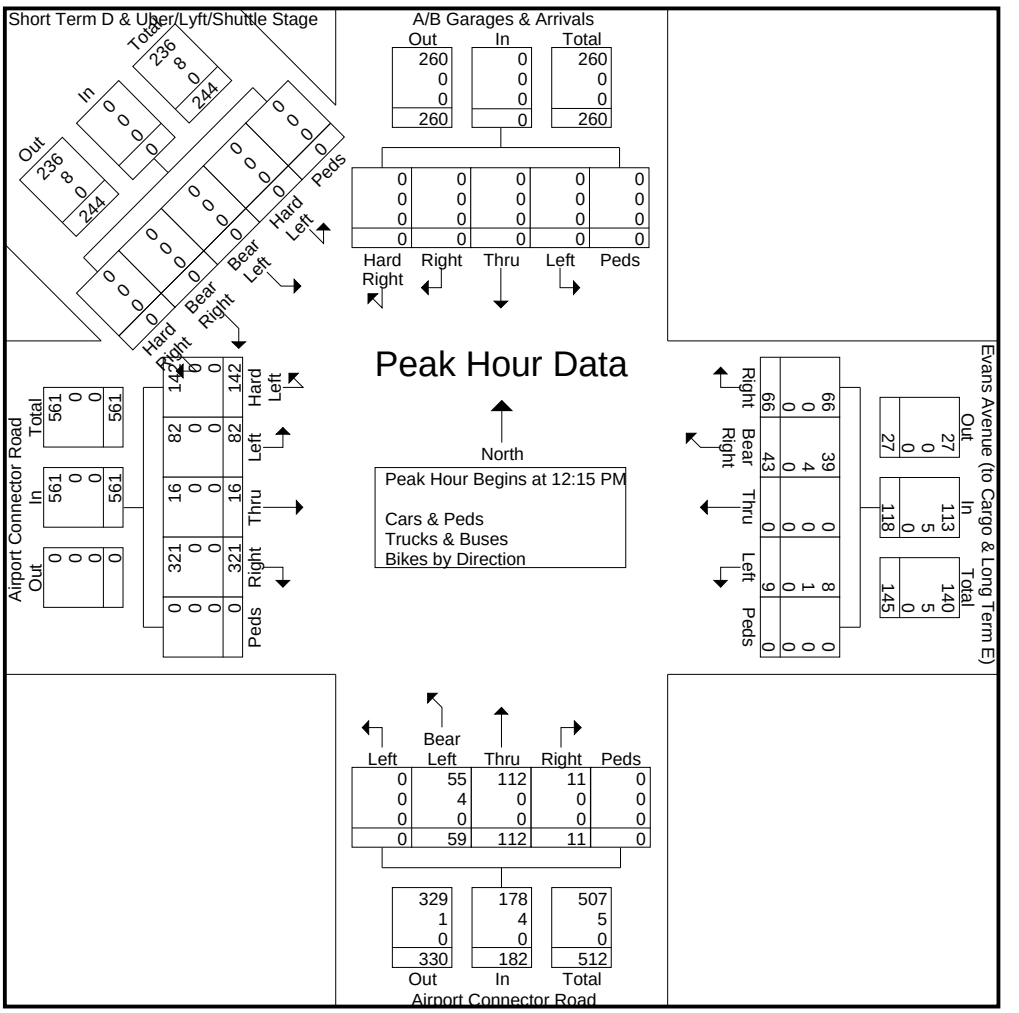
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 2

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 12:15 PM																														
12:15 PM	0	0	0	0	0	0	8	11	0	2	0	21	2	**32**	15	0	0	**49**	92	4	21	13	0	130	0	0	0	0	0	0	200
12:30 PM	0	0	0	0	0	0	9	6	0	2	0	17	2	26	**17**	0	0	45	51	1	**22**	26	0	100	0	0	0	0	0	0	162
12:45 PM	0	0	0	0	0	0	**28**	9	0	1	0	38	**5**	26	15	0	0	46	62	5	18	49	0	134	0	0	0	0	0	0	218
01:00 PM	0	0	0	0	0	0	21	**17**	0	**4**	0	**42**	2	28	12	0	0	42	**116**	**6**	21	**54**	0	**197**	0	0	0	0	0	0	**281**
Total Volume	0	0	0	0	0	0	66	43	0	9	0	118	11	112	59	0	0	182	321	16	82	142	0	561	0	0	0	0	0	0	861
% App. Total	0	0	0	0	0		55.9	36.4	0	7.6	0		6	61.5	32.4	0	0		57.2	2.9	14.6	25.3	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.589	.632	.000	.563	.000	.702	.550	.875	.868	.000	.000	.929	.692	.667	.932	.657	.000	.712	.000	.000	.000	.000	.000	.000	.766
Cars & Peds	0	0	0	0	0	0	66	39	0	8	0	113	11	112	55	0	0	178	321	16	82	142	0	561	0	0	0	0	0	0	852
% Cars & Peds	0	0	0	0	0	0	100	90.7	0	88.9	0	95.8	100	100	93.2	0	0	97.8	100	100	100	100	0	100	0	0	0	0	0	0	99.0
Trucks & Buses	0	0	0	0	0	0	0	4	0	1	0	5	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
% Trucks & Buses	0	0	0	0	0	0	0	9.3	0	11.1	0	4.2	0	0	6.8	0	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



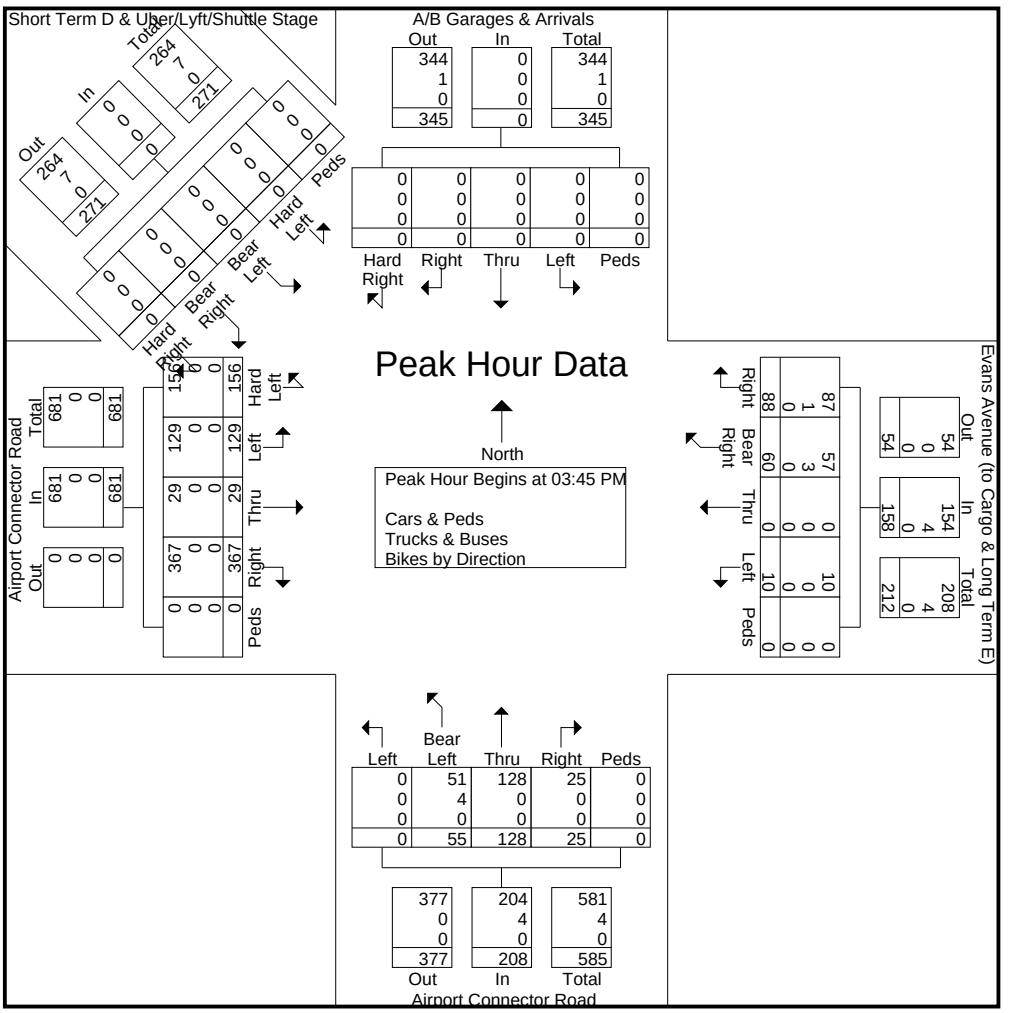
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/NW/S: Arrivals/Lot D/Connector Road
E/W: Evans Avenue/Airport Connector Road
City, State: Warwick, RI
Client: CHA/E. Moshier

File Name : 05739A
Site Code : 79556001
Start Date : 8/17/2023
Page No : 3

	A/B Garages & Arrivals From North						Evans Avenue (to Cargo & Long Term E) From East						Airport Connector Road From South						Airport Connector Road From West						Short Term D & Uber/Lyft/Shuttle Stage From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 03:45 PM																														
03:45 PM	0	0	0	0	0	0	17	14	0	2	0	33	6	26	**17**	0	0	49	87	5	27	41	0	160	0	0	0	0	0	0	242
04:00 PM	0	0	0	0	0	0	23	14	0	1	0	38	4	**37**	16	0	0	**57**	83	9	19	**49**	0	160	0	0	0	0	0	0	255
04:15 PM	0	0	0	0	0	0	23	14	0	3	0	40	6	29	13	0	0	48	91	5	35	37	0	168	0	0	0	0	0	0	256
04:30 PM	0	0	0	0	0	0	**25**	**18**	0	**4**	0	**47**	**9**	36	9	0	0	54	**106**	**10**	**48**	29	0	**193**	0	0	0	0	0	0	**294**
Total Volume	0	0	0	0	0	0	88	60	0	10	0	158	25	128	55	0	0	208	367	29	129	156	0	681	0	0	0	0	0	0	1047
% App. Total	0	0	0	0	0		55.7	38	0	6.3	0		12	61.5	26.4	0	0		53.9	4.3	18.9	22.9	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.880	.833	.000	.625	.000	.840	.694	.865	.809	.000	.000	.912	.866	.725	.672	.796	.000	.882	.000	.000	.000	.000	.000	.000	.890
Cars & Peds	0	0	0	0	0	0	87	57	0	10	0	154	25	128	51	0	0	204	367	29	129	156	0	681	0	0	0	0	0	0	1039
% Cars & Peds	0	0	0	0	0	0	98.9	95.0	0	100	0	97.5	100	100	92.7	0	0	98.1	100	100	100	100	0	100	0	0	0	0	0	0	99.2
Trucks & Buses	0	0	0	0	0	0	1	3	0	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
% Trucks & Buses	0	0	0	0	0	0	1.1	5.0	0	0	0	2.5	0	0	7.3	0	0	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0.8
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



TRAFFIC SIGNAL WARRANT SUMMARY

Analyst: A. Robb
Project : **T. F. Green Airport Cargo Facility** Date: September 13, 2023
Location: **Evans Ave & Airport Connecto** Checked By:
Warwick, RI CHA Project No. 79556

Intersection:

Major Street: Evans Avenue / Airport Connector Rd — Number of Approach Lanes: **1**
Minor Street: Airport Connector Rd — Number of Approach Lanes: **1**

Critical Approach Speed: **25** mph — Number of Intersection Approaches: **3**
Posted Speed Limit: **25** mph

Volume Level Criteria

1. Is the critical speed of major street traffic > 40 mph ? ___ Yes x No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ___ Yes x No

Population: **83,011**

If Question 1 or 2 above is answered "Yes", then use "70%" volume level — Use: 100 %

Traffic Volume Input

Analysis Condition: Existing Conditions (Unadjusted)

Data Source: Transportation Data Corporation

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	0	74	91	129	154	136	173	127	142	194	196	198	0
Pedestrian Volume Crossing Major Street (Total of all crossings)	0	0	0	0	0	0	0	0	0	0	0	2	0

Notes:

Volumes used are unadjusted TMC performed on August 17, 2023 by Transportation Data Corporation. Note, the EB channelized right turn volumes have been removed as there is a dedicated receiving lane with minimal conflict.

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME

Applicable: ☒ Yes No

Satisfied: Yes ☒ No

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied. Should be applied only after adequate trial of other alternatives that would cause less delay and inconvenience to traffic has failed to solve the traffic problem.

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 …….	1 …….	500	400	350	280	150	120	105	84
2 or more	1 …….	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1 …….	2 or more	500	400	350	280	200	160	140	112

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**500**	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	**150**	0	74	91	129	154	136	173	127	142	194	196	198	0
	satisfied?													

Warrant Criteria Satisfied for Condition A ? **NO** Number of Hours Satisfied: **0**

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 …….	1 …….	750	600	525	420	75	60	53	42
2 or more	1 …….	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1 …….	2 or more	750	600	525	420	100	80	70	56

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**750**	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	**75**	0	74	91	129	154	136	173	127	142	194	196	198	0
	satisfied?													

Warrant Criteria Satisfied for Condition B ? **NO** Number of Hours Satisfied: **0**

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME (Con't)

Combination of Conditions A & B

Condition A

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**400**	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	**120**	0	74	91	129	154	136	173	127	142	194	196	198	0
	satisfied?										☑	☑		

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **2**

Condition B

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**600**	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	**60**	0	74	91	129	154	136	173	127	142	194	196	198	0
	satisfied?													

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **0**

Warrant Criteria 80% Satisfied for Conditions A and B? **NO** Number of Hours Satisfied: **0**

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☒ Yes ☐ No

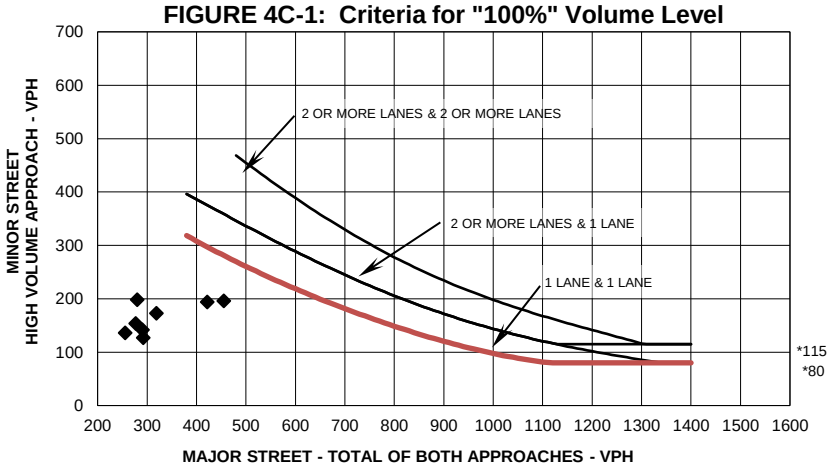
Satisfied: ☐ Yes ☒ No

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	*0*	*0*
7-8 am	*71*	*74*
8-9 am	*108*	*91*
9-10am	*181*	*129*
10-11am	*277*	*154*
11-12pm	*256*	*136*
12-1pm	*319*	*173*
1-2pm	*292*	*127*
2-3pm	*291*	*142*
3-4pm	*422*	*194*
4-5pm	*455*	*196*
5-6pm	*280*	*198*
6-7pm	*0*	*0*

Plot four volume combinations on the applicable figure below.

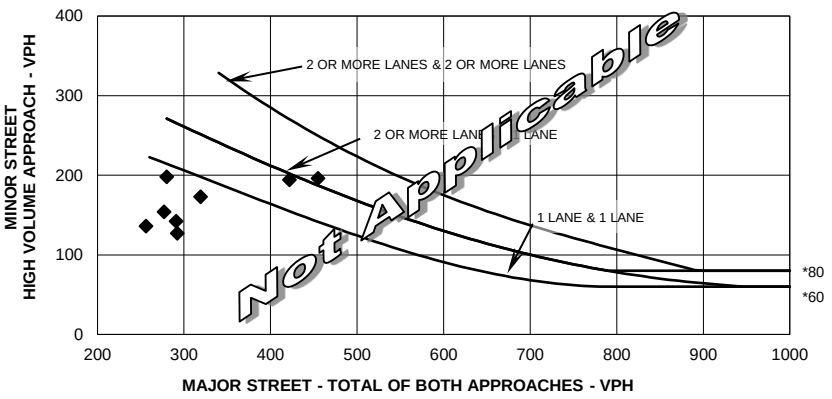
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 40mph (70 km/hr) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 3 - PEAK HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

The Peak Hour Volume signal warrant shall be applied only un unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

CONDITION A

Criteria

1. **Total Stopped Time Delay on Minor Approach**

		AM	PM
Average Delay per vehicle (sec):		11.8	11.7
Peak Hour Volume:		462	680
Total 1-hour stopped delay	*(veh-hrs):*	1.5	2.2
Volume Criteria		4	4

Criteria: 4 veh-hrs for 1-lane approach; or
5 veh-hrs for 2-lane approach

2. **Minor-Street Approach Volume**

Minor Street Volume:	208
Number of Approach Lanes:	1
Volume Criteria:	100

Criteria: 100 vph for 1 lane; 150 vph for 2 lanes

3. **Intersection Peak-Hour Volume**

Total Entering Volume:	680
Number of Approaches:	3
Volume Criteria:	650

Criteria: 650 vph for 3 approaches; or
800 vph for 4 or more approaches

Criteria 1 Satisfied?	Yes	☒ No
Criteria 2 Satisfied?	☒ Yes	No
Criteria 3 Satisfied?	☒ Yes	No

Note: All 3 criteria need to be satified for Condition A to be met

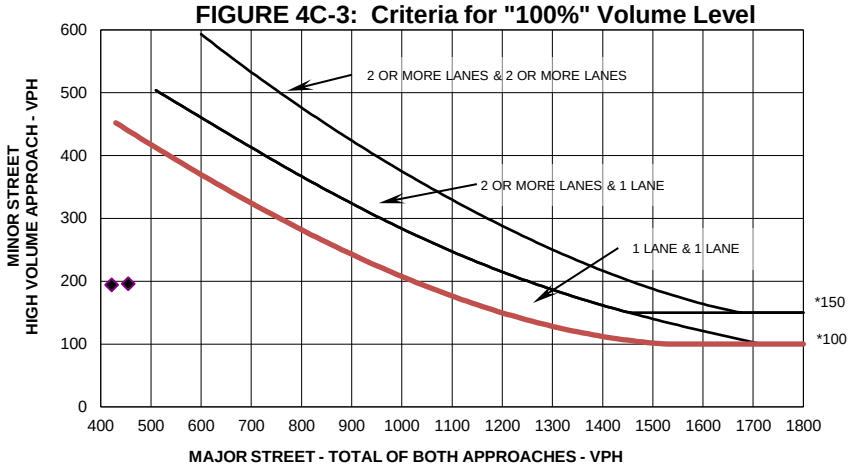
CONDITION B

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	*0*	*0*
7-8 am	*71*	*74*
8-9 am	*108*	*91*
9-10am	*181*	*129*
10-11am	*277*	*154*
11-12pm	*256*	*136*
12-1pm	*319*	*173*
1-2pm	*292*	*127*
2-3pm	*291*	*142*
3-4pm	*422*	*194*
4-5pm	*455*	*196*
5-6pm	*280*	*198*
6-7pm	*0*	*0*

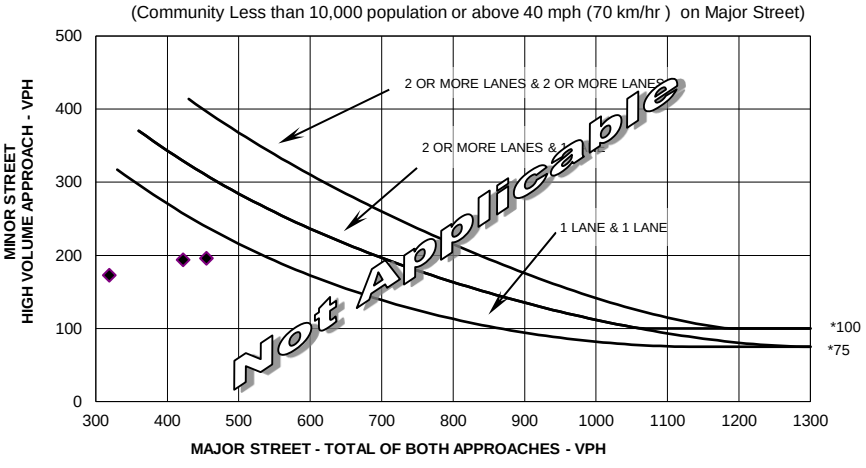
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 40 mph (70 km/hr) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME

Applicable: Yes ☒ No

Satisfied: ☐ Yes ☒ No

Warrant 4 is satisfied if Condition A or Condition B is satisfied.

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street

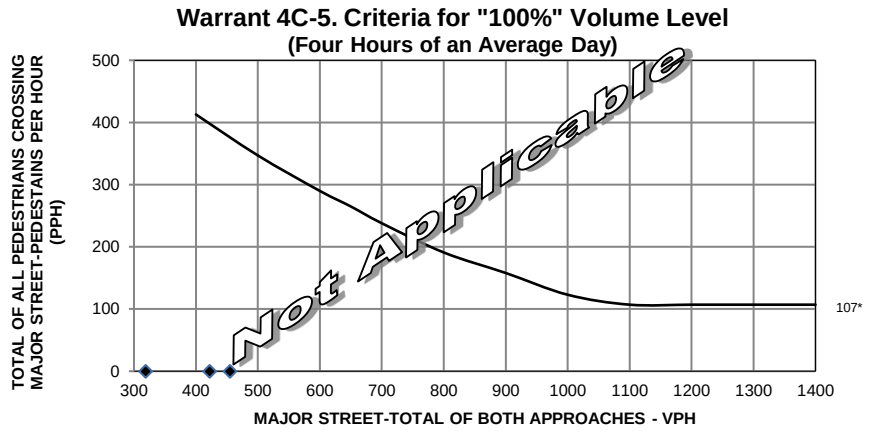
**The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

CONDITION A

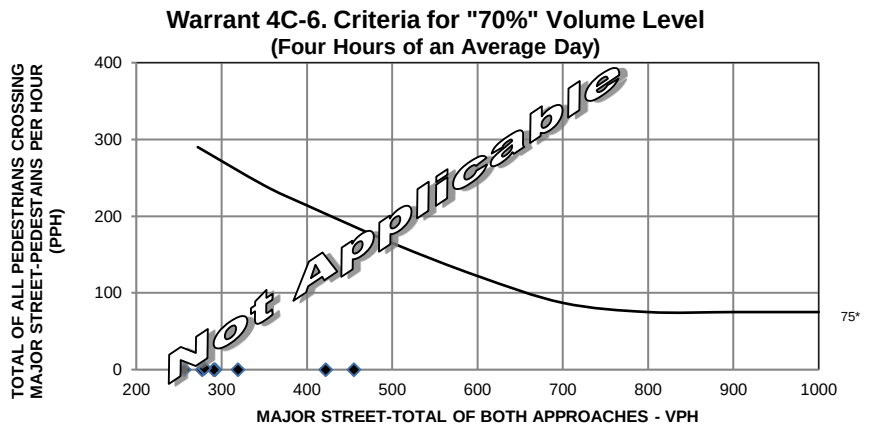
If any four points lie above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	Major Street	Pedestrian volume
6-7 am	0	0
7-8 am	71	0
8-9 am	108	0
9-10am	181	0
10-11am	277	0
11-12pm	256	0
12-1pm	319	0
1-2pm	292	0
2-3pm	291	0
3-4pm	422	0
4-5pm	455	0
5-6pm	280	2
6-7pm	0	0



** Note: 107 pph applies as the lower threshold volume*



** Note: 75 pph applies as the lower threshold volume*

Standard	Fulfilled?	
	Yes	No
Condition A satisfied?	☐	☒

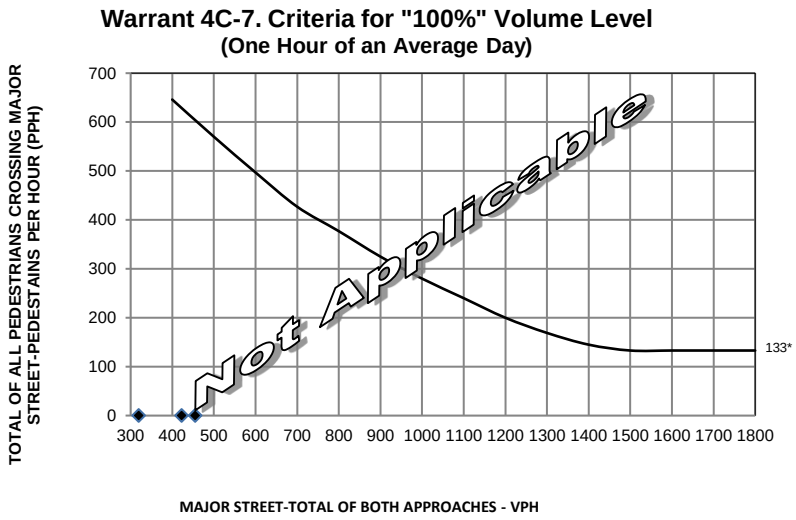
Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME (Con't)

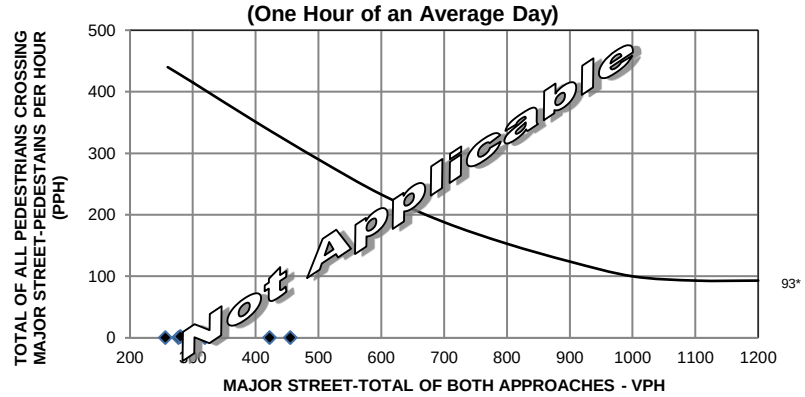
CONDITION B

If any one points lies above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level



** Note: 133 pph applies as the lower threshold*



** Note: 93 pph applies as the lower threshold*

Standard	Fulfilled?	
	Yes	No
Condition B satisfied?	☐	☒

Source: USMUTCD, 2009

WARRANT 5 - SCHOOL CROSSING

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all of the criteria are fulfilled.

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:		☐	☐
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the crossing than the number of minutes in the same period.		Minutes:	Gaps:	☐	☐
3. Consideration was given for other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing				☐	☐
4. The nearest traffic signal along the major street is located more than 90 m (300 ft) away, or the nearest signal is within 90 m (300 ft) but the proposed traffic signal will not restrict the progressive movement of traffic.				☐	☐

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes No

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft).

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	☐	☐
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.	☐	☐

Source: USMUTCD, 2009

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	see Warrant 1 worksheet		☐	☒	☐	☒
	Warrant 1, Condition B (80% satisfied)			☐	☒		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour	see Warrant 4 worksheet		☐	☒		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:				☐	☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:				☐	☒

WARRANT 8 - ROADWAY NETWORK

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria								Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.				Entering Volume: 1,204			☒	☐	☒	☐
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.			Warrant:	1	2	3	☒	☐		
				Satisfied?:	☒	☒	☒				
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)								← Hour		☐	☒
								← Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	☒	☐	☐	☒
	Minor Street:	☐	☒		
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:	☒	☐		
	Minor Street:	☐	☒		
3. Appears as a major route on an official plan.	Major Street:	☒	☐		
	Minor Street:	☐	☒		

Source: USMUTCD, 2009

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Warrant 9 is satisfied if Condition A and Condition B are satisfied.

Criteria	Fulfilled? Yes	Fulfilled? No
A. A grade crossing exists on an approach controlled be a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; **and**	☒	☐
B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure **4C-9** or **4C-10** for the existing combination of approach lanes over the track and the distance **D**, which is the clear storage distance as defined in Section 1A.13	☒	☐

Rail Traffic per Day: _____
HOB _____
D _____
%HV _____

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	0	71	108	181	277	256	319	292	291	422	455	280	0
Minor Street (Highest Approach)	0	74	91	129	154	136	173	127	142	194	196	198	0
Minor Street (adjusted) (Highest Approach)	0	37	45.5	64.5	77	68	86.5	63.5	71	97	98	99	0

Table 4C-3. Warrant 9, Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

Table 4C-2. Warrant 9, Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic Per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

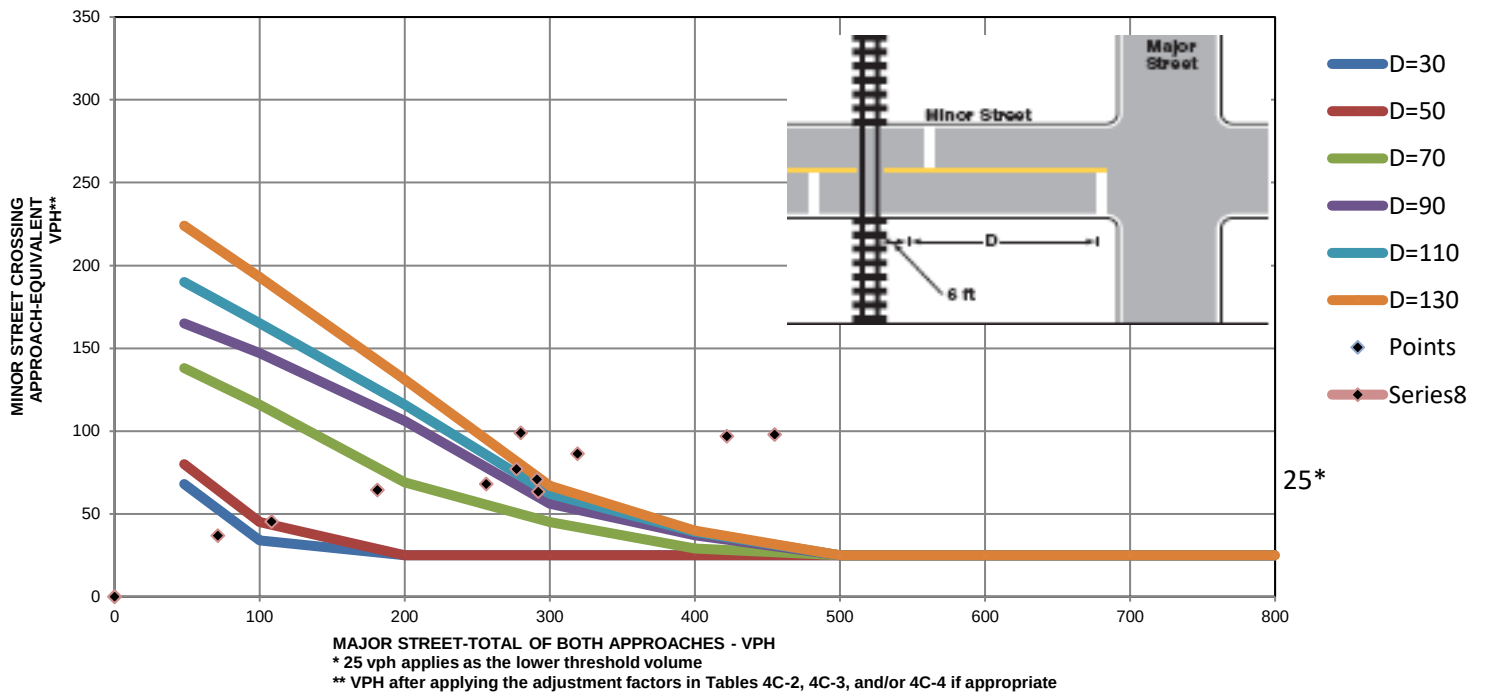
Table 4C-4. Warrant 9, Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

Source: USMUTCD, 2009

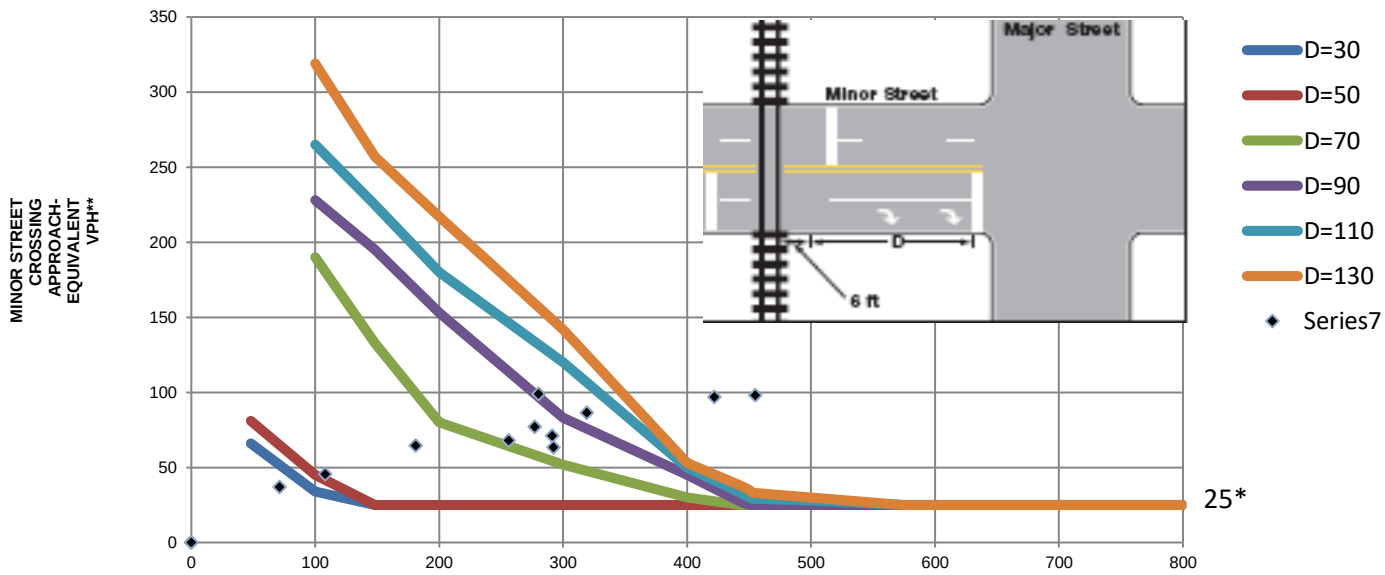
WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

Figure 4C-9. Warrant 9, Intersection Near a Grade Crossing
(One Approach Lane at the Track Crossing)



* 25 vph applies as the lower threshold volume
** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4 if appropriate

Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing
(Two or More Approach Lanes at the Track Crossing)



* 25 vph applies as the lower threshold volume
** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4 if appropriate

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

Analyst: A. Robb

Project : **T. F. Green Airport Cargo Facility**

Date: September 13, 2023

Location: **Evans Ave & Airport Connecto**

Checked By:

Warwick, RI

CHA Project No. 79556

Intersection: **0**

Major Street: Evans Avenue / Airport Connector Rd

Minor Street: Airport Connector Rd

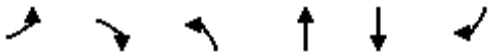
CONCLUSIONS

	1	2	3	4	5	6	7	8	9
Applicable Warrants	☒	☒	☒						
Warrants Satisfied:									

Remarks: Conditions do not satisfy any Warrants

Traffic Signal control IS NOT recommended

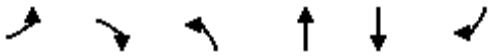
Source: USMUTCD, 2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	2	9	13	21	7
Future Volume (Veh/h)	101	2	9	13	21	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.61	0.61	0.70	0.70
Hourly flow rate (vph)	140	3	15	21	30	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					970	
pX, platoon unblocked						
vC, conflicting volume	86	35	40			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86	35	40			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	99			
cM capacity (veh/h)	911	1032	1583			

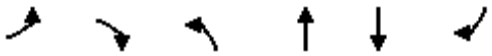
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	143	36	40
Volume Left	140	15	0
Volume Right	3	0	10
cSH	931	1583	1700
Volume to Capacity	0.15	0.01	0.02
Queue Length 95th (ft)	14	1	0
Control Delay (s)	9.6	3.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	3.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	2	9	13	21	7
Future Volume (vph)	101	2	9	13	21	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	16	16	12
Storage Length (ft)	0	60	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.966	
Flt Protected	0.950			0.980		
Satd. Flow (prot)	1745	1501	0	2110	2080	0
Flt Permitted	0.950			0.980		
Satd. Flow (perm)	1745	1501	0	2110	2080	0
Link Speed (mph)	25			30	25	
Link Distance (ft)	270			270	970	
Travel Time (s)	7.4			6.1	26.5	
Peak Hour Factor	0.72	0.72	0.61	0.61	0.70	0.70
Heavy Vehicles (%)	0%	4%	0%	0%	0%	0%
Adj. Flow (vph)	140	3	15	21	30	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	140	3	0	36	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

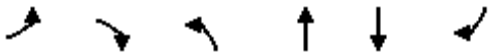
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	133	5	7	7	36	8
Future Volume (Veh/h)	133	5	7	7	36	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.80	0.80	0.92	0.92
Hourly flow rate (vph)	158	6	9	9	39	9
Pedestrians				2		
Lane Width (ft)				16.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					970	
pX, platoon unblocked						
vC, conflicting volume	70	46	48			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	70	46	48			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	99	99			
cM capacity (veh/h)	926	1027	1572			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	164	18	48
Volume Left	158	9	0
Volume Right	6	0	9
cSH	961	1572	1700
Volume to Capacity	0.17	0.01	0.03
Queue Length 95th (ft)	15	0	0
Control Delay (s)	9.6	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	3.7	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	5	7	7	36	8
Future Volume (vph)	133	5	7	7	36	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	16	16	12
Storage Length (ft)	0	60	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.975	
Flt Protected	0.950			0.976		
Satd. Flow (prot)	1694	1561	0	2102	2100	0
Flt Permitted	0.950			0.976		
Satd. Flow (perm)	1694	1561	0	2102	2100	0
Link Speed (mph)	25			30	25	
Link Distance (ft)	270			270	970	
Travel Time (s)	7.4			6.1	26.5	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.84	0.84	0.80	0.80	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	158	6	9	9	39	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	6	0	18	48	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	98	56	21	270	12	56	56	38	117	8
Future Volume (vph)	98	56	21	270	12	56	56	38	117	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	11	12	14	12
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85	1.00	0.85		0.90		
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (prot)		1805	1900	1615	1745	1576		1649		
Flt Permitted		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (perm)		1805	1900	1615	1745	1576		1649		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.84	0.84	0.84	0.83	0.83	0.83
Adj. Flow (vph)	105	60	23	290	14	67	67	46	141	10
RTOR Reduction (vph)	0	94	0	0	0	86	0	4	0	0
Lane Group Flow (vph)	0	71	23	290	14	48	0	193	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	11%	1%	0%
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Actuated Green, G (s)		12.3	12.3	49.0	15.4	15.4		8.3		
Effective Green, g (s)		12.3	12.3	49.0	15.4	15.4		8.3		
Actuated g/C Ratio		0.25	0.25	1.00	0.31	0.31		0.17		
Clearance Time (s)		4.0	4.0		4.0	4.0		5.0		
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		453	476	1615	548	495		279		
v/s Ratio Prot		0.04	0.01		0.01	0.03		c0.12		
v/s Ratio Perm				c0.18						
v/c Ratio		0.16	0.05	0.18	0.03	0.10		0.69		
Uniform Delay, d1		14.3	13.9	0.0	11.6	11.9		19.1		
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2		0.2	0.0	0.2	0.0	0.1		7.2		
Delay (s)		14.5	14.0	0.2	11.6	12.0		26.3		
Level of Service		B	B	A	B	B		C		
Approach Delay (s)			5.8					26.3		
Approach LOS			A					C		

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

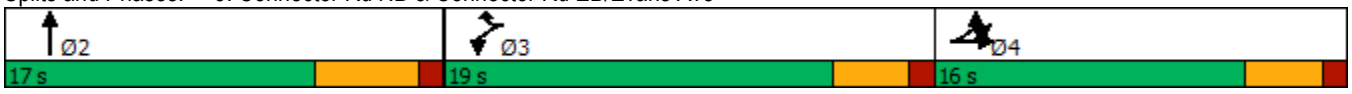
c Critical Lane Group

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	98	56	21	270	12	56	56	38	117	8
Future Volume (vph)	98	56	21	270	12	56	56	38	117	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12	11	12	14	12
Storage Length (ft)		250		0	0	50			0	
Storage Lanes		1		1	1	1			0	
Taper Length (ft)		80			25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850		0.897		
Flt Protected		0.950			0.950					
Satd. Flow (prot)	0	1805	1900	1615	1745	1576	0	1650	0	0
Flt Permitted		0.950			0.950					
Satd. Flow (perm)	0	1805	1900	1615	1745	1576	0	1650	0	0
Right Turn on Red	Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126		290		126		5		
Link Speed (mph)			25					25		
Link Distance (ft)			400					482		
Travel Time (s)			10.9					13.1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	11%	1%	0%
Adj. Flow (vph)	105	60	23	290	14	67	67	46	141	10
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	165	23	290	14	134	0	197	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right	Right	Left	Right	Right
Median Width(ft)			12					0		
Link Offset(ft)			0					0		
Crosswalk Width(ft)			16					16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00
Turning Speed (mph)	15	15		9	15	9	9		9	9
Number of Detectors	1	1	1	0	1	1		1		
Detector Template	Left									
Leading Detector (ft)	20	40	40	0	40	40		40		
Trailing Detector (ft)	0	0	0	0	0	0		0		
Detector 1 Position(ft)	0	0	0	0	0	0		0		
Detector 1 Size(ft)	20	40	40	20	40	40		40		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel										
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Detector Phase	4	4	4		3	3		2		
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0		15.0	15.0		8.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Minimum Split (s)	16.0	16.0	16.0		19.0	19.0		13.0		
Total Split (s)	16.0	16.0	16.0		19.0	19.0		17.0		
Total Split (%)	30.8%	30.8%	30.8%		36.5%	36.5%		32.7%		
Maximum Green (s)	12.0	12.0	12.0		15.0	15.0		12.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		5.0		
Lead/Lag	Lag	Lag	Lag		Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	Min	Min	Min		Min	Min		None		
Act Effct Green (s)		12.3	12.3	47.8	15.3	15.3		10.4		
Actuated g/C Ratio		0.26	0.26	1.00	0.32	0.32		0.22		
v/c Ratio		0.30	0.05	0.18	0.03	0.23		0.54		
Control Delay		7.8	16.0	0.2	13.5	5.2		23.5		
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay		7.8	16.0	0.2	13.5	5.2		23.5		
LOS		A	B	A	B	A		C		
Approach Delay			3.6					23.5		
Approach LOS			A					C		
Queue Length 50th (ft)		9	5	0	3	2		51		
Queue Length 95th (ft)		48	20	0	12	28		93		
Internal Link Dist (ft)			320					402		
Turn Bay Length (ft)		250				50				
Base Capacity (vph)		557	487	1615	560	591		427		
Starvation Cap Reductn		0	0	0	0	0		0		
Spillback Cap Reductn		0	0	0	0	0		0		
Storage Cap Reductn		0	0	0	0	0		0		
Reduced v/c Ratio		0.30	0.05	0.18	0.03	0.23		0.46		

Intersection Summary			
Area Type:	Other		
Cycle Length: 52			
Actuated Cycle Length: 47.8			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Connector Rd NB & Connector Rd EB/Evans Ave



Movement	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	156	129	29	367	10	60	88	55	128	25
Future Volume (vph)	156	129	29	367	10	60	88	55	128	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	11	12	14	12
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85	1.00	0.85		0.90		
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (prot)		1805	1900	1615	1745	1574		1680		
Flt Permitted		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (perm)		1805	1900	1615	1745	1574		1680		
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.84	0.84	0.84	0.91	0.91	0.91
Adj. Flow (vph)	177	147	33	417	12	71	105	60	141	27
RTOR Reduction (vph)	0	96	0	0	0	89	0	9	0	0
Lane Group Flow (vph)	0	228	33	417	12	87	0	219	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	1%	7%	0%	0%
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Actuated Green, G (s)		12.0	12.0	50.6	15.0	15.0		10.6		
Effective Green, g (s)		12.0	12.0	50.6	15.0	15.0		10.6		
Actuated g/C Ratio		0.24	0.24	1.00	0.30	0.30		0.21		
Clearance Time (s)		4.0	4.0		4.0	4.0		5.0		
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		428	450	1615	517	466		351		
v/s Ratio Prot		c0.13	0.02		0.01	0.06		c0.13		
v/s Ratio Perm				c0.26						
v/c Ratio		0.53	0.07	0.26	0.02	0.19		0.62		
Uniform Delay, d1		16.9	15.0	0.0	12.6	13.3		18.2		
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2		1.3	0.1	0.4	0.0	0.2		3.4		
Delay (s)		18.1	15.1	0.4	12.6	13.5		21.6		
Level of Service		B	B	A	B	B		C		
Approach Delay (s)			8.4					21.6		
Approach LOS			A					C		

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

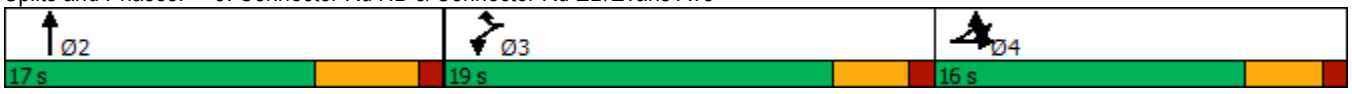
c Critical Lane Group

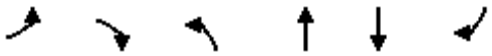
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	156	129	29	367	10	60	88	55	128	25
Future Volume (vph)	156	129	29	367	10	60	88	55	128	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12	11	12	14	12
Storage Length (ft)		250		0	0	50			0	
Storage Lanes		1		1	1	1			0	
Taper Length (ft)		80			25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850		0.901		
Flt Protected		0.950			0.950					
Satd. Flow (prot)	0	1805	1900	1615	1745	1574	0	1681	0	0
Flt Permitted		0.950			0.950					
Satd. Flow (perm)	0	1805	1900	1615	1745	1574	0	1681	0	0
Right Turn on Red	Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126		417		126		12		
Link Speed (mph)			25					25		
Link Distance (ft)			400					482		
Travel Time (s)			10.9					13.1		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.84	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	1%	7%	0%	0%
Adj. Flow (vph)	177	147	33	417	12	71	105	60	141	27
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	324	33	417	12	176	0	228	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right	Right	Left	Right	Right
Median Width(ft)			12					0		
Link Offset(ft)			0					0		
Crosswalk Width(ft)			16					16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00
Turning Speed (mph)	60	15		9	15	60	9		60	9
Number of Detectors	1	1	1	0	1	1		1		
Detector Template	Left									
Leading Detector (ft)	20	40	40	0	40	40		40		
Trailing Detector (ft)	0	0	0	0	0	0		0		
Detector 1 Position(ft)	0	0	0	0	0	0		0		
Detector 1 Size(ft)	20	40	40	20	40	40		40		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel										
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Detector Phase	4	4	4		3	3		2		
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0		15.0	15.0		8.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Minimum Split (s)	16.0	16.0	16.0		19.0	19.0		13.0		
Total Split (s)	16.0	16.0	16.0		19.0	19.0		17.0		
Total Split (%)	30.8%	30.8%	30.8%		36.5%	36.5%		32.7%		
Maximum Green (s)	12.0	12.0	12.0		15.0	15.0		12.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		5.0		
Lead/Lag	Lag	Lag	Lag		Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	Min	Min	Min		Min	Min		None		
Act Effct Green (s)		12.0	12.0	50.7	15.0	15.0		10.6		
Actuated g/C Ratio		0.24	0.24	1.00	0.30	0.30		0.21		
v/c Ratio		0.62	0.07	0.26	0.02	0.32		0.63		
Control Delay		16.7	16.2	0.4	13.5	7.4		25.7		
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay		16.7	16.2	0.4	13.5	7.4		25.7		
LOS		B	B	A	B	A		C		
Approach Delay			7.9					25.7		
Approach LOS			A					C		
Queue Length 50th (ft)		52	8	0	3	11		59		
Queue Length 95th (ft)		116	25	0	11	42		116		
Internal Link Dist (ft)			320					402		
Turn Bay Length (ft)		250				50				
Base Capacity (vph)		523	450	1615	517	554		407		
Starvation Cap Reductn		0	0	0	0	0		0		
Spillback Cap Reductn		0	0	0	0	0		0		
Storage Cap Reductn		0	0	0	0	0		0		
Reduced v/c Ratio		0.62	0.07	0.26	0.02	0.32		0.56		

Intersection Summary			
Area Type:	Other		
Cycle Length: 52			
Actuated Cycle Length: 50.7			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Connector Rd NB & Connector Rd EB/Evans Ave

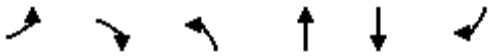




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	144	2	10	14	23	8
Future Volume (Veh/h)	144	2	10	14	23	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	157	2	11	15	25	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					970	
pX, platoon unblocked						
vC, conflicting volume	66	30	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	30	34			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	100	99			
cM capacity (veh/h)	937	1039	1591			

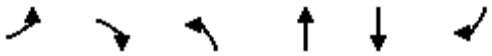
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	159	26	34
Volume Left	157	11	0
Volume Right	2	0	9
cSH	949	1591	1700
Volume to Capacity	0.17	0.01	0.02
Queue Length 95th (ft)	15	1	0
Control Delay (s)	9.6	3.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	3.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	144	2	10	14	23	8
Future Volume (vph)	144	2	10	14	23	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	16	16	12
Storage Length (ft)	0	60	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.964	
Flt Protected	0.950			0.979		
Satd. Flow (prot)	1745	1501	0	2108	2076	0
Flt Permitted	0.950			0.979		
Satd. Flow (perm)	1745	1501	0	2108	2076	0
Link Speed (mph)	25			30	25	
Link Distance (ft)	270			270	970	
Travel Time (s)	7.4			6.1	26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	0%	0%	0%
Adj. Flow (vph)	157	2	11	15	25	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	2	0	26	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

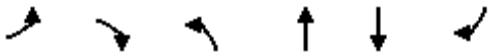
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	179	6	8	8	40	9
Future Volume (Veh/h)	179	6	8	8	40	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	195	7	9	9	43	10
Pedestrians				2		
Lane Width (ft)				16.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					970	
pX, platoon unblocked						
vC, conflicting volume	75	50	53			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75	50	53			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	99	99			
cM capacity (veh/h)	921	1021	1566			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	202	18	53
Volume Left	195	9	0
Volume Right	7	0	10
cSH	954	1566	1700
Volume to Capacity	0.21	0.01	0.03
Queue Length 95th (ft)	20	0	0
Control Delay (s)	9.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	3.7	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	179	6	8	8	40	9
Future Volume (vph)	179	6	8	8	40	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	16	16	12
Storage Length (ft)	0	60	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.975	
Flt Protected	0.950			0.976		
Satd. Flow (prot)	1694	1561	0	2102	2100	0
Flt Permitted	0.950			0.976		
Satd. Flow (perm)	1694	1561	0	2102	2100	0
Link Speed (mph)	25			30	25	
Link Distance (ft)	270			270	970	
Travel Time (s)	7.4			6.1	26.5	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	195	7	9	9	43	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	7	0	18	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	108	62	71	338	13	62	142	42	129	9
Future Volume (vph)	108	62	71	338	13	62	142	42	129	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	11	12	14	12
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85	1.00	0.85		0.90		
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (prot)		1805	1900	1615	1745	1591		1649		
Flt Permitted		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (perm)		1805	1900	1615	1745	1591		1649		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	67	77	367	14	67	154	46	140	10
RTOR Reduction (vph)	0	94	0	0	0	106	0	4	0	0
Lane Group Flow (vph)	0	90	77	367	14	115	0	192	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	11%	1%	0%
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Actuated Green, G (s)		12.3	12.3	48.9	15.4	15.4		8.2		
Effective Green, g (s)		12.3	12.3	48.9	15.4	15.4		8.2		
Actuated g/C Ratio		0.25	0.25	1.00	0.31	0.31		0.17		
Clearance Time (s)		4.0	4.0		4.0	4.0		5.0		
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		454	477	1615	549	501		276		
v/s Ratio Prot		0.05	0.04		0.01	0.07		c0.12		
v/s Ratio Perm				c0.23						
v/c Ratio		0.20	0.16	0.23	0.03	0.23		0.70		
Uniform Delay, d1		14.4	14.3	0.0	11.6	12.4		19.2		
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2		0.2	0.2	0.3	0.0	0.2		7.4		
Delay (s)		14.6	14.4	0.3	11.6	12.6		26.6		
Level of Service		B	B	A	B	B		C		
Approach Delay (s)			6.2					26.6		
Approach LOS			A					C		

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

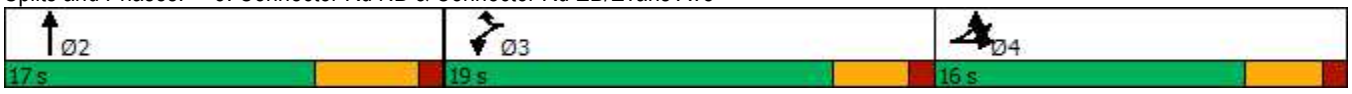
c Critical Lane Group

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	108	62	71	338	13	62	142	42	129	9
Future Volume (vph)	108	62	71	338	13	62	142	42	129	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12	11	12	14	12
Storage Length (ft)		250		0	0	50			0	
Storage Lanes		1		1	1	1			0	
Taper Length (ft)		80			25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850		0.897		
Flt Protected		0.950			0.950					
Satd. Flow (prot)	0	1805	1900	1615	1745	1591	0	1650	0	0
Flt Permitted		0.950			0.950					
Satd. Flow (perm)	0	1805	1900	1615	1745	1591	0	1650	0	0
Right Turn on Red	Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126		367		154		5		
Link Speed (mph)			25					25		
Link Distance (ft)			400					482		
Travel Time (s)			10.9					13.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	11%	1%	0%
Adj. Flow (vph)	117	67	77	367	14	67	154	46	140	10
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	184	77	367	14	221	0	196	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right	Right	Left	Right	Right
Median Width(ft)			12					0		
Link Offset(ft)			0					0		
Crosswalk Width(ft)			16					16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00
Turning Speed (mph)	15	15		9	15	9	9		9	9
Number of Detectors	1	1	1	0	1	1		1		
Detector Template	Left									
Leading Detector (ft)	20	40	40	0	40	40		40		
Trailing Detector (ft)	0	0	0	0	0	0		0		
Detector 1 Position(ft)	0	0	0	0	0	0		0		
Detector 1 Size(ft)	20	40	40	20	40	40		40		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel										
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Detector Phase	4	4	4		3	3		2		
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0		15.0	15.0		8.0		

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Minimum Split (s)	16.0	16.0	16.0		19.0	19.0		13.0		
Total Split (s)	16.0	16.0	16.0		19.0	19.0		17.0		
Total Split (%)	30.8%	30.8%	30.8%		36.5%	36.5%		32.7%		
Maximum Green (s)	12.0	12.0	12.0		15.0	15.0		12.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		5.0		
Lead/Lag	Lag	Lag	Lag		Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	Min	Min	Min		Min	Min		None		
Act Effct Green (s)		12.3	12.3	47.8	15.3	15.3		10.4		
Actuated g/C Ratio		0.26	0.26	1.00	0.32	0.32		0.22		
v/c Ratio		0.33	0.16	0.23	0.03	0.36		0.54		
Control Delay		8.7	16.9	0.3	13.5	7.5		23.4		
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay		8.7	16.9	0.3	13.5	7.5		23.4		
LOS		A	B	A	B	A		C		
Approach Delay			4.8					23.4		
Approach LOS			A					C		
Queue Length 50th (ft)		14	18	0	3	15		51		
Queue Length 95th (ft)		55	46	0	13	57		103		
Internal Link Dist (ft)			320					402		
Turn Bay Length (ft)		250				50				
Base Capacity (vph)		557	488	1615	560	615		427		
Starvation Cap Reductn		0	0	0	0	0		0		
Spillback Cap Reductn		0	0	0	0	0		0		
Storage Cap Reductn		0	0	0	0	0		0		
Reduced v/c Ratio		0.33	0.16	0.23	0.03	0.36		0.46		

Intersection Summary			
Area Type:	Other		
Cycle Length: 52			
Actuated Cycle Length: 47.8			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

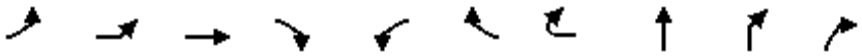
Splits and Phases: 3: Connector Rd NB & Connector Rd EB/Evans Ave



Movement	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	172	143	80	445	11	66	177	61	141	28
Future Volume (vph)	172	143	80	445	11	66	177	61	141	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	11	12	14	12
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85	1.00	0.85		0.90		
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (prot)		1805	1900	1615	1745	1582		1680		
Flt Permitted		0.95	1.00	1.00	0.95	1.00		1.00		
Satd. Flow (perm)		1805	1900	1615	1745	1582		1680		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	155	87	484	12	72	192	66	153	30
RTOR Reduction (vph)	0	96	0	0	0	135	0	9	0	0
Lane Group Flow (vph)	0	246	87	484	12	129	0	240	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	1%	7%	0%	0%
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Actuated Green, G (s)		12.0	12.0	50.8	15.0	15.0		10.8		
Effective Green, g (s)		12.0	12.0	50.8	15.0	15.0		10.8		
Actuated g/C Ratio		0.24	0.24	1.00	0.30	0.30		0.21		
Clearance Time (s)		4.0	4.0		4.0	4.0		5.0		
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		426	448	1615	515	467		357		
v/s Ratio Prot		c0.14	0.05		0.01	0.08		c0.14		
v/s Ratio Perm				c0.30						
v/c Ratio		0.58	0.19	0.30	0.02	0.28		0.67		
Uniform Delay, d1		17.2	15.5	0.0	12.7	13.7		18.4		
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2		1.9	0.2	0.5	0.0	0.3		4.9		
Delay (s)		19.0	15.7	0.5	12.7	14.1		23.3		
Level of Service		B	B	A	B	B		C		
Approach Delay (s)			8.9					23.3		
Approach LOS			A					C		

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



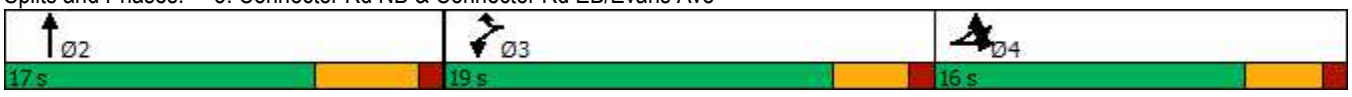
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	172	143	80	445	11	66	177	61	141	28
Future Volume (vph)	172	143	80	445	11	66	177	61	141	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12	11	12	14	12
Storage Length (ft)		250		0	0	50			0	
Storage Lanes		1		1	1	1			0	
Taper Length (ft)		80			25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850		0.901		
Flt Protected		0.950			0.950					
Satd. Flow (prot)	0	1805	1900	1615	1745	1582	0	1681	0	0
Flt Permitted		0.950			0.950					
Satd. Flow (perm)	0	1805	1900	1615	1745	1582	0	1681	0	0
Right Turn on Red	Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126		484		192		12		
Link Speed (mph)			25					25		
Link Distance (ft)			400					482		
Travel Time (s)			10.9					13.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	1%	7%	0%	0%
Adj. Flow (vph)	187	155	87	484	12	72	192	66	153	30
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	342	87	484	12	264	0	249	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right	Right	Left	Right	Right
Median Width(ft)			12					0		
Link Offset(ft)			0					0		
Crosswalk Width(ft)			16					16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00
Turning Speed (mph)	60	15		9	15	60	9		60	9
Number of Detectors	1	1	1	0	1	1		1		
Detector Template	Left									
Leading Detector (ft)	20	40	40	0	40	40		40		
Trailing Detector (ft)	0	0	0	0	0	0		0		
Detector 1 Position(ft)	0	0	0	0	0	0		0		
Detector 1 Size(ft)	20	40	40	20	40	40		40		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel										
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Turn Type	Split	Split	NA	Free	Prot	Prot		NA		
Protected Phases	4	4	4		3	3		2		
Permitted Phases				Free						
Detector Phase	4	4	4		3	3		2		
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0		15.0	15.0		8.0		

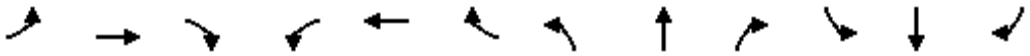
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBR	WBR2	NBT	NBR	NBR2
Minimum Split (s)	16.0	16.0	16.0		19.0	19.0		13.0		
Total Split (s)	16.0	16.0	16.0		19.0	19.0		17.0		
Total Split (%)	30.8%	30.8%	30.8%		36.5%	36.5%		32.7%		
Maximum Green (s)	12.0	12.0	12.0		15.0	15.0		12.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		5.0		
Lead/Lag	Lag	Lag	Lag		Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	Min	Min	Min		Min	Min		None		
Act Effct Green (s)		12.0	12.0	50.9	15.0	15.0		10.8		
Actuated g/C Ratio		0.24	0.24	1.00	0.29	0.29		0.21		
v/c Ratio		0.66	0.19	0.30	0.02	0.44		0.68		
Control Delay		18.6	17.4	0.5	13.5	7.7		28.2		
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay		18.6	17.4	0.5	13.5	7.7		28.2		
LOS		B	B	A	B	A		C		
Approach Delay			8.9					28.2		
Approach LOS			A					C		
Queue Length 50th (ft)		58	22	0	3	16		65		
Queue Length 95th (ft)		#152	51	0	12	63		#144		
Internal Link Dist (ft)			320					402		
Turn Bay Length (ft)		250				50				
Base Capacity (vph)		522	448	1615	515	601		406		
Starvation Cap Reductn		0	0	0	0	0		0		
Spillback Cap Reductn		0	0	0	0	0		0		
Storage Cap Reductn		0	0	0	0	0		0		
Reduced v/c Ratio		0.66	0.19	0.30	0.02	0.44		0.61		

Intersection Summary

Area Type: Other
Cycle Length: 52
Actuated Cycle Length: 50.9
Natural Cycle: 55
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.0 Intersection LOS: B
Intersection Capacity Utilization 56.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Connector Rd NB & Connector Rd EB/Evans Ave

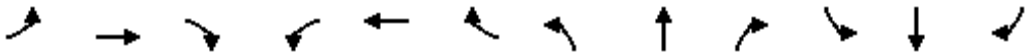




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	16	2	0	0	46	10	14	0	56	23	8
Future Volume (Veh/h)	144	16	2	0	0	46	10	14	0	56	23	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	157	17	2	0	0	50	11	15	0	61	25	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											970	
pX, platoon unblocked												
vC, conflicting volume	188	188	30	199	193	15	34			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188	188	30	199	193	15	34			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.7		
p0 queue free %	78	97	100	100	100	95	99			95		
cM capacity (veh/h)	701	672	1051	718	668	1039	1591			1318		

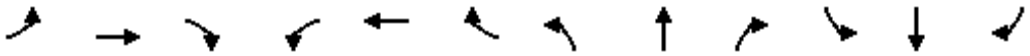
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	157	19	50	26	95
Volume Left	157	0	0	11	61
Volume Right	0	2	50	0	9
cSH	701	699	519	1591	1318
Volume to Capacity	0.22	0.03	0.10	0.01	0.05
Queue Length 95th (ft)	21	2	8	1	4
Control Delay (s)	11.6	10.3	12.7	3.1	5.2
Lane LOS	B	B	B	A	A
Approach Delay (s)	11.5		12.7	3.1	5.2
Approach LOS	B		B		

Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	24.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	16	2	0	0	46	10	14	0	56	23	8
Future Volume (vph)	144	16	2	0	0	46	10	14	0	56	23	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	13	13	11	12	16	12	12	16	12
Storage Length (ft)	0		60	0		50	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850					0.987	
Flt Protected	0.950							0.979			0.969	
Satd. Flow (prot)	1736	1870	0	0	1963	1406	0	2108	0	0	1522	0
Flt Permitted	0.950							0.979			0.969	
Satd. Flow (perm)	1736	1870	0	0	1963	1406	0	2108	0	0	1522	0
Link Speed (mph)		25			30			30			25	
Link Distance (ft)		270			176			270			970	
Travel Time (s)		7.4			4.0			6.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	0%	0%	0%	0%	11%	0%	0%	0%	55%	0%	0%
Adj. Flow (vph)	157	17	2	0	0	50	11	15	0	61	25	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	19	0	0	0	50	0	26	0	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.04	0.96	0.96	1.04	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

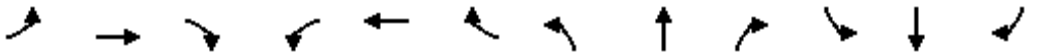
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	2	6	0	0	27	8	8	0	3	40	9
Future Volume (Veh/h)	179	2	6	0	0	27	8	8	0	3	40	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	195	2	7	0	0	29	9	9	0	3	43	10
Pedestrians								2				
Lane Width (ft)								16.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								0				
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											970	
pX, platoon unblocked												
vC, conflicting volume	81	81	50	91	86	9	53			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	81	81	50	91	86	9	53			9		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	4.0	2.2			2.2		
p0 queue free %	78	100	99	100	100	97	99			100		
cM capacity (veh/h)	870	807	1021	883	802	882	1566			1624		

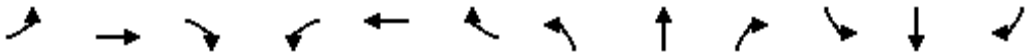
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	195	9	29	18	56
Volume Left	195	0	0	9	3
Volume Right	0	7	29	0	10
cSH	870	964	441	1566	1624
Volume to Capacity	0.22	0.01	0.07	0.01	0.00
Queue Length 95th (ft)	21	1	5	0	0
Control Delay (s)	10.3	8.8	13.7	3.7	0.4
Lane LOS	B	A	B	A	A
Approach Delay (s)	10.3		13.7	3.7	0.4
Approach LOS	B		B		

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	26.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	2	6	0	0	27	8	8	0	3	40	9
Future Volume (vph)	179	2	6	0	0	27	8	8	0	3	40	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	13	13	11	12	16	12	12	16	12
Storage Length (ft)	0		60	0		50	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.883				0.850					0.976	
Flt Protected	0.950							0.976			0.997	
Satd. Flow (prot)	1752	1678	0	0	1963	863	0	2102	0	0	2095	0
Flt Permitted	0.950							0.976			0.997	
Satd. Flow (perm)	1752	1678	0	0	1963	863	0	2102	0	0	2095	0
Link Speed (mph)		25			30			30			25	
Link Distance (ft)		270			176			270			970	
Travel Time (s)		7.4			4.0			6.1			26.5	
Confl. Peds. (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	0%	81%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	195	2	7	0	0	29	9	9	0	3	43	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	9	0	0	0	29	0	18	0	0	56	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.04	0.96	0.96	1.04	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	60		60	15		60	60		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	71	338	39	0	224	0	171	65	0	0	0
Future Volume (vph)	170	71	338	39	0	224	0	171	65	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	11	12	14	12	12	12	12
Storage Length (ft)	250		0	0		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	80			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.850	0.850		0.963				
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1805	1900	1615	1544	0	1531	0	1668	0	0	0	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1805	1900	1615	1544	0	1531	0	1668	0	0	0	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		400			970			482			236	
Travel Time (s)		10.9			26.5			13.1			5.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	13%	0%	2%	0%	4%	51%	0%	0%	0%
Adj. Flow (vph)	185	77	367	42	0	243	0	186	71	0	0	0
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	185	77	367	42	24	219	0	257	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

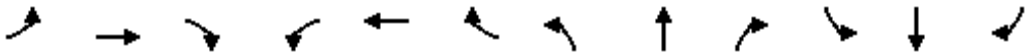
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	170	71	338	39	0	224	0	171	65	0	0	0
Future Vol, veh/h	170	71	338	39	0	224	0	171	65	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	13	0	2	0	4	51	0	0	0
Mvmt Flow	185	77	367	42	0	243	0	186	71	0	0	0
Number of Lanes	1	1	1	1	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	3
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	12.5	12.8	14.8
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2
Vol Left, %	0%	100%	0%	0%	100%	0%
Vol Thru, %	72%	0%	100%	0%	0%	0%
Vol Right, %	28%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	170	71	338	39	224
LT Vol	0	170	0	0	39	0
Through Vol	171	0	71	0	0	0
RT Vol	65	0	0	338	0	224
Lane Flow Rate	257	185	77	367	42	243
Geometry Grp	7	7	7	7	8	8
Degree of Util (X)	0.463	0.324	0.125	0.521	0.088	0.411
Departure Headway (Hd)	6.497	6.319	5.812	5.102	7.495	6.082
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	569	616	705	477	589
Service Time	4.246	4.063	3.556	2.845	5.255	3.84
HCM Lane V/C Ratio	0.464	0.325	0.125	0.521	0.088	0.413
HCM Control Delay	14.8	12.1	9.4	13.3	11	13.1
HCM Lane LOS	B	B	A	B	B	B
HCM 95th-tile Q	2.4	1.4	0.4	3	0.3	2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	80	445	36	0	245	0	202	31	0	0	0
Future Volume (vph)	315	80	445	36	0	245	0	202	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	11	12	14	12	12	12	12
Storage Length (ft)	250		0	0		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	80			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.850	0.850		0.982				
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1805	1900	1615	1084	0	1531	0	1946	0	0	0	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1805	1900	1615	1084	0	1531	0	1946	0	0	0	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		400			970			482			236	
Travel Time (s)		10.9			26.5			13.1			5.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	61%	0%	2%	0%	2%	4%	2%	2%	2%
Adj. Flow (vph)	342	87	484	39	0	266	0	220	34	0	0	0
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	342	87	484	39	27	239	0	254	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.00	1.04	1.00	0.92	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	315	80	445	36	0	245	0	202	31	0	0	0
Future Vol, veh/h	315	80	445	36	0	245	0	202	31	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	61	0	2	0	2	4	2	2	2
Mvmt Flow	342	87	484	39	0	266	0	220	34	0	0	0
Number of Lanes	1	1	1	1	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	3
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	18.5	15.4	16.9
HCM LOS	C	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2
Vol Left, %	0%	100%	0%	0%	100%	0%
Vol Thru, %	87%	0%	100%	0%	0%	0%
Vol Right, %	13%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	315	80	445	36	245
LT Vol	0	315	0	0	36	0
Through Vol	202	0	80	0	0	0
RT Vol	31	0	0	445	0	245
Lane Flow Rate	253	342	87	484	39	266
Geometry Grp	7	7	7	7	8	8
Degree of Util (X)	0.501	0.615	0.144	0.705	0.097	0.492
Departure Headway (Hd)	7.115	6.47	5.961	5.25	8.898	6.646
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	504	555	599	687	401	538
Service Time	4.882	4.231	3.722	3.01	6.683	4.43
HCM Lane V/C Ratio	0.502	0.616	0.145	0.705	0.097	0.494
HCM Control Delay	16.9	19.1	9.7	19.7	12.6	15.8
HCM Lane LOS	C	C	A	C	B	C
HCM 95th-tile Q	2.8	4.1	0.5	5.8	0.3	2.7

Roundabout Analysis Tool

v 4.2
12/24/19

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on the Highway Capacity Manual 2010 Edition and 6th Edition Methodologies, NCHRP Report 672, and FHWA's Roundabout Informational Guide. Please read the notes in the Instructions tab before using the spreadsheet.

Analyst:	Joseph Beaulieu
Agency/Company:	CHA Consulting
Date:	9/25/2023
Project Name or PI#:	79556 - T. F. Green Airport Cargo Facility
Year, Peak Period:	Build (+20) 2043, AM Peak Hour - 9:45 - 10:45 AM
County/District:	Warwick, Rhode Island
Intersection:	Evans Avenue & Airport Connector Road

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	11,050	81%
Minor Street	2,520	19%
Total volumes	13,570	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)? 0.189 mi | 1000 '

3 Is the proposed intersection located within a coordinated signal network? No

Go up to next section...

Proposed Design Configuration Chart

Directions for this Section only: *(see **Instructions Tab** for other sections)*

1. Select the type of roundabout you are analyzing.
2. Key in the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
   a. Select the Street Name from the pulldown menu for each approach leg
   b. Select the Lane Type for each entry apporach lane
      **The first box is the inner lane, the second box is the outer lane*
   c. Select Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:	Single Lane
# of Approaches:	3
Name of Streets:	Airport Connector Rd EB
	Airport Connector Rd NB
	Evans Ave WB

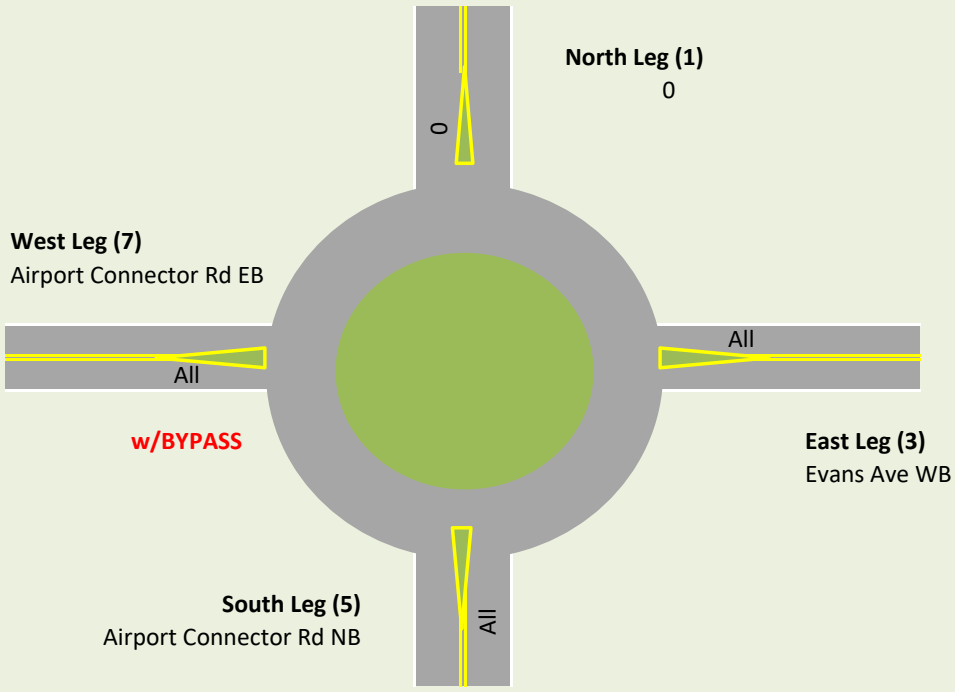
Chart Key:

Mini/Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

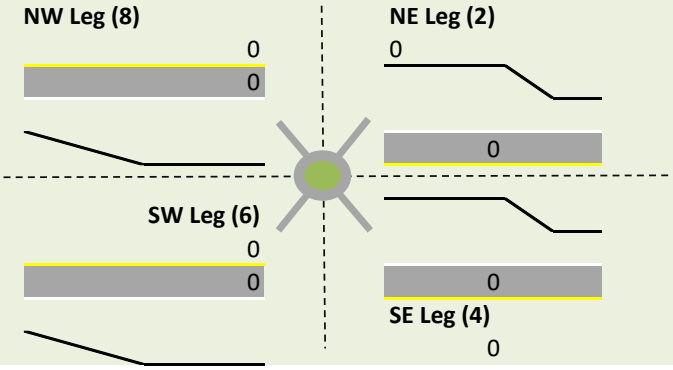
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:			Evans Ave WB	
Entry Lane Config			All	
Bypass to Adj Leg?			No	
	South Leg (5)	**SW Leg (6)**	**West Leg (7)**	**NW Leg (8)**
Street Name:	Airport Connector Rd N		Airport Connector Rd EB	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		Yes	

Preliminary Roundabout Rendering**



Additional Legs

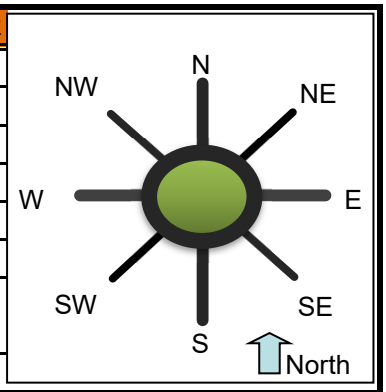


Note
This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information

v 4.2

Analyst:	Joseph Beaulieu
Agency/Co:	CHA Consulting
Date:	9/25/2023
Project or PI#:	79556 - T. F. Green Airport Cargo Facility
Year, Peak Hour:	Build (+20) 2043, AM Peak Hour - 9:45 - 10:45 AM
County/District:	Warwick, Rhode Island
Intersection Name:	Evans Avenue & Airport Connector Road



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			**224**		**171**		**170**	
Exit	NE (2), vph								
Legs	E (3), vph					**65**		**71**	
(TO)	SE (4), vph								
	S (5), vph			**39**					
	SW (6), vph								
	W (7), vph								
	NW (8), vph								
Output	Total Vehicles	0	0	263	0	236	0	241	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	95.7%	100.0%	83.8%	100.0%	100.0%	100.0%
% Heavy Vehicles			4.3%		16.2%		0.0%	
% Bicycle			0.0%		0.0%		0.0%	
# of Pedestrians **(ped/hr)**			0		0		0	
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	1.000	1.000	0.959	1.000	0.861	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	254	0	216	0	185	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	82	0	77	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	44	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	0	0	0	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	298	0	298	0	262	0
Conflicting flow, pcu/h	0	0	401	0	262	0	44	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	879	NA	909	NA	1319	NA
Entry Flow Rates, vph	0	0	286	0	257	0	262	0
V/C ratio			**0.33**		**0.28**		**0.20**	
Control Delay, sec/pcu			**7.7**		**6.9**		**4.4**	
LOS			A		A		A	
Average Queue (ft)			15		12		8	
95th % Queue (ft)			**37**		**34**		**18**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	6.4	Int LOS	A	Max Approach V/C	0.33

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**W (7)**					
Select Exit Leg for Bypass (TO)	**S (5)**					
Does the bypass have a dedicated receiving lane?	**Yes**					
Volumes						
Right Turn Volume removed from Entry Leg	**338**					
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	1.00					
F_{ped}	1.00					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr	367					
Conflicting Flow, pcu/hr	0					
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph	1380					
Flow Rates of Exiting Traffic, vph	367					
V/C ratio	**0.27**					
Control Delay, s/veh	**0.0**					
LOS						
95th % Queue (veh)	1					
95th % Queue (ft)	**27**					
Approach w/Bypass Delay, s/veh	***1.8***					
Approach w/Bypass LOS	*A*					

Roundabout Analysis Tool

v 4.2
12/24/19

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on the Highway Capacity Manual 2010 Edition and 6th Edition Methodologies, NCHRP Report 672, and FHWA's Roundabout Informational Guide. Please read the notes in the Instructions tab before using the spreadsheet.

Analyst:	Joseph Beaulieu
Agency/Company:	CHA Consulting
Date:	9/25/2023
Project Name or PI#:	79556 - T. F. Green Airport Cargo Facility
Year, Peak Period:	Build (+20) 2043, PM Peak Hour - 3:45 - 4:45 PM
County/District:	Warwick, Rhode Island
Intersection:	Evans Avenue & Airport Connector Road

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	11,050	81%
Minor Street	2,520	19%
Total volumes	13,570	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)? 0.189 mi 1000 '

3 Is the proposed intersection located within a coordinated signal network? No

Go up to next section...

Proposed Design Configuration Chart

Directions for this Section only: *(see **Instructions Tab** for other sections)*

1. Select the type of roundabout you are analyzing.
2. Key in the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
   a. Select the Street Name from the pulldown menu for each approach leg
   b. Select the Lane Type for each entry apporach lane
      **The first box is the inner lane, the second box is the outer lane*
   c. Select Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:	Single Lane
# of Approaches:	3
Name of Streets:	Airport Connector Rd EB
	Airport Connector Rd NB
	Evans Ave WB

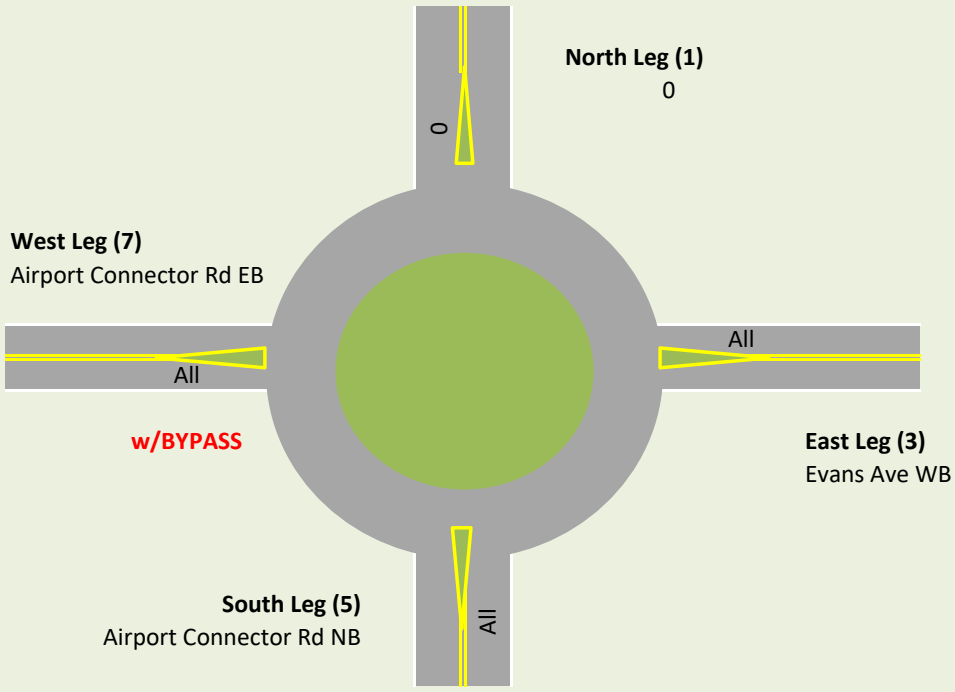
Chart Key:

Mini/Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

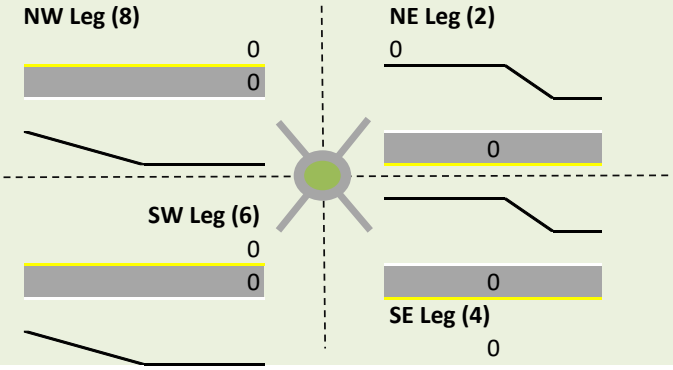
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:			Evans Ave WB	
Entry Lane Config			All	
Bypass to Adj Leg?			No	
	South Leg (5)	**SW Leg (6)**	**West Leg (7)**	**NW Leg (8)**
Street Name:	Airport Connector Rd N		Airport Connector Rd EB	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		Yes	

Preliminary Roundabout Rendering**



Additional Legs

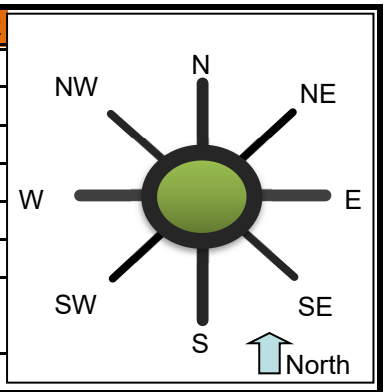


Note
This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information

v 4.2

Analyst:	Joseph Beaulieu
Agency/Co:	CHA Consulting
Date:	9/25/2023
Project or PI#:	79556 - T. F. Green Airport Cargo Facility
Year, Peak Hour:	Build (+20) 2043, PM Peak Hour - 3:45 - 4:45 PM
County/District:	Warwick, Rhode Island
Intersection Name:	Evans Avenue & Airport Connector Road



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			**245**		**202**		**315**	
Exit	NE (2), vph								
Legs	E (3), vph					**31**		**80**	
(TO)	SE (4), vph								
	S (5), vph			**36**					
	SW (6), vph								
	W (7), vph								
	NW (8), vph								
Output	Total Vehicles	0	0	281	0	233	0	395	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	89.6%	100.0%	98.1%	100.0%	100.0%	100.0%
% Heavy Vehicles			10.4%		1.9%		0.0%	
% Bicycle			0.0%		0.0%		0.0%	
# of Pedestrians **(ped/hr)**			0		0		0	
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	1.000	1.000	0.906	1.000	0.981	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	294	0	224	0	342	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	34	0	87	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	43	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	0	0	0	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	337	0	258	0	429	0
Conflicting flow, pcu/h	0	0	566	0	429	0	43	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	702	NA	874	NA	1321	NA
Entry Flow Rates, vph	0	0	305	0	253	0	429	0
V/C ratio			**0.44**		**0.29**		**0.33**	
Control Delay, sec/pcu			**11.2**		**7.2**		**5.7**	
LOS			B		A		A	
Average Queue (ft)			24		13		17	
95th % Queue (ft)			**61**		**31**		**36**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**7.8**	**Int LOS**	**A**	**Max Approach V/C**	**0.44**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**W (7)**					
Select Exit Leg for Bypass (TO)	**S (5)**					
Does the bypass have a dedicated receiving lane?	**Yes**					
Volumes						
Right Turn Volume removed from Entry Leg	**445**					
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	1.00					
F_{ped}	1.00					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr	484					
Conflicting Flow, pcu/hr	0					
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph	1380					
Flow Rates of Exiting Traffic, vph	484					
V/C ratio	**0.35**					
Control Delay, s/veh	**0.0**					
LOS						
95th % Queue (veh)	2					
95th % Queue (ft)	**40**					
Approach w/Bypass Delay, s/veh	***2.7***					
Approach w/Bypass LOS	*A*					

APPENDIX E

Construction Emissions Inventory

Rhode Island T.F. Green International Airport (PVD)
Proposed Project Modifications (Roundabout)
Environmental Assessment – Air Quality Documentation

The proposed project modification (roundabout) was evaluated under the Aviation Emissions and Air Quality Handbook (Handbook) published by the Federal Aviation Administration (FAA)[1]. The air quality assessment process is outlined in Section 4.

The first step of the process is to determine the need for the assessment based on four factors:

1. Project Modification Definition
2. FAA Involvement
3. Emissions Increase
4. Ambient Air Quality

1. Project Definition

The purpose of the project modification is to reconfigure the Airport Connector Road at Rhode Island T.F. Green International Airport (PVD) in the City of Warwick, Kent County, RI. The existing signalized intersection at Evans Road and Airport Connector Road (lower level) will be replaced with a roundabout. A stormwater basin and salt shed will also be installed as part of the project modification.

2. FAA Involvement

The project modification requires FAA approval of modifications to the Airport Layout Plan (ALP) and processing of federal grants.

3. Emissions Increase

The project modification will not increase the airport capacity or result in an increase in ground traffic, however temporary increases in emissions will occur during construction activities.

4. Ambient Air Quality & General Conformity Applicability

The airport is located in Kent County, RI. Kent County is designated by the Environmental Protection Agency (EPA) as being in attainment with all National Ambient Air Quality Standards (NAAQS).

Based on these factors and the flowchart in Figure 4-3 of the Handbook, the level of assessment required was determined to be an emission inventory.

<u>Emission Inventory Methodology</u>

The project will not cause permanent increases in air or local traffic. Only emissions from construction activities will be caused as a result of the project.

Emissions from construction activities were estimated using the Airport Construction Emissions Inventory Tool (ACEIT) published by the Airport Cooperative Research Program in Report 102[2].

---

[1] https://www.faa.gov/sites/faa.gov/files/regulations_policies/policy_guidance/envir_policy/airquality_handbook/Air_Quality_Handbook_Appendices.pdf
[2] http://www.trb.org/ACRP/Blurbs/170234.aspx

ACEIT estimates the construction equipment activity that will be required based on the type and amount of construction being performed. This activity is used with emission factors for construction and other mobile vehicles to estimate the emissions that will result during construction of the project.

ACEIT has been configured with default construction equipment assignments based on the type of construction activity being performed. For building demolition, ACEIT assumes the use of a wide variety of equipment to perform excavation, grading, and other activities. ACEIT includes an activity rate for each piece of equipment and activity. For example, 12 hours of excavator operation is assumed for every 1,000 square feet of building area demolition. The estimated equipment runtime is used with the equipment engine size and EPA emission factors to estimate the emissions. The estimated equipment types and activities may be edited by the user. For the purposes of this analysis the default options were used.

Emission Inventory Results

The project will not cause permanent increases in air or local traffic. Temporary increases in emissions from construction activities were estimated using the ACEIT application and are shown in the table below.

Contaminants included in the analysis were nitrogen oxides (NO_X), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO_2), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Contaminant	NO_X	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Emissions (tons/yr)	1.9	6.6	4.5	0.02	0.3	0.1	2,683	0.1	0.01

The estimated emissions from construction activities are not significant and support the determination of a Finding of No Significant Impact (FONSI) for the project.

Airport Construction Emissions Inventory Tool (ACEIT)
Version 1.0
Run Date & Time: 3/28/2024 10:32:21 AM

==========

STUDY

Study Name

PVD Roundabout

==========

EMISSIONS INVENTORY - SUMMARY

Total Emissions by Year
Units for Non-Greenhouse Gases Emission: Short Ton
Units for Greenhouse Gases (CO2, CH4, and N2O) Emission: Metric Ton

Year	CO	NOx	SO2	PM10	PM2.5	VOC	CO2	CH4	N2O
2024	6.603341	1.864598	0.023509	0.295559	0.079163	4.543962	2683.25	0.090002	0.010975

Total Emissions by Source Categories
Units for Non-Greenhouse Gases Emission: Short Ton
Units for Greenhouse Gases Emission: Metric Ton

Year	Emission Source	CO	NOx	SO2	PM10	PM2.5	VOC	CO2	CH4	N2O
2024	NonRoad	0.900406	1.523613	0.010743	0.074123	0.068193	0.626668	1998.141	--	--
2024	OnRoad	5.472585	0.326585	0.01012	0.011202	0.01097	0.378494	685.109	0.090002	0.010975
2024	Fugitive	0.23035	0.0144	0.002647	0.210234	--	3.5388	--	--	--
2024	TOTAL	6.603341	1.864598	0.023509	0.295559	0.079163	4.543962	2683.25	0.090002	0.010975

==========

EMISSIONS INVENTORY - DETAILS:

Non-Road Sources
Units for Non-Greenhouse Gases Emission: Short Ton
Units for Greenhouse Gases (CO2, CH4, and N2O) Emission: Metric Ton

Scenario ID	Year	Project	Construction Activity	Equipment	Fuel	HP	Load Factor	Hours of Activity	CO	NOx	SO2	PM10	PM2.5	VOC	CO2
1	2024	Access Road	Asphalt Placement	Asphalt Paver	Diesel	175	0.59	13.209	0.00031	0.000679	3.96E-06	4.38E-05	4.03E-05	0.000221	0.731554
1	2024	Access Road	Asphalt Placement	Dump Truck	Diesel	600	0.59	47.57321	0.002751	0.006	4.81E-05	0.000216	0.000199	0.00259	9.033611
1	2024	Access Road	Asphalt Placement	Other General Equipment	Diesel	175	0.43	26.418	0.00045	0.001588	5.88E-06	9.22E-05	8.48E-05	0.000341	1.05478
1	2024	Access Road	Asphalt Placement	Pickup Truck	Diesel	600	0.59	13.209	0.000764	0.001666	1.34E-05	6.00E-05	5.52E-05	0.000721	2.508238
1	2024	Access Road	Asphalt Placement	Roller	Diesel	100	0.59	13.209	0.000534	0.000501	2.53E-06	4.02E-05	3.70E-05	0.000133	0.464255
1	2024	Access Road	Asphalt Placement	Skid Steer Loader	Diesel	75	0.21	13.209	0.000732	0.000942	9.16E-07	0.0001	9.21E-05	0.000178	0.144427
1	2024	Access Road	Asphalt Placement	Surfacing Equipment	Diesel	25	0.59	16.90752	0.000647	0.001226	1.10E-06	9.72E-05	8.94E-05	0.000129	0.148317
1	2024	Access Road	Clearing and Grubbing	Chain Saw	Diesel	11	0.7	36	0.089693	0.000404	4.28E-05	0.002979	0.00274	0.023044	0.190158
1	2024	Access Road	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	100	0.43	36	0.002157	0.003694	5.62E-06	0.000349	0.000321	0.000496	0.912635
1	2024	Access Road	Clearing and Grubbing	Pickup Truck	Diesel	600	0.59	48	0.002775	0.006054	4.86E-05	0.000218	0.000201	0.002613	9.114653
1	2024	Access Road	Curbing	Concrete Truck	Diesel	600	0.59	136	0.007864	0.017152	0.000138	0.000618	0.000568	0.007397	25.82485
1	2024	Access Road	Curbing	Curb/Gutter Paver	Diesel	175	0.59	136	0.003195	0.006987	4.08E-05	0.000451	0.000415	0.002221	7.532086
1	2024	Access Road	Curbing	Other General Equipment	Diesel	175	0.43	136	0.002315	0.008173	3.03E-05	0.000474	0.000437	0.001712	5.430014
1	2024	Access Road	Curbing	Pickup Truck	Diesel	600	0.59	136	0.007864	0.017152	0.000138	0.000618	0.000568	0.007397	25.82485
1	2024	Access Road	Drainage - 24 inch SICPP	Dozer	Diesel	175	0.59	109.12	0.002224	0.004749	3.25E-05	0.000266	0.000245	0.001754	6.043466
1	2024	Access Road	Drainage - 24 inch SICPP	Dump Truck	Diesel	600	0.59	109.12	0.006309	0.013762	0.00011	0.000496	0.000456	0.005936	20.72064
1	2024	Access Road	Drainage - 24 inch SICPP	Excavator	Diesel	175	0.59	109.12	0.001948	0.004113	3.23E-05	0.000184	0.00017	0.001738	6.043503
1	2024	Access Road	Drainage - 24 inch SICPP	Loader	Diesel	175	0.59	109.12	0.00281	0.006498	3.29E-05	0.00043	0.000395	0.001809	6.043326
1	2024	Access Road	Drainage - 24 inch SICPP	Other General Equipment	Diesel	175	0.43	109.12	0.001857	0.006558	2.43E-05	0.000381	0.00035	0.001376	4.356788
1	2024	Access Road	Drainage - 24 inch SICPP	Pickup Truck	Diesel	600	0.59	109.12	0.006309	0.013762	0.00011	0.000496	0.000456	0.005936	20.72064
1	2024	Access Road	Drainage - 24 inch SICPP	Roller	Diesel	100	0.59	109.12	0.004415	0.004136	2.09E-05	0.000332	0.000306	0.001053	3.835228
1	2024	Access Road	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel	600	0.59	60.62222	0.003505	0.007646	6.14E-05	0.000275	0.000253	0.003299	11.51147
1	2024	Access Road	Drainage - 6 inch Perforated Underdrain	Loader	Diesel	175	0.59	60.62222	0.001561	0.00361	1.83E-05	0.000239	0.00022	0.001009	3.357403
1	2024	Access Road	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel	175	0.43	60.62222	0.001032	0.003643	1.35E-05	0.000211	0.000195	0.000769	2.420438
1	2024	Access Road	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel	600	0.59	60.62222	0.003505	0.007646	6.14E-05	0.000275	0.000253	0.003299	11.51147

Scenario ID	Year	Project	Construction Activity	Equipment	Fuel	HP	Load Factor	Hours of Activity	CO	NOx	SO2	PM10	PM2.5	VOC	CO2
1	2024	Access Road	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel	100	0.21	60.62222	0.003997	0.002869	5.35E-06	0.000504	0.000464	0.000646	0.884446
1	2024	Access Road	Dust Control	Water Truck	Diesel	600	0.59	1440	0.083262	0.181612	0.001457	0.006542	0.006019	0.078296	273.4396
1	2024	Access Road	Excavation (Borrow)	Dozer	Diesel	175	0.59	58.70667	0.001197	0.002555	1.75E-05	0.000143	0.000132	0.000945	3.251391
1	2024	Access Road	Excavation (Borrow)	Dump Truck (12 cy)	Diesel	600	0.59	58.70667	0.003394	0.007404	5.94E-05	0.000267	0.000245	0.003195	11.14773
1	2024	Access Road	Excavation (Borrow)	Pickup Truck	Diesel	600	0.59	58.70667	0.003394	0.007404	5.94E-05	0.000267	0.000245	0.003195	11.14773
1	2024	Access Road	Excavation (Borrow)	Roller	Diesel	100	0.59	27.09538	0.001096	0.001027	5.19E-06	8.25E-05	7.59E-05	0.000266	0.952318
1	2024	Access Road	Excavation (Cut to Fill)	Dozer	Diesel	175	0.59	44.03	0.000898	0.001916	1.31E-05	0.000107	9.87E-05	0.00071	2.438543
1	2024	Access Road	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	600	0.59	117.4133	0.006789	0.014808	0.000119	0.000533	0.000491	0.006387	22.29545
1	2024	Access Road	Excavation (Cut to Fill)	Excavator	Diesel	175	0.59	35.224	0.000629	0.001328	1.04E-05	5.95E-05	5.47E-05	0.000562	1.950846
1	2024	Access Road	Excavation (Cut to Fill)	Pickup Truck	Diesel	600	0.59	35.224	0.002037	0.004442	3.56E-05	0.00016	0.000147	0.001918	6.688636
1	2024	Access Road	Excavation (Cut to Fill)	Roller	Diesel	100	0.59	35.224	0.001425	0.001335	6.75E-06	0.000107	9.86E-05	0.000344	1.238014
1	2024	Access Road	Excavation (Cut to Fill)	Scraper	Diesel	600	0.59	44.03	0.00483	0.012492	4.63E-05	0.000615	0.000566	0.002509	8.360586
1	2024	Access Road	Excavation (Topsoil Stripping)	Dozer	Diesel	175	0.59	16.576	0.000338	0.000721	4.94E-06	4.04E-05	3.72E-05	0.00027	0.91804
1	2024	Access Road	Fencing	Concrete Truck	Diesel	600	0.59	37.77778	0.002184	0.004765	3.82E-05	0.000172	0.000158	0.002057	7.173569
1	2024	Access Road	Fencing	Dump Truck	Diesel	600	0.59	151.1111	0.008737	0.019058	0.000153	0.000687	0.000632	0.008219	28.69428
1	2024	Access Road	Fencing	Other General Equipment	Diesel	175	0.43	151.1111	0.002572	0.009081	3.36E-05	0.000527	0.000485	0.001901	6.033349
1	2024	Access Road	Fencing	Pickup Truck	Diesel	600	0.59	151.1111	0.008737	0.019058	0.000153	0.000687	0.000632	0.008219	28.69428
1	2024	Access Road	Fencing	Skid Steer Loader	Diesel	75	0.21	151.1111	0.008371	0.010782	1.05E-05	0.001145	0.001053	0.001581	1.652251
1	2024	Access Road	Fencing	Tractors/Loader/Backhoe	Diesel	100	0.21	151.1111	0.009962	0.007152	1.33E-05	0.001256	0.001156	0.001519	2.20463
1	2024	Access Road	Grading	Dozer	Diesel	175	0.59	14.3834	0.000293	0.000626	4.28E-06	3.50E-05	3.22E-05	0.000235	0.796605
1	2024	Access Road	Grading	Grader	Diesel	300	0.59	14.3834	0.000384	0.001009	7.31E-06	3.97E-05	3.65E-05	0.000397	1.365616
1	2024	Access Road	Grading	Roller	Diesel	100	0.59	14.3834	0.000582	0.000545	2.76E-06	4.38E-05	4.03E-05	0.000144	0.505532
1	2024	Access Road	Hydroseeding	Hydroseeder	Diesel	600	0.59	12.958	0.000749	0.001634	1.31E-05	5.89E-05	5.42E-05	0.000708	2.460576
1	2024	Access Road	Hydroseeding	Off-Road Truck	Diesel	600	0.59	12.958	0.000749	0.001634	1.31E-05	5.89E-05	5.42E-05	0.000708	2.460576
1	2024	Access Road	Markings	Flatbed Truck	Diesel	600	0.59	217.6	0.012582	0.027444	0.00022	0.000989	0.00091	0.011834	41.31976
1	2024	Access Road	Markings	Other General Equipment	Diesel	175	0.43	217.6	0.003704	0.013077	4.84E-05	0.000759	0.000698	0.002733	8.688023
1	2024	Access Road	Markings	Pickup Truck	Diesel	600	0.59	217.6	0.012582	0.027444	0.00022	0.000989	0.00091	0.011834	41.31976
1	2024	Access Road	Sidewalks	Concrete Truck	Diesel	600	0.59	272	0.015727	0.034305	0.000275	0.001236	0.001137	0.014792	51.6497
1	2024	Access Road	Sidewalks	Dump Truck	Diesel	600	0.59	272	0.015727	0.034305	0.000275	0.001236	0.001137	0.014792	51.6497
1	2024	Access Road	Sidewalks	Pickup Truck	Diesel	600	0.59	272	0.015727	0.034305	0.000275	0.001236	0.001137	0.014792	51.6497
1	2024	Access Road	Sidewalks	Tractors/Loader/Backhoe	Diesel	100	0.21	272	0.017932	0.012874	2.40E-05	0.002262	0.002081	0.002684	3.968335
1	2024	Access Road	Sidewalks	Vibratory Compactor	Diesel	6	0.43	272	0.003447	0.00336	3.07E-06	0.000277	0.000255	0.000459	0.413037
1	2024	Access Road	Soil Erosion/Sediment Control	Other General Equipment	Diesel	175	0.43	12	0.000204	0.000721	2.67E-06	4.19E-05	3.85E-05	0.000161	0.479119
1	2024	Access Road	Soil Erosion/Sediment Control	Pickup Truck	Diesel	600	0.59	24	0.001388	0.003027	2.43E-05	0.000109	0.0001	0.001308	4.557326
1	2024	Access Road	Soil Erosion/Sediment Control	Pumps	Diesel	11	0.43	12	0.000278	0.000276	2.48E-07	2.31E-05	2.12E-05	3.84E-05	0.033405
1	2024	Access Road	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	100	0.21	12	0.000791	0.000568	1.06E-06	9.98E-05	9.18E-05	0.000177	0.175074
1	2024	Access Road	Street Lighting	Dump Truck	Diesel	600	0.59	90.66667	0.005242	0.011435	9.18E-05	0.000412	0.000379	0.004933	17.21657
1	2024	Access Road	Street Lighting	Loader	Diesel	175	0.59	90.66667	0.002335	0.005399	2.74E-05	0.000357	0.000329	0.001505	5.021336
1	2024	Access Road	Street Lighting	Other General Equipment	Diesel	175	0.43	90.66667	0.001543	0.005449	2.02E-05	0.000316	0.000291	0.001145	3.620009
1	2024	Access Road	Street Lighting	Pickup Truck	Diesel	600	0.59	90.66667	0.005242	0.011435	9.18E-05	0.000412	0.000379	0.004933	17.21657
1	2024	Access Road	Street Lighting	Skid Steer Loader	Diesel	75	0.21	90.66667	0.005023	0.006469	6.29E-06	0.000687	0.000632	0.000966	0.991351
1	2024	Access Road	Street Lighting	Tractors/Loader/Backhoe	Diesel	100	0.21	90.66667	0.005977	0.004291	8.00E-06	0.000754	0.000694	0.000936	1.322778
1	2024	Access Road	Subbase Placement	Dozer	Diesel	175	0.59	22.24674	0.000454	0.000968	6.63E-06	5.42E-05	4.99E-05	0.000361	1.232106
1	2024	Access Road	Subbase Placement	Dump Truck (12 cy)	Diesel	600	0.59	156.5511	0.009052	0.019744	0.000158	0.000711	0.000654	0.008515	29.72727
1	2024	Access Road	Subbase Placement	Pickup Truck	Diesel	600	0.59	22.24674	0.001286	0.002806	2.25E-05	0.000101	9.30E-05	0.001213	4.224402
1	2024	Access Road	Subbase Placement	Roller	Diesel	100	0.59	21.67631	0.000877	0.000822	4.15E-06	6.60E-05	6.07E-05	0.000214	0.761855
1	2024	Access Road	Topsoil Placement	Dozer	Diesel	175	0.59	31.96267	0.000652	0.001391	9.52E-06	7.79E-05	7.17E-05	0.000516	1.77021
1	2024	Access Road	Topsoil Placement	Dump Truck	Diesel	600	0.59	31.96267	0.001848	0.004031	3.23E-05	0.000145	0.000134	0.001741	6.069346
1	2024	Access Road	Topsoil Placement	Pickup Truck	Diesel	600	0.59	31.96267	0.001848	0.004031	3.23E-05	0.000145	0.000134	0.001741	6.069346
1	2024	Access Road	Tree Planting	Flatbed Truck	Diesel	600	0.59	0	0	0	0	0	0	3.19E-06	0
1	2024	Access Road	Tree Planting	Other General Equipment	Diesel	175	0.43	0	0	0	0	0	0	1.10E-05	0
1	2024	Access Road	Tree Planting	Pickup Truck	Diesel	600	0.59	0	0	0	0	0	0	3.19E-06	0
1	2024	Access Road	Tree Planting	Tractors/Loader/Backhoe	Diesel	100	0.21	0	0	0	0	0	0	6.14E-05	0
1	2024	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel	100	0.21	320	0.021097	0.015145	2.82E-05	0.002661	0.002448	0.003147	4.668629
1	2024	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel	600	0.59	60	0.003469	0.007567	6.07E-05	0.000273	0.000251	0.003265	11.39332
1	2024	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel	100	0.59	320	0.008221	0.005857	5.98E-05	0.000217	0.0002	0.002898	11.24747
1	2024	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel	600	0.59	80	0.004626	0.01009	8.10E-05	0.000363	0.000334	0.004353	15.19109
1	2024	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer Delivery	Diesel	600	0.59	16	0.000925	0.002018	1.62E-05	7.27E-05	6.69E-05	0.000873	3.038218
1	2024	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel	600	0.59	10	0.000578	0.001261	1.01E-05	4.54E-05	4.18E-05	0.000547	1.898886
1	2024	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel	600	0.59	4	0.000231	0.000504	4.05E-06	1.82E-05	1.67E-05	0.000221	0.759554
1	2024	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel	100	0.59	240	0.006166	0.004393	4.49E-05	0.000163	0.00015	0.002174	8.435606
1	2024	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel	75	0.21	240	0.012342	0.017279	1.66E-05	0.001549	0.001425	0.002333	2.62451

Scenario ID	Year	Project	Construction Activity	Equipment	Fuel	HP	Load Factor	Hours of Activity	CO	NOx	SO2	PM10	PM2.5	VOC	CO2
1	2024	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel	600	0.59	60	0.003469	0.007567	6.07E-05	0.000273	0.000251	0.003265	11.39332
1	2024	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer Delivery	Diesel	600	0.59	24	0.001388	0.003027	2.43E-05	0.000109	0.0001	0.001308	4.557326
1	2024	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel	100	0.59	960	0.024663	0.017572	0.00018	0.000651	0.000599	0.008695	33.74242
1	2024	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel	75	0.21	960	0.049369	0.069116	6.66E-05	0.006194	0.005699	0.009281	10.49804
1	2024	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel	600	0.59	120	0.006939	0.015134	0.000121	0.000545	0.000502	0.006528	22.78663
1	2024	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer Delivery	Diesel	600	0.59	120	0.006939	0.015134	0.000121	0.000545	0.000502	0.006528	22.78663
1	2024	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel	100	0.59	120	0.003083	0.002196	2.24E-05	8.14E-05	7.49E-05	0.001087	4.217803
1	2024	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel	75	0.21	120	0.006171	0.00864	8.32E-06	0.000774	0.000712	0.001175	1.312255
1	2024	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel	600	0.59	8	0.000463	0.001009	8.10E-06	3.63E-05	3.34E-05	0.000438	1.519109
1	2024	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer Delivery	Diesel	600	0.59	12	0.000694	0.001513	1.21E-05	5.45E-05	5.02E-05	0.000656	2.278663
1	2024	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel	100	0.59	320	0.008221	0.005857	5.98E-05	0.000217	0.0002	0.002898	11.24747
1	2024	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel	600	0.59	80	0.004626	0.01009	8.10E-05	0.000363	0.000334	0.004353	15.19109
1	2024	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel	300	0.43	240	0.004072	0.018409	8.93E-05	0.000669	0.000616	0.004913	16.42761
1	2024	Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	Diesel	100	0.59	120	0.003083	0.002196	2.24E-05	8.14E-05	7.49E-05	0.001087	4.217803
1	2024	Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	Diesel	600	0.59	60	0.003469	0.007567	6.07E-05	0.000273	0.000251	0.003265	11.39332
1	2024	Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer Deliveries	Diesel	600	0.59	16	0.000925	0.002018	1.62E-05	7.27E-05	6.69E-05	0.000873	3.038218
1	2024	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel	175	0.59	50.625	0.001032	0.002203	1.51E-05	0.000123	0.000113	0.000816	2.803798
1	2024	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel	175	0.59	50.625	0.000904	0.001908	1.50E-05	8.55E-05	7.86E-05	0.000807	2.803816
1	2024	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel	600	0.59	101.25	0.005854	0.01277	0.000102	0.00046	0.000423	0.005508	19.22622
1	2024	Detention Basin	Clearing and Grubbing	Chain Saw	Diesel	11	0.7	4.8	0.011959	5.39E-05	5.71E-06	0.000397	0.000365	0.006655	0.025354
1	2024	Detention Basin	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	100	0.43	4.8	0.000288	0.000492	7.49E-07	4.65E-05	4.28E-05	9.95E-05	0.121685
1	2024	Detention Basin	Clearing and Grubbing	Pickup Truck	Diesel	600	0.59	6.4	0.00037	0.000807	6.48E-06	2.91E-05	2.68E-05	0.000351	1.215287
1	2024	Detention Basin	Drainage - 24 inch SICPP	Excavator	Diesel	175	0.59	8.832	0.000158	0.000333	2.61E-06	1.49E-05	1.37E-05	0.000142	0.489152
1	2024	Detention Basin	Drainage	Dozer	Diesel	175	0.59	8.832	0.00018	0.000384	2.63E-06	2.15E-05	1.98E-05	0.000146	0.489149
1	2024	Detention Basin	Drainage	Dump Truck	Diesel	600	0.59	8.832	0.000511	0.001114	8.94E-06	4.01E-05	3.69E-05	0.000483	1.677096
1	2024	Detention Basin	Drainage	Loader	Diesel	175	0.59	8.832	0.000227	0.000526	2.67E-06	3.48E-05	3.20E-05	0.000154	0.489137
1	2024	Detention Basin	Drainage	Other General Equipment	Diesel	175	0.43	8.832	0.00015	0.000531	1.97E-06	3.08E-05	2.83E-05	0.000121	0.352632
1	2024	Detention Basin	Drainage	Pickup Truck	Diesel	600	0.59	8.832	0.000511	0.001114	8.94E-06	4.01E-05	3.69E-05	0.000483	1.677096
1	2024	Detention Basin	Drainage	Roller	Diesel	100	0.59	8.832	0.000357	0.000335	1.69E-06	2.69E-05	2.47E-05	9.07E-05	0.310417
1	2024	Detention Basin	Dust Control	Water Truck	Diesel	600	0.59	1440	0.083262	0.181612	0.001457	0.006542	0.006019	0.078296	273.4396
1	2024	Detention Basin	Excavation (Cut to Fill)	Dozer	Diesel	175	0.59	32.678	0.000666	0.001422	9.73E-06	7.96E-05	7.33E-05	0.000528	1.809828
1	2024	Detention Basin	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	600	0.59	87.14133	0.005039	0.01099	8.82E-05	0.000396	0.000364	0.004741	16.54715
1	2024	Detention Basin	Excavation (Cut to Fill)	Excavator	Diesel	175	0.59	26.1424	0.000467	0.000985	7.74E-06	4.41E-05	4.06E-05	0.000418	1.447871
1	2024	Detention Basin	Excavation (Cut to Fill)	Pickup Truck	Diesel	600	0.59	26.1424	0.001512	0.003297	2.65E-05	0.000119	0.000109	0.001425	4.964144
1	2024	Detention Basin	Excavation (Cut to Fill)	Roller	Diesel	100	0.59	26.1424	0.001058	0.000991	5.01E-06	7.96E-05	7.32E-05	0.000257	0.918824
1	2024	Detention Basin	Excavation (Cut to Fill)	Scraper	Diesel	600	0.59	32.678	0.003585	0.009271	3.43E-05	0.000456	0.00042	0.001872	6.205025
1	2024	Detention Basin	Excavation (Topsoil Stripping)	Dozer	Diesel	175	0.59	2.56298	5.22E-05	0.000112	7.63E-07	6.25E-06	5.75E-06	4.50E-05	0.141947
1	2024	Detention Basin	Fencing	Concrete Truck	Diesel	600	0.59	1.422222	8.22E-05	0.000179	1.44E-06	6.46E-06	5.94E-06	8.05E-05	0.270064
1	2024	Detention Basin	Fencing	Dump Truck	Diesel	600	0.59	5.688889	0.000329	0.000717	5.76E-06	2.58E-05	2.38E-05	0.000312	1.080255
1	2024	Detention Basin	Fencing	Other General Equipment	Diesel	175	0.43	5.688889	9.68E-05	0.000342	1.27E-06	1.98E-05	1.83E-05	8.22E-05	0.227138
1	2024	Detention Basin	Fencing	Pickup Truck	Diesel	600	0.59	5.688889	0.000329	0.000717	5.76E-06	2.58E-05	2.38E-05	0.000312	1.080255
1	2024	Detention Basin	Fencing	Skid Steer Loader	Diesel	75	0.21	5.688889	0.000315	0.000406	3.95E-07	4.31E-05	3.97E-05	0.000101	0.062202
1	2024	Detention Basin	Fencing	Tractors/Loader/Backhoe	Diesel	100	0.21	5.688889	0.000375	0.000269	5.02E-07	4.73E-05	4.35E-05	0.000116	0.082998
1	2024	Detention Basin	Hydroseeding	Hydroseeder	Diesel	600	0.59	1.725	9.97E-05	0.000218	1.75E-06	7.84E-06	7.21E-06	9.70E-05	0.327558
1	2024	Detention Basin	Hydroseeding	Off-Road Truck	Diesel	600	0.59	1.725	9.97E-05	0.000218	1.75E-06	7.84E-06	7.21E-06	9.70E-05	0.327558
1	2024	Detention Basin	Soil Erosion/Sediment Control	Other General Equipment	Diesel	175	0.43	1.6	2.72E-05	9.62E-05	3.56E-07	5.58E-06	5.14E-06	3.10E-05	0.063883
1	2024	Detention Basin	Soil Erosion/Sediment Control	Pickup Truck	Diesel	600	0.59	3.2	0.000185	0.000404	3.24E-06	1.45E-05	1.34E-05	0.000177	0.607644
1	2024	Detention Basin	Soil Erosion/Sediment Control	Pumps	Diesel	11	0.43	1.6	3.71E-05	3.68E-05	3.31E-08	3.08E-06	2.83E-06	5.67E-06	0.004454
1	2024	Detention Basin	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	100	0.21	1.6	0.000105	7.57E-05	1.41E-07	1.33E-05	1.22E-05	7.69E-05	0.023343
1	2024	Detention Basin	Topsoil Placement	Dozer	Diesel	175	0.59	4.254667	8.67E-05	0.000185	1.27E-06	1.04E-05	9.54E-06	7.21E-05	0.235639
1	2024	Detention Basin	Topsoil Placement	Dump Truck	Diesel	600	0.59	4.254667	0.000246	0.000537	4.31E-06	1.93E-05	1.78E-05	0.000235	0.807913
1	2024	Detention Basin	Topsoil Placement	Pickup Truck	Diesel	600	0.59	4.254667	0.000246	0.000537	4.31E-06	1.93E-05	1.78E-05	0.000235	0.807913

On-Road Sources

Units for Non-Greenhouse Gases Emission: Short Ton

Units for Greenhouse Gases (CO2, CH4, and N2O) Emission: Metric Ton

Scenario ID	Year	Project	Equipment	Equipment Category	On-road Activity	Fuel	Roadway Type	Round Trip Distance (miles)	Number of Vehicles	Number of Employees Or $M*11 (Whichever larger)	Number of Project Days	Project Length	Project Width	Project Area
1	2024	Access Road	Asphalt 18 Wheeler	Combination Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	3400	28	--
1	2024	Access Road	Dump Truck - Asphalt	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	3400	28	--
1	2024	Access Road	Dump Truck Subbase Material	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	2	--	236	3400	28	--
1	2024	Access Road	Passenger Car	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	78	78	236	--	--	--
1	2024	Building - 10000 sqft- 1 story	Cement Mixer	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	--	--	10000
1	2024	Building - 10000 sqft- 1 story	Dump Truck Subbase Material	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	--	--	10000
1	2024	Building - 10000 sqft- 1 story	Passenger Car	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	55	236	--	--	--
1	2024	Building - 10000 sqft- 1 story	Tractor Trailer	Combination Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	--	--	10000
1	2024	Demolition - Asphalt	Dump Truck	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	2	--	236	225	225	--
1	2024	Demolition - Asphalt	Passenger Car	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	55	236	--	--	--
1	2024	Detention Basin	Cement Truck for Fencing	Single Unit Short-haul Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	1	--	236	--	--	--
1	2024	Detention Basin	Passenger Car	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	55	236	--	--	--

Scenario ID	Year	Project	Equipment	VMT	CO	NOx	SO2	PM10	PM2.5	VOC	CO2	CH4	N2O
1	2024	Access Road	Asphalt 18 Wheeler	1381	0.007048	0.003855	2.64E-05	0.000174	0.000169	0.001641	3.537965	0.000222	9.67E-05
1	2024	Access Road	Dump Truck - Asphalt	1957	0.007251	0.00273	2.21E-05	8.78E-05	8.54E-05	0.000163	2.760957	0.000229	0.000139
1	2024	Access Road	Dump Truck Subbase Material	11741	0.013248	0.016189	0.00013	0.000508	0.000495	0.000195	16.23204	0.001374	0.000834
1	2024	Access Road	Passenger Car	552240	1.734513	0.089262	0.003125	0.003084	0.003023	0.120105	204.3991	0.027612	0.002761
1	2024	Building - 10000 sqft- 1 story	Cement Mixer	2313	0.00747	0.003219	2.60E-05	0.000103	0.0001	0.000164	3.251115	0.000271	0.000164
1	2024	Building - 10000 sqft- 1 story	Dump Truck Subbase Material	1233	0.006808	0.001734	1.41E-05	5.66E-05	5.50E-05	0.00016	1.764119	0.000144	8.75E-05
1	2024	Building - 10000 sqft- 1 story	Passenger Car	389400	1.223054	0.062941	0.002203	0.002175	0.002132	0.084689	144.1276	0.01947	0.001947
1	2024	Building - 10000 sqft- 1 story	Tractor Trailer	160	0.005998	0.000537	3.52E-06	2.59E-05	2.51E-05	0.001637	0.471614	2.58E-05	1.12E-05
1	2024	Demolition - Asphalt	Dump Truck	11250	0.012947	0.015514	0.000125	0.000487	0.000475	0.000193	15.55601	0.001316	0.000799
1	2024	Demolition - Asphalt	Passenger Car	389400	1.223054	0.062941	0.002203	0.002175	0.002132	0.084689	144.1276	0.01947	0.001947
1	2024	Detention Basin	Cement Truck for Fencing	3404	0.008138	0.00472	3.80E-05	0.00015	0.000146	0.000167	4.753256	0.000398	0.000242
1	2024	Detention Basin	Passenger Car	389400	1.223054	0.062941	0.002203	0.002175	0.002132	0.084689	144.1276	0.01947	0.001947

Fugitive Sources
Units for Non-Greenhouse Gases Emission: Short Ton

Scenario ID	Year	Project	Fugitive Source Type	Number of Months	CO	NOx	SO2	PM10	VOC
1	2024	Access Road	Asphalt Drying	11	0	0	0	0	3.53165
1	2024	Access Road	Asphalt Storage and Batching	11	0.23035	0.0144	0.002647	0.01575	0.00715
1	2024	Access Road	Material Movement (Paved Roads)	11	0	0	0	0.01645	0
1	2024	Access Road	Material Movement (Unpaved Roads)	11	0	0	0	0.05685	0
1	2024	Access Road	Soil Handling	11	0	0	0	0.02695	0
1	2024	Access Road	Unstabilized Land and Wind Erosion	11	0	0	0	3.52E-08	0
1	2024	Building - 10000 sqft- 1 story	Concrete Mixing/Batching	11	0	0	0	0.00855	0
1	2024	Building - 10000 sqft- 1 story	Material Movement (Paved Roads)	11	0	0	0	0.01095	0
1	2024	Building - 10000 sqft- 1 story	Material Movement (Unpaved Roads)	11	0	0	0	0.0323	0
1	2024	Demolition - Asphalt	Material Movement (Paved Roads)	11	0	0	0	0.0055	0
1	2024	Demolition - Asphalt	Material Movement (Unpaved Roads)	11	0	0	0	0.01705	0
1	2024	Demolition - Asphalt	Soil Handling	11	0	0	0	0.01435	0
1	2024	Demolition - Asphalt	Unstabilized Land and Wind Erosion	11	0	0	0	1.87E-08	0
1	2024	Detention Basin	Material Movement (Paved Roads)	11	0	0	0	0	0
1	2024	Detention Basin	Material Movement (Unpaved Roads)	11	0	0	0	0.001368	0
1	2024	Detention Basin	Soil Handling	11	0	0	0	0.004167	0
1	2024	Detention Basin	Unstabilized Land and Wind Erosion	11	0	0	0	5.45E-09	0

==========

INPUT DATA AND SPECIFICATIONS

State/County
Rhode Island
Kent County

Scenarios

Scenario ID	Year	Number of Months	Season	Average Daily Temp (degF)	Max Daily Temp Change (degF)	Min Daily Temp Change (degF)
1	2024	11	Summer	> 80	20 <= Change in T	20 <= Change in T

Project Final Selections

Scenario ID	Project	Construction Activity	Equipment	Fuel Type
1	Access Road	Asphalt Placement	Asphalt Paver	Diesel
1	Access Road	Asphalt Placement	Dump Truck	Diesel
1	Access Road	Asphalt Placement	Other General Equipment	Diesel
1	Access Road	Asphalt Placement	Pickup Truck	Diesel
1	Access Road	Asphalt Placement	Roller	Diesel
1	Access Road	Asphalt Placement	Skid Steer Loader	Diesel
1	Access Road	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
1	Access Road	Clearing and Grubbing	Chain Saw	Diesel
1	Access Road	Clearing and Grubbing	Chipper/Stump Grinder	Diesel
1	Access Road	Clearing and Grubbing	Pickup Truck	Diesel
1	Access Road	Curbing	Concrete Truck	Diesel
1	Access Road	Curbing	Curb/Gutter Paver	Diesel
1	Access Road	Curbing	Other General Equipment	Diesel
1	Access Road	Curbing	Pickup Truck	Diesel
1	Access Road	Drainage - 24 inch SICPP	Dozer	Diesel
1	Access Road	Drainage - 24 inch SICPP	Dump Truck	Diesel
1	Access Road	Drainage - 24 inch SICPP	Excavator	Diesel
1	Access Road	Drainage - 24 inch SICPP	Loader	Diesel
1	Access Road	Drainage - 24 inch SICPP	Other General Equipment	Diesel
1	Access Road	Drainage - 24 inch SICPP	Pickup Truck	Diesel
1	Access Road	Drainage - 24 inch SICPP	Roller	Diesel
1	Access Road	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
1	Access Road	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
1	Access Road	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
1	Access Road	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
1	Access Road	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel

Scenario ID	Project	Construction Activity	Equipment	Fuel Type
1	Access Road	Dust Control	Water Truck	Diesel
1	Access Road	Excavation (Borrow)	Dozer	Diesel
1	Access Road	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
1	Access Road	Excavation (Borrow)	Pickup Truck	Diesel
1	Access Road	Excavation (Borrow)	Roller	Diesel
1	Access Road	Excavation (Cut to Fill)	Dozer	Diesel
1	Access Road	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
1	Access Road	Excavation (Cut to Fill)	Excavator	Diesel
1	Access Road	Excavation (Cut to Fill)	Pickup Truck	Diesel
1	Access Road	Excavation (Cut to Fill)	Roller	Diesel
1	Access Road	Excavation (Cut to Fill)	Scraper	Diesel
1	Access Road	Excavation (Topsoil Stripping)	Dozer	Diesel
1	Access Road	Fencing	Concrete Truck	Diesel
1	Access Road	Fencing	Dump Truck	Diesel
1	Access Road	Fencing	Other General Equipment	Diesel
1	Access Road	Fencing	Pickup Truck	Diesel
1	Access Road	Fencing	Skid Steer Loader	Diesel
1	Access Road	Fencing	Tractors/Loader/Backhoe	Diesel
1	Access Road	Grading	Dozer	Diesel
1	Access Road	Grading	Grader	Diesel
1	Access Road	Grading	Roller	Diesel
1	Access Road	Hydroseeding	Hydroseeder	Diesel
1	Access Road	Hydroseeding	Off-Road Truck	Diesel
1	Access Road	Markings	Flatbed Truck	Diesel
1	Access Road	Markings	Other General Equipment	Diesel
1	Access Road	Markings	Pickup Truck	Diesel
1	Access Road	Sidewalks	Concrete Truck	Diesel
1	Access Road	Sidewalks	Dump Truck	Diesel
1	Access Road	Sidewalks	Pickup Truck	Diesel
1	Access Road	Sidewalks	Tractors/Loader/Backhoe	Diesel
1	Access Road	Sidewalks	Vibratory Compactor	Diesel
1	Access Road	Soil Erosion/Sediment Control	Other General Equipment	Diesel
1	Access Road	Soil Erosion/Sediment Control	Pickup Truck	Diesel
1	Access Road	Soil Erosion/Sediment Control	Pumps	Diesel

Scenario ID	Project	Construction Activity	Equipment	Fuel Type
1	Access Road	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
1	Access Road	Street Lighting	Dump Truck	Diesel
1	Access Road	Street Lighting	Loader	Diesel
1	Access Road	Street Lighting	Other General Equipment	Diesel
1	Access Road	Street Lighting	Pickup Truck	Diesel
1	Access Road	Street Lighting	Skid Steer Loader	Diesel
1	Access Road	Street Lighting	Tractors/Loader/Backhoe	Diesel
1	Access Road	Subbase Placement	Dozer	Diesel
1	Access Road	Subbase Placement	Dump Truck (12 cy)	Diesel
1	Access Road	Subbase Placement	Pickup Truck	Diesel
1	Access Road	Subbase Placement	Roller	Diesel
1	Access Road	Topsoil Placement	Dozer	Diesel
1	Access Road	Topsoil Placement	Dump Truck	Diesel
1	Access Road	Topsoil Placement	Pickup Truck	Diesel
1	Access Road	Tree Planting	Flatbed Truck	Diesel
1	Access Road	Tree Planting	Other General Equipment	Diesel
1	Access Road	Tree Planting	Pickup Truck	Diesel
1	Access Road	Tree Planting	Tractors/Loader/Backhoe	Diesel
1	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel
1	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel
1	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	Diesel
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	Diesel
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	Diesel
1	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel

Scenario ID	Project	Construction Activity	Equipment	Fuel Type
1	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel
1	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel
1	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	Diesel
1	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel
1	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel
1	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	Diesel
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	Diesel
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer- Steel Deliveries	Diesel
1	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel
1	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel
1	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel
1	Detention Basin	Clearing and Grubbing	Chain Saw	Diesel
1	Detention Basin	Clearing and Grubbing	Chipper/Stump Grinder	Diesel
1	Detention Basin	Clearing and Grubbing	Pickup Truck	Diesel
1	Detention Basin	Drainage - 24 inch SICPP	Excavator	Diesel
1	Detention Basin	Drainage	Dozer	Diesel
1	Detention Basin	Drainage	Dump Truck	Diesel
1	Detention Basin	Drainage	Loader	Diesel
1	Detention Basin	Drainage	Other General Equipment	Diesel
1	Detention Basin	Drainage	Pickup Truck	Diesel
1	Detention Basin	Drainage	Roller	Diesel
1	Detention Basin	Dust Control	Water Truck	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Dozer	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Excavator	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Pickup Truck	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Roller	Diesel
1	Detention Basin	Excavation (Cut to Fill)	Scraper	Diesel
1	Detention Basin	Excavation (Topsoil Stripping)	Dozer	Diesel
1	Detention Basin	Fencing	Concrete Truck	Diesel
1	Detention Basin	Fencing	Dump Truck	Diesel
1	Detention Basin	Fencing	Other General Equipment	Diesel
1	Detention Basin	Fencing	Pickup Truck	Diesel

Scenario ID	Project	Construction Activity	Equipment	Fuel Type
1	Detention Basin	Fencing	Skid Steer Loader	Diesel
1	Detention Basin	Fencing	Tractors/Loader/Backhoe	Diesel
1	Detention Basin	Hydroseeding	Hydroseeder	Diesel
1	Detention Basin	Hydroseeding	Off-Road Truck	Diesel
1	Detention Basin	Soil Erosion/Sediment Control	Other General Equipment	Diesel
1	Detention Basin	Soil Erosion/Sediment Control	Pickup Truck	Diesel
1	Detention Basin	Soil Erosion/Sediment Control	Pumps	Diesel
1	Detention Basin	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
1	Detention Basin	Topsoil Placement	Dozer	Diesel
1	Detention Basin	Topsoil Placement	Dump Truck	Diesel
1	Detention Basin	Topsoil Placement	Pickup Truck	Diesel

Overall Size

Scenario ID	Project	Project Size Questions	User Input	Unit
1	Access Road	What is the estimated cost of the project?	5	$ Million(s)
1	Access Road	What is the maximum length of the road (L) in feet?	3400	Feet
1	Access Road	What is the maximum width of the road including shoulder (W) in feet?	28	Feet
1	Building - 10000 sqft- 1 story	What is the estimated cost of the project?	5	$ Million(s)
1	Demolition - Asphalt	What is the estimated cost of the project?	5	$ Million(s)
1	Demolition - Asphalt	What is the maximum length of demolition area (L) in feet?	225	Feet
1	Demolition - Asphalt	What is the maximum width of demolition area (W) in feet?	225	Feet
1	Detention Basin	What is the estimated cost of the project?	5	$ Million(s)
1	Detention Basin	What is the maximum depth of the detention basin (D) in feet?	6	Feet
1	Detention Basin	What is the maximum length of the detention basin (L) in feet?	128	Feet
1	Detention Basin	What is the maximum width of the detention basin (W) in feet?	115	Feet

Size Detail (Estimated based on engineering experience)

Scenario ID	Project	Construction Activity	Default Activity Size	Unit
1	Access Road	Asphalt Placement	10567.2	Square Yards
1	Access Road	Clearing and Grubbing	3	Acres
1	Access Road	Curbing	6800	Linear Feet
1	Access Road	Drainage - 24 inch SICPP	3410	Linear Feet
1	Access Road	Drainage - 6 inch Perforated Underdrain	6820	Linear Feet
1	Access Road	Dust Control	330	Days
1	Access Road	Excavation (Borrow)	4403	Cubic Yards
1	Access Road	Excavation (Cut to Fill)	4403	Cubic Yards
1	Access Road	Excavation (Topsoil Stripping)	10567.2	Square Yards
1	Access Road	Fencing	3400	Linear Feet
1	Access Road	Grading	14383.4	Square Yards
1	Access Road	Hydroseeding	129580	Square Feet
1	Access Road	Markings	95200	Square Feet
1	Access Road	Sidewalks	20400	Square Feet
1	Access Road	Soil Erosion/Sediment Control	3	Acres
1	Access Road	Street Lighting	34	Lights
1	Access Road	Subbase Placement	10567.2	Square Yards
1	Access Road	Subbase Placement	3522.4	Cubic Yards
1	Access Road	Topsoil Placement	2397.2	Cubic Yards
1	Access Road	Tree Planting	0	Trees
1	Demolition - Asphalt	Asphalt Demolition	50625	Square Feet
1	Detention Basin	Clearing and Grubbing	0.4	Acres
1	Detention Basin	Drainage - 24 inch SICPP	276	Linear Feet
1	Detention Basin	Drainage	276	Linear Feet
1	Detention Basin	Dust Control	330	Days
1	Detention Basin	Excavation (Cut to Fill)	3267.8	Cubic Yards
1	Detention Basin	Excavation (Topsoil Stripping)	1633.9	Square Yards
1	Detention Basin	Fencing	128	Linear Feet
1	Detention Basin	Hydroseeding	17250	Square Feet
1	Detention Basin	Soil Erosion/Sediment Control	0.4	Acres
1	Detention Basin	Topsoil Placement	319.1	Cubic Yards

Activity: Non-Road (Estimated based on engineering experience)

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Rate	Default Activity	Activity Unit
1	Access Road	Asphalt Placement	Asphalt Paver	Diesel	10567.20 SY	8 Hours per 6400.00 SY	13.21	hours
1	Access Road	Asphalt Placement	Dump Truck	Diesel	10567.20 SY	8 Hours per 1777.00 SY	47.57	hours
1	Access Road	Asphalt Placement	Other General Equipment	Diesel	10567.20 SY	16 Hours per 6400.00 SY	26.42	hours
1	Access Road	Asphalt Placement	Pickup Truck	Diesel	10567.20 SY	8 Hours per 6400.00 SY	13.21	hours
1	Access Road	Asphalt Placement	Roller	Diesel	10567.20 SY	8 Hours per 6400.00 SY	13.21	hours
1	Access Road	Asphalt Placement	Skid Steer Loader	Diesel	10567.20 SY	8 Hours per 6400.00 SY	13.21	hours
1	Access Road	Asphalt Placement	Surfacing Equipment	Diesel	10567.20 SY	8 Hours per 5000.00 SY	16.91	hours
1	Access Road	Clearing and Grubbing	Chain Saw	Diesel	3.00 Acre	12 Hours per 1.00 Acre	36	hours
1	Access Road	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	3.00 Acre	12 Hours per 1.00 Acre	36	hours
1	Access Road	Clearing and Grubbing	Pickup Truck	Diesel	3.00 Acre	16 Hours per 1.00 Acre	48	hours
1	Access Road	Curbing	Concrete Truck	Diesel	6800.00 LF	8 Hours per 400.00 LF	136	hours
1	Access Road	Curbing	Curb/Gutter Paver	Diesel	6800.00 LF	8 Hours per 400.00 LF	136	hours
1	Access Road	Curbing	Other General Equipment	Diesel	6800.00 LF	8 Hours per 400.00 LF	136	hours
1	Access Road	Curbing	Pickup Truck	Diesel	6800.00 LF	8 Hours per 400.00 LF	136	hours
1	Access Road	Drainage - 24 inch SICPP	Dozer	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Dump Truck	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Excavator	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Loader	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Other General Equipment	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Pickup Truck	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 24 inch SICPP	Roller	Diesel	3410.00 LF	8 Hours per 250.00 LF	109.12	hours
1	Access Road	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel	6820.00 LF	8 Hours per 900.00 LF	60.62	hours
1	Access Road	Drainage - 6 inch Perforated Underdrain	Loader	Diesel	6820.00 LF	8 Hours per 900.00 LF	60.62	hours
1	Access Road	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel	6820.00 LF	8 Hours per 900.00 LF	60.62	hours
1	Access Road	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel	6820.00 LF	8 Hours per 900.00 LF	60.62	hours
1	Access Road	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel	6820.00 LF	8 Hours per 900.00 LF	60.62	hours
1	Access Road	Dust Control	Water Truck	Diesel	330.00 Day	8 Hours per 1.00 Day	2640	hours
1	Access Road	Excavation (Borrow)	Dozer	Diesel	4403.00 CY	8 Hours per 600.00 CY	58.71	hours
1	Access Road	Excavation (Borrow)	Dump Truck (12 cy)	Diesel	4403.00 CY	8 Hours per 600.00 CY	58.71	hours
1	Access Road	Excavation (Borrow)	Pickup Truck	Diesel	4403.00 CY	8 Hours per 600.00 CY	58.71	hours
1	Access Road	Excavation (Borrow)	Roller	Diesel	4403.00 CY	8 Hours per 1300.00 CY	27.1	hours
1	Access Road	Excavation (Cut to Fill)	Dozer	Diesel	4403.00 CY	8 Hours per 800.00 CY	44.03	hours
1	Access Road	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	4403.00 CY	8 Hours per 300.00 CY	117.41	hours
1	Access Road	Excavation (Cut to Fill)	Excavator	Diesel	4403.00 CY	8 Hours per 1000.00 CY	35.22	hours
1	Access Road	Excavation (Cut to Fill)	Pickup Truck	Diesel	4403.00 CY	8 Hours per 1000.00 CY	35.22	hours
1	Access Road	Excavation (Cut to Fill)	Roller	Diesel	4403.00 CY	8 Hours per 1000.00 CY	35.22	hours
1	Access Road	Excavation (Cut to Fill)	Scraper	Diesel	4403.00 CY	8 Hours per 800.00 CY	44.03	hours
1	Access Road	Excavation (Topsoil Stripping)	Dozer	Diesel	10567.20 SY	8 Hours per 5100.00 SY	16.58	hours
1	Access Road	Fencing	Concrete Truck	Diesel	3400.00 LF	2 Hours per 180.00 LF	37.78	hours

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Rate	Default Activity	Activity Unit
1	Access Road	Fencing	Dump Truck	Diesel	3400.00 LF	8 Hours per 180.00 LF	151.11	hours
1	Access Road	Fencing	Other General Equipment	Diesel	3400.00 LF	8 Hours per 180.00 LF	151.11	hours
1	Access Road	Fencing	Pickup Truck	Diesel	3400.00 LF	8 Hours per 180.00 LF	151.11	hours
1	Access Road	Fencing	Skid Steer Loader	Diesel	3400.00 LF	8 Hours per 180.00 LF	151.11	hours
1	Access Road	Fencing	Tractors/Loader/Backhoe	Diesel	3400.00 LF	8 Hours per 180.00 LF	151.11	hours
1	Access Road	Grading	Dozer	Diesel	14383.40 SY	8 Hours per 8000.00 SY	14.38	hours
1	Access Road	Grading	Grader	Diesel	14383.40 SY	8 Hours per 8000.00 SY	14.38	hours
1	Access Road	Grading	Roller	Diesel	14383.40 SY	8 Hours per 8000.00 SY	14.38	hours
1	Access Road	Hydroseeding	Hydroseeder	Diesel	129580.00 SF	8 Hours per 80000.00 SF	12.96	hours
1	Access Road	Hydroseeding	Off-Road Truck	Diesel	129580.00 SF	8 Hours per 80000.00 SF	12.96	hours
1	Access Road	Markings	Flatbed Truck	Diesel	95200.00 SF	8 Hours per 3500.00 SF	217.6	hours
1	Access Road	Markings	Other General Equipment	Diesel	95200.00 SF	8 Hours per 3500.00 SF	217.6	hours
1	Access Road	Markings	Pickup Truck	Diesel	95200.00 SF	8 Hours per 3500.00 SF	217.6	hours
1	Access Road	Sidewalks	Concrete Truck	Diesel	20400.00 SF	8 Hours per 600.00 SF	272	hours
1	Access Road	Sidewalks	Dump Truck	Diesel	20400.00 SF	8 Hours per 600.00 SF	272	hours
1	Access Road	Sidewalks	Pickup Truck	Diesel	20400.00 SF	8 Hours per 600.00 SF	272	hours
1	Access Road	Sidewalks	Tractors/Loader/Backhoe	Diesel	20400.00 SF	8 Hours per 600.00 SF	272	hours
1	Access Road	Sidewalks	Vibratory Compactor	Diesel	20400.00 SF	8 Hours per 600.00 SF	272	hours
1	Access Road	Soil Erosion/Sediment Control	Other General Equipment	Diesel	3.00 Acre	4 Hours per 1.00 Acre	12	hours
1	Access Road	Soil Erosion/Sediment Control	Pickup Truck	Diesel	3.00 Acre	8 Hours per 1.00 Acre	24	hours
1	Access Road	Soil Erosion/Sediment Control	Pumps	Diesel	3.00 Acre	4 Hours per 1.00 Acre	12	hours
1	Access Road	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	3.00 Acre	4 Hours per 1.00 Acre	12	hours
1	Access Road	Street Lighting	Dump Truck	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Street Lighting	Loader	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Street Lighting	Other General Equipment	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Street Lighting	Pickup Truck	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Street Lighting	Skid Steer Loader	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Street Lighting	Tractors/Loader/Backhoe	Diesel	34.00 Lights	8 Hours per 3.00 Lights	90.67	hours
1	Access Road	Subbase Placement	Dozer	Diesel	10567.20 SY	8 Hours per 3800.00 SY	22.25	hours
1	Access Road	Subbase Placement	Dump Truck (12 cy)	Diesel	3522.40 CY	8 Hours per 180.00 CY	156.55	hours
1	Access Road	Subbase Placement	Pickup Truck	Diesel	10567.20 SY	8 Hours per 3800.00 SY	22.25	hours
1	Access Road	Subbase Placement	Roller	Diesel	3522.40 CY	8 Hours per 1300.00 CY	21.68	hours
1	Access Road	Topsoil Placement	Dozer	Diesel	2397.20 CY	8 Hours per 600.00 CY	31.96	hours
1	Access Road	Topsoil Placement	Dump Truck	Diesel	2397.20 CY	8 Hours per 600.00 CY	31.96	hours
1	Access Road	Topsoil Placement	Pickup Truck	Diesel	2397.20 CY	8 Hours per 600.00 CY	31.96	hours
1	Access Road	Tree Planting	Flatbed Truck	Diesel	0.00 Trees	8 Hours per 10.00 Trees	0	hours
1	Access Road	Tree Planting	Other General Equipment	Diesel	0.00 Trees	8 Hours per 10.00 Trees	0	hours
1	Access Road	Tree Planting	Pickup Truck	Diesel	0.00 Trees	8 Hours per 10.00 Trees	0	hours
1	Access Road	Tree Planting	Tractors/Loader/Backhoe	Diesel	0.00 Trees	8 Hours per 10.00 Trees	0	hours
1	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel	10000.00 SF	0.032 Hours per 1.00 SF	320	hours

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Rate	Default Activity	Activity Unit
1	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel	10000.00 SF	0.006 Hours per 1.00 SF	60	hours
1	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel	10000.00 SF	0.032 Hours per 1.00 SF	320	hours
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel	10000.00 SF	0.008 Hours per 1.00 SF	80	hours
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0016 Hours per 1.00 SF	16	hours
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel	10000.00 SF	0.001 Hours per 1.00 SF	10	hours
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel	10000.00 SF	0.0004 Hours per 1.00 SF	4	hours
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel	10000.00 SF	0.024 Hours per 1.00 SF	240	hours
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel	10000.00 SF	0.024 Hours per 1.00 SF	240	hours
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel	10000.00 SF	0.006 Hours per 1.00 SF	60	hours
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0024 Hours per 1.00 SF	24	hours
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel	10000.00 SF	0.096 Hours per 1.00 SF	960	hours
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel	10000.00 SF	0.096 Hours per 1.00 SF	960	hours
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel	10000.00 SF	0.012 Hours per 1.00 SF	120	hours
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.012 Hours per 1.00 SF	120	hours
1	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel	10000.00 SF	0.012 Hours per 1.00 SF	120	hours
1	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel	10000.00 SF	0.012 Hours per 1.00 SF	120	hours
1	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel	10000.00 SF	0.0008 Hours per 1.00 SF	8	hours
1	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0012 Hours per 1.00 SF	12	hours
1	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel	10000.00 SF	0.032 Hours per 1.00 SF	320	hours
1	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel	10000.00 SF	0.008 Hours per 1.00 SF	80	hours
1	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel	10000.00 SF	0.024 Hours per 1.00 SF	240	hours

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Rate	Default Activity	Activity Unit
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	Diesel	10000.00 SF	0.012 Hours per 1.00 SF	120	hours
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	Diesel	10000.00 SF	0.006 Hours per 1.00 SF	60	hours
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer- Steel Deliveries	Diesel	10000.00 SF	0.0016 Hours per 1.00 SF	16	hours
1	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel	50625.00 SF	8 Hours per 8000.00 SF	50.63	hours
1	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel	50625.00 SF	8 Hours per 8000.00 SF	50.63	hours
1	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel	50625.00 SF	8 Hours per 4000.00 SF	101.25	hours
1	Detention Basin	Clearing and Grubbing	Chain Saw	Diesel	0.40 Acre	12 Hours per 1.00 Acre	4.8	hours
1	Detention Basin	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	0.40 Acre	12 Hours per 1.00 Acre	4.8	hours
1	Detention Basin	Clearing and Grubbing	Pickup Truck	Diesel	0.40 Acre	16 Hours per 1.00 Acre	6.4	hours
1	Detention Basin	Drainage - 24 inch SICPP	Excavator	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Dozer	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Dump Truck	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Loader	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Other General Equipment	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Pickup Truck	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Drainage	Roller	Diesel	276.00 LF	8 Hours per 250.00 LF	8.83	hours
1	Detention Basin	Dust Control	Water Truck	Diesel	330.00 Day	8 Hours per 1.00 Day	2640	hours
1	Detention Basin	Excavation (Cut to Fill)	Dozer	Diesel	3267.80 CY	8 Hours per 800.00 CY	32.68	hours
1	Detention Basin	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	3267.80 CY	8 Hours per 300.00 CY	87.14	hours
1	Detention Basin	Excavation (Cut to Fill)	Excavator	Diesel	3267.80 CY	8 Hours per 1000.00 CY	26.14	hours
1	Detention Basin	Excavation (Cut to Fill)	Pickup Truck	Diesel	3267.80 CY	8 Hours per 1000.00 CY	26.14	hours
1	Detention Basin	Excavation (Cut to Fill)	Roller	Diesel	3267.80 CY	8 Hours per 1000.00 CY	26.14	hours
1	Detention Basin	Excavation (Cut to Fill)	Scraper	Diesel	3267.80 CY	8 Hours per 800.00 CY	32.68	hours
1	Detention Basin	Excavation (Topsoil Stripping)	Dozer	Diesel	1633.90 SY	8 Hours per 5100.00 SY	2.56	hours
1	Detention Basin	Fencing	Concrete Truck	Diesel	128.00 LF	2 Hours per 180.00 LF	1.42	hours
1	Detention Basin	Fencing	Dump Truck	Diesel	128.00 LF	8 Hours per 180.00 LF	5.69	hours
1	Detention Basin	Fencing	Other General Equipment	Diesel	128.00 LF	8 Hours per 180.00 LF	5.69	hours
1	Detention Basin	Fencing	Pickup Truck	Diesel	128.00 LF	8 Hours per 180.00 LF	5.69	hours
1	Detention Basin	Fencing	Skid Steer Loader	Diesel	128.00 LF	8 Hours per 180.00 LF	5.69	hours
1	Detention Basin	Fencing	Tractors/Loader/Backhoe	Diesel	128.00 LF	8 Hours per 180.00 LF	5.69	hours
1	Detention Basin	Hydroseeding	Hydroseeder	Diesel	17250.00 SF	8 Hours per 80000.00 SF	1.73	hours
1	Detention Basin	Hydroseeding	Off-Road Truck	Diesel	17250.00 SF	8 Hours per 80000.00 SF	1.73	hours
1	Detention Basin	Soil Erosion/Sediment Control	Other General Equipment	Diesel	0.40 Acre	4 Hours per 1.00 Acre	1.6	hours
1	Detention Basin	Soil Erosion/Sediment Control	Pickup Truck	Diesel	0.40 Acre	8 Hours per 1.00 Acre	3.2	hours
1	Detention Basin	Soil Erosion/Sediment Control	Pumps	Diesel	0.40 Acre	4 Hours per 1.00 Acre	1.6	hours
1	Detention Basin	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	0.40 Acre	4 Hours per 1.00 Acre	1.6	hours

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Rate	Default Activity	Activity Unit
1	Detention Basin	Topsoil Placement	Dozer	Diesel	319.10 CY	8 Hours per 600.00 CY	4.25	hours
1	Detention Basin	Topsoil Placement	Dump Truck	Diesel	319.10 CY	8 Hours per 600.00 CY	4.25	hours
1	Detention Basin	Topsoil Placement	Pickup Truck	Diesel	319.10 CY	8 Hours per 600.00 CY	4.25	hours

Activity: On-Road (Estimated based on engineering experience)

Scenario ID	Project	Equipment	On-road Activity	Fuel	Roadway Type	Round Trip Distance (miles)	Number of Employees Or $M*11 (Whichever larger)	Number of Project Days	Project Length	Project Width	Project Area	Default VMT
1	Access Road	Asphalt 18 Wheeler	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	3400	28	--	1381
1	Access Road	Dump Truck - Asphalt	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	3400	28	--	1957
1	Access Road	Dump Truck Subbase Material	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	3400	28	--	11741
1	Access Road	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	78	236	--	--	--	552240
1	Building - 10000 sqft- 1 story	Cement Mixer	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	--	--	10000	2313
1	Building - 10000 sqft- 1 story	Dump Truck Subbase Material	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	--	--	10000	1233
1	Building - 10000 sqft- 1 story	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	236	--	--	--	389400
1	Building - 10000 sqft- 1 story	Tractor Trailer	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	--	--	10000	160
1	Demolition - Asphalt	Dump Truck	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	225	225	--	11250
1	Demolition - Asphalt	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	236	--	--	--	389400
1	Detention Basin	Cement Truck for Fencing	Material Delivery	Diesel	Urban Unrestricted Access	40	--	236	128	115	--	3404
1	Detention Basin	Passenger Car	Employee Commute	Gasoline	Urban Unrestricted Access	30	55	236	--	--	--	389400

Emission Factor: Non-Road (from NONROAD)

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Avg Rated HP	Load Factor	CO (g/hp-hr)	NOx (g/hp-hr)	CO2 (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)	VOC Exhaust (g/hp-hr)	VOC Evaporative (g/equipment-day)
1	Access Road	Asphalt Placement	Asphalt Paver	Diesel	175	0.59	0.206439	0.451415	536.397	0.002637	0.029136	0.026805	0.143096	0.044665
1	Access Road	Asphalt Placement	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Asphalt Placement	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Asphalt Placement	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Avg Rated HP	Load Factor	CO (g/hp-hr)	NOx (g/hp-hr)	CO2 (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)	VOC Exhaust (g/hp-hr)	VOC Evaporative (g/equipment-day)
1	Access Road	Asphalt Placement	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Asphalt Placement	Skid Steer Loader	Diesel	75	0.21	3.190933	4.109684	694.2231	0.003995	0.436383	0.401472	0.586086	0.305457
1	Access Road	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel	25	0.59	2.35499	4.461231	594.7306	0.004009	0.35357	0.325285	0.470798	0
1	Access Road	Clearing and Grubbing	Chain Saw	Diesel	11	0.7	293.535	1.322993	685.9964	0.140192	9.748189	8.968334	61.88836	29.06709
1	Access Road	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	100	0.43	1.264284	2.164547	589.5573	0.003294	0.204585	0.188218	0.267918	0.271109
1	Access Road	Clearing and Grubbing	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Curbing	Concrete Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Curbing	Curb/Gutter Paver	Diesel	175	0.59	0.206439	0.451415	536.397	0.002637	0.029136	0.026805	0.143096	0.044665
1	Access Road	Curbing	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Curbing	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Drainage - 24 inch SICPP	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Drainage - 24 inch SICPP	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Drainage - 24 inch SICPP	Excavator	Diesel	175	0.59	0.156877	0.331212	536.4069	0.0026	0.014835	0.013648	0.139831	0.012619
1	Access Road	Drainage - 24 inch SICPP	Loader	Diesel	175	0.59	0.226255	0.523204	536.3911	0.002652	0.034603	0.031835	0.14504	0.057618
1	Access Road	Drainage - 24 inch SICPP	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Drainage - 24 inch SICPP	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Drainage - 24 inch SICPP	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Drainage - 6 inch Perforated Underdrain	Loader	Diesel	175	0.59	0.226255	0.523204	536.3911	0.002652	0.034603	0.031835	0.14504	0.057618
1	Access Road	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Access Road	Dust Control	Water Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Excavation (Borrow)	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Excavation (Borrow)	Dump Truck (12 cy)	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Excavation (Borrow)	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Excavation (Borrow)	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Excavation (Cut to Fill)	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Excavation (Cut to Fill)	Excavator	Diesel	175	0.59	0.156877	0.331212	536.4069	0.0026	0.014835	0.013648	0.139831	0.012619
1	Access Road	Excavation (Cut to Fill)	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Excavation (Cut to Fill)	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Excavation (Cut to Fill)	Scraper	Diesel	600	0.59	0.281126	0.727072	536.3951	0.002693	0.035778	0.032916	0.143723	0.277679
1	Access Road	Excavation (Topsoil Stripping)	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Fencing	Concrete Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Fencing	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Fencing	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Fencing	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Fencing	Skid Steer Loader	Diesel	75	0.21	3.190933	4.109684	694.2231	0.003995	0.436383	0.401472	0.586086	0.305457
1	Access Road	Fencing	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Access Road	Grading	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Grading	Grader	Diesel	300	0.59	0.13696	0.359608	536.4062	0.002604	0.014146	0.013015	0.140069	0.025229
1	Access Road	Grading	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Hydroseeding	Hydroseeder	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Hydroseeding	Off-Road Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Markings	Flatbed Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Markings	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Markings	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Sidewalks	Concrete Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Sidewalks	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Sidewalks	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Sidewalks	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Access Road	Sidewalks	Vibratory Compactor	Diesel	6	0.43	4.456059	4.34313	588.5728	0.003968	0.358317	0.329651	0.592832	0.001632
1	Access Road	Soil Erosion/Sediment Control	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Soil Erosion/Sediment Control	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Soil Erosion/Sediment Control	Pumps	Diesel	11	0.43	4.449499	4.405464	588.5376	0.003967	0.36866	0.339167	0.604452	0.004398
1	Access Road	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Access Road	Street Lighting	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Street Lighting	Loader	Diesel	175	0.59	0.226255	0.523204	536.3911	0.002652	0.034603	0.031835	0.14504	0.057618
1	Access Road	Street Lighting	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Street Lighting	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Avg Rated HP	Load Factor	CO (g/hp-hr)	NOx (g/hp-hr)	CO2 (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)	VOC Exhaust (g/hp-hr)	VOC Evaporative (g/equipment-day)
1	Access Road	Street Lighting	Skid Steer Loader	Diesel	75	0.21	3.190933	4.109684	694.2231	0.003995	0.436383	0.401472	0.586086	0.305457
1	Access Road	Street Lighting	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Access Road	Subbase Placement	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Subbase Placement	Dump Truck (12 cy)	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Subbase Placement	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Subbase Placement	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Access Road	Topsoil Placement	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Access Road	Topsoil Placement	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Topsoil Placement	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Tree Planting	Flatbed Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Tree Planting	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Access Road	Tree Planting	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Access Road	Tree Planting	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel	75	0.21	2.962074	4.146875	694.3147	0.003994	0.371653	0.341921	0.555838	0.12007
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel	75	0.21	2.962074	4.146875	694.3147	0.003994	0.371653	0.341921	0.555838	0.12007
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel	75	0.21	2.962074	4.146875	694.3147	0.003994	0.371653	0.341921	0.555838	0.12007
1	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel	300	0.43	0.119326	0.539402	530.6075	0.002617	0.019605	0.018037	0.143634	0.080737
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	Diesel	100	0.59	0.395011	0.281442	595.7349	0.002875	0.010433	0.009598	0.13927	0
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer- Steel Deliveries	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel	175	0.59	0.156877	0.331212	536.4069	0.0026	0.014835	0.013648	0.139831	0.012619
1	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Clearing and Grubbing	Chain Saw	Diesel	11	0.7	293.535	1.322993	685.9964	0.140192	9.748189	8.968334	61.88836	29.06709
1	Detention Basin	Clearing and Grubbing	Chipper/Stump Grinder	Diesel	100	0.43	1.264284	2.164547	589.5573	0.003294	0.204585	0.188218	0.267918	0.271109
1	Detention Basin	Clearing and Grubbing	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Drainage - 24 inch SICPP	Excavator	Diesel	175	0.59	0.156877	0.331212	536.4069	0.0026	0.014835	0.013648	0.139831	0.012619
1	Detention Basin	Drainage	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Detention Basin	Drainage	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Drainage	Loader	Diesel	175	0.59	0.226255	0.523204	536.3911	0.002652	0.034603	0.031835	0.14504	0.057618
1	Detention Basin	Drainage	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Detention Basin	Drainage	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Drainage	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Detention Basin	Dust Control	Water Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Excavation (Cut to Fill)	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Detention Basin	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Excavation (Cut to Fill)	Excavator	Diesel	175	0.59	0.156877	0.331212	536.4069	0.0026	0.014835	0.013648	0.139831	0.012619
1	Detention Basin	Excavation (Cut to Fill)	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Excavation (Cut to Fill)	Roller	Diesel	100	0.59	0.622064	0.582857	595.7099	0.002946	0.046797	0.043053	0.147495	0.04184
1	Detention Basin	Excavation (Cut to Fill)	Scraper	Diesel	600	0.59	0.281126	0.727072	536.3951	0.002693	0.035778	0.032916	0.143723	0.277679
1	Detention Basin	Excavation (Topsoil Stripping)	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Detention Basin	Fencing	Concrete Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Fencing	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Avg Rated HP	Load Factor	CO (g/hp-hr)	NOx (g/hp-hr)	CO2 (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)	VOC Exhaust (g/hp-hr)	VOC Evaporative (g/equipment-day)
1	Detention Basin	Fencing	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Detention Basin	Fencing	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Fencing	Skid Steer Loader	Diesel	75	0.21	3.190933	4.109684	694.2231	0.003995	0.436383	0.401472	0.586086	0.305457
1	Detention Basin	Fencing	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Detention Basin	Hydroseeding	Hydroseeder	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Hydroseeding	Off-Road Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Soil Erosion/Sediment Control	Other General Equipment	Diesel	175	0.43	0.205184	0.724508	530.5857	0.002684	0.042059	0.038694	0.150801	0.077304
1	Detention Basin	Soil Erosion/Sediment Control	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Soil Erosion/Sediment Control	Pumps	Diesel	11	0.43	4.449499	4.405464	588.5376	0.003967	0.36866	0.339167	0.604452	0.004398
1	Detention Basin	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	100	0.21	2.84798	2.044591	694.7365	0.00381	0.359196	0.330461	0.416572	0.43199
1	Detention Basin	Topsoil Placement	Dozer	Diesel	175	0.59	0.179112	0.38235	536.4036	0.002617	0.02141	0.019697	0.140916	0.027199
1	Detention Basin	Topsoil Placement	Dump Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467
1	Detention Basin	Topsoil Placement	Pickup Truck	Diesel	600	0.59	0.148175	0.323201	536.4085	0.002594	0.011643	0.010711	0.139331	0.022467

Emission Factors: On-Road (from MOVES)

Scenario ID	Project Type	Equipment	Fuel Type	Roadway Type	CO (g/mi)	NOx (g/mi)	CO2 (g/mi)	SO2 (g/mi)	PM10 (g/mi)	PM2.5 (g/mi)	CH4 (g/mi)	N2O (g/mi)	VOC (g/mi)
1	Access Road	Asphalt 18 Wheeler	Diesel	Urban Unrestricted Access	0.78	2.465	2511.344	0.017	0.11	0.107	0.161	0.07	0.003
1	Access Road	Dump Truck - Asphalt	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Access Road	Dump Truck Subbase Material	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Access Road	Passenger Car	Gasoline	Urban Unrestricted Access	2.016	0.094	360.599	0.005	0.004	0.004	0.05	0.005	0.002
1	Building - 10000 sqft- 1 story	Cement Mixer	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Building - 10000 sqft- 1 story	Dump Truck Subbase Material	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Building - 10000 sqft- 1 story	Passenger Car	Gasoline	Urban Unrestricted Access	2.016	0.094	360.599	0.005	0.004	0.004	0.05	0.005	0.002
1	Building - 10000 sqft- 1 story	Tractor Trailer	Diesel	Urban Unrestricted Access	0.78	2.465	2511.344	0.017	0.11	0.107	0.161	0.07	0.003
1	Demolition - Asphalt	Dump Truck	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Demolition - Asphalt	Passenger Car	Gasoline	Urban Unrestricted Access	2.016	0.094	360.599	0.005	0.004	0.004	0.05	0.005	0.002
1	Detention Basin	Cement Truck for Fencing	Diesel	Urban Unrestricted Access	0.556	1.248	1376.848	0.01	0.039	0.038	0.117	0.071	0.003
1	Detention Basin	Passenger Car	Gasoline	Urban Unrestricted Access	2.016	0.094	360.599	0.005	0.004	0.004	0.05	0.005	0.002

Scenario ID	Project Type	Equipment	Fuel Type	Roadway Type	RV CO (g/veh-day)	RV NOx (g/veh-day)	RV CO2 (g/veh-day)	RV SO2 (g/veh-day)	RV PM10 (g/veh-day)	RV PM2.5 (g/veh-day)	RV VOC (g/veh-day)	RP VOC (g/veh-day)
1	Access Road	Asphalt 18 Wheeler	Diesel	Urban Unrestricted Access	22.528	0.394	295.759	0.002	0.025	0.024	6.292	0
1	Access Road	Dump Truck - Asphalt	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Access Road	Dump Truck Subbase Material	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Access Road	Passenger Car	Gasoline	Urban Unrestricted Access	25	1.579	285.851	0.004	0.032	0.029	5.03	0.829
1	Building - 10000 sqft- 1 story	Cement Mixer	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Building - 10000 sqft- 1 story	Dump Truck Subbase Material	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Building - 10000 sqft- 1 story	Passenger Car	Gasoline	Urban Unrestricted Access	25	1.579	285.851	0.004	0.032	0.029	5.03	0.829
1	Building - 10000 sqft- 1 story	Tractor Trailer	Diesel	Urban Unrestricted Access	22.528	0.394	295.759	0.002	0.025	0.024	6.292	0
1	Demolition - Asphalt	Dump Truck	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Demolition - Asphalt	Passenger Car	Gasoline	Urban Unrestricted Access	25	1.579	285.851	0.004	0.032	0.029	5.03	0.829
1	Detention Basin	Cement Truck for Fencing	Diesel	Urban Unrestricted Access	23.264	0.144	281.633	0.002	0.014	0.013	0.6	0
1	Detention Basin	Passenger Car	Gasoline	Urban Unrestricted Access	25	1.579	285.851	0.004	0.032	0.029	5.03	0.829

Fugitive Emissions (Emission Factors from Various Sources including AP-42)

Scenario ID	Project	Fugitive Type	Variable	Default Values	Units
1	Access Road	Asphalt Drying	A = Area of land affected = L x W x 0.0929	8844.1	m2
1	Access Road	Asphalt Drying	AR = Application rate of liquefied asphalt over area	1.811	l/m2
1	Access Road	Asphalt Drying	VD = Volume fraction of diluent in liquefied asphalt	0.35	fraction
1	Access Road	Asphalt Drying	EF = Mass fraction of diluent which evaporates and becomes VOC	0.7	fraction
1	Access Road	Asphalt Drying	D = Density of solvent utilized	1.8	lbs/l
1	Access Road	Asphalt Drying	VOC = A x AR x VD x EF x D	7063.3	lbs
1	Access Road	Asphalt Storage and Batching	T = Mass of asphalt loaded = L x W x 0.1667 x 145 / 2000	1150.6	tons
1	Access Road	Asphalt Storage and Batching	PM10 = (0.027 + 0.00042) x T	31.5	lbs
1	Access Road	Asphalt Storage and Batching	CO = (0.4 + 0.0004) x T	460.7	lbs
1	Access Road	Asphalt Storage and Batching	NOx = (0.025) x T	28.8	lbs
1	Access Road	Asphalt Storage and Batching	SOx = (0.0046) x T	5.293	lbs
1	Access Road	Asphalt Storage and Batching	VOC = (0.0082 + 0.0042) x T	14.3	lbs
1	Access Road	Material Movement (Unpaved Roads)	s = Surface material silt content	0.043	fraction
1	Access Road	Material Movement (Unpaved Roads)	Wt. = Mean vehicle weight	32	tons
1	Access Road	Material Movement (Unpaved Roads)	VMT = Vehicle miles traveled	4153.1	miles
1	Access Road	Material Movement (Unpaved Roads)	PM10 = 1.5 x [(s/12)^0.9] x [(Wt./3)^0.45] x VMT	113.7	lbs
1	Access Road	Material Movement (Paved Roads)	sL = Road surface silt loading	0.1	g/m3
1	Access Road	Material Movement (Paved Roads)	Wt. = Mean vehicle weight	32	tons
1	Access Road	Material Movement (Paved Roads)	VMT = Vehicle miles traveled	3540	miles
1	Access Road	Material Movement (Paved Roads)	PM10 = 0.0022 x (sL^0.91) x (Wt^1.02) x VMT	32.9	lbs
1	Access Road	Unstabilized Land and Wind Erosion	A = Area affected = L x W / 43560.0	2.185	acres
1	Access Road	Unstabilized Land and Wind Erosion	TPConv = TSP/PM10 conversion	0.5	fraction
1	Access Road	Unstabilized Land and Wind Erosion	CE = Control efficiency	0.63	fraction
1	Access Road	Unstabilized Land and Wind Erosion	t = year (e.g. 0.65 year)	0.917	years
1	Access Road	Unstabilized Land and Wind Erosion	PM10 = 0.38 x A x TPConv x (1-CE) x t / 2000	0	lbs
1	Access Road	Soil Handling	u = Wind speed	5	mph
1	Access Road	Soil Handling	m = Moisture content	0.25	fraction
1	Access Road	Soil Handling	T = Mass of aggregate storage pile = L x W x 0.5 x 110 / 2000	2618	tons
1	Access Road	Soil Handling	PM10 = T x 0.35 x 0.0032 x [(u/5)^1.3] / [(m/2)^1.4]	53.9	lbs
1	Building - 10000 sqft- 1 story	Concrete Mixing/Batching	V = Volume of asphalt = 0.111 x L x W x 1.25 / 3	462.5	yd3
1	Building - 10000 sqft- 1 story	Concrete Mixing/Batching	PM10 = 0.037 x V	17.1	lbs
1	Building - 10000 sqft- 1 story	Material Movement (Paved Roads)	sL = Road surface silt loading	0.1	g/m3
1	Building - 10000 sqft- 1 story	Material Movement (Paved Roads)	Wt. = Mean vehicle weight	32	tons
1	Building - 10000 sqft- 1 story	Material Movement (Paved Roads)	VMT = Vehicle miles traveled	2360	miles
1	Building - 10000 sqft- 1 story	Material Movement (Paved Roads)	PM10 = 0.0022 x (sL^0.91) x (Wt^1.02) x VMT	21.9	lbs
1	Building - 10000 sqft- 1 story	Material Movement (Unpaved Roads)	s = Surface material silt content	0.043	fraction
1	Building - 10000 sqft- 1 story	Material Movement (Unpaved Roads)	Wt. = Mean vehicle weight	32	tons
1	Building - 10000 sqft- 1 story	Material Movement (Unpaved Roads)	VMT = Vehicle miles traveled	2360	miles
1	Building - 10000 sqft- 1 story	Material Movement (Unpaved Roads)	PM10 = 1.5 x [(s/12)^0.9] x [(Wt./3)^0.45] x VMT	64.6	lbs
1	Demolition - Asphalt	Soil Handling	u = Wind speed	5	mph
1	Demolition - Asphalt	Soil Handling	m = Moisture content	0.25	fraction
1	Demolition - Asphalt	Soil Handling	T = Mass of aggregate storage pile = L x W x 0.5 x 110 / 2000	1392.2	tons
1	Demolition - Asphalt	Soil Handling	PM10 = T x 0.35 x 0.0032 x [(u/5)^1.3] / [(m/2)^1.4]	28.7	lbs
1	Demolition - Asphalt	Unstabilized Land and Wind Erosion	A = Area affected = L x W / 43560.0	1.162	acres

Scenario ID	Project	Fugitive Type	Variable	Default Values	Units
1	Demolition - Asphalt	Unstabilized Land and Wind Erosion	TPConv = TSP/PM10 conversion	0.5	fraction
1	Demolition - Asphalt	Unstabilized Land and Wind Erosion	CE = Control efficiency	0.63	fraction
1	Demolition - Asphalt	Unstabilized Land and Wind Erosion	t = year (e.g. 0.65 year)	0.917	years
1	Demolition - Asphalt	Unstabilized Land and Wind Erosion	PM10 = 0.38 x A x TPConv x (1-CE) x t / 2000	0	lbs
1	Demolition - Asphalt	Material Movement (Unpaved Roads)	s = Surface material silt content	0.043	fraction
1	Demolition - Asphalt	Material Movement (Unpaved Roads)	Wt. = Mean vehicle weight	32	tons
1	Demolition - Asphalt	Material Movement (Unpaved Roads)	VMT = Vehicle miles traveled	1243.3	miles
1	Demolition - Asphalt	Material Movement (Unpaved Roads)	PM10 = 1.5 x [(s/12)^0.9] x [(Wt./3)^0.45] x VMT	34.1	lbs
1	Demolition - Asphalt	Material Movement (Paved Roads)	sL = Road surface silt loading	0.1	g/m3
1	Demolition - Asphalt	Material Movement (Paved Roads)	Wt. = Mean vehicle weight	32	tons
1	Demolition - Asphalt	Material Movement (Paved Roads)	VMT = Vehicle miles traveled	1180	miles
1	Demolition - Asphalt	Material Movement (Paved Roads)	PM10 = 0.0022 x (sL^0.91) x (Wt^1.02) x VMT	11	lbs
1	Detention Basin	Unstabilized Land and Wind Erosion	A = Area affected = L x W / 43560.0	0.338	acres
1	Detention Basin	Unstabilized Land and Wind Erosion	TPConv = TSP/PM10 conversion	0.5	fraction
1	Detention Basin	Unstabilized Land and Wind Erosion	CE = Control efficiency	0.63	fraction
1	Detention Basin	Unstabilized Land and Wind Erosion	t = year (e.g. 0.65 year)	0.917	years
1	Detention Basin	Unstabilized Land and Wind Erosion	PM10 = 0.38 x A x TPConv x (1-CE) x t / 2000	0	lbs
1	Detention Basin	Material Movement (Unpaved Roads)	s = Surface material silt content	0.043	fraction
1	Detention Basin	Material Movement (Unpaved Roads)	Wt. = Mean vehicle weight	32	tons
1	Detention Basin	Material Movement (Unpaved Roads)	VMT = Vehicle miles traveled	99.9	miles
1	Detention Basin	Material Movement (Unpaved Roads)	PM10 = 1.5 x [(s/12)^0.9] x [(Wt./3)^0.45] x VMT	2.735	lbs
1	Detention Basin	Material Movement (Paved Roads)	sL = Road surface silt loading	0.1	g/m3
1	Detention Basin	Material Movement (Paved Roads)	Wt. = Mean vehicle weight	32	tons
1	Detention Basin	Material Movement (Paved Roads)	VMT = Vehicle miles traveled	0	miles
1	Detention Basin	Material Movement (Paved Roads)	PM10 = 0.0022 x (sL^0.91) x (Wt^1.02) x VMT	0	lbs
1	Detention Basin	Soil Handling	u = Wind speed	5	mph
1	Detention Basin	Soil Handling	m = Moisture content	0.25	fraction
1	Detention Basin	Soil Handling	T = Mass of aggregate storage pile = L x W x 0.5 x 110 / 2000	404.8	tons
1	Detention Basin	Soil Handling	PM10 = T x 0.35 x 0.0032 x [(u/5)^1.3] / [(m/2)^1.4]	8.333	lbs

==========

ASSUMPTIONS

Emission factors were developed from the following models:
On-Road Vehicles: MOVES 2010b, revised January 2013
Non-Road Equipment: NONROAD2008a, July 2009

In addition to the overall project size dimensions (e.g., Length and width) provided by the user, an additional 10 ft length and 10 ft width is added to account for disturbance areas.

The number of employees is based on the higher of two methods: (1) number of equipment, and (2) multiply the project cost in million by 11.

The average employee travels 30 miles round-trip from home to construction site each day.

The average on-road material delivery round-trip distance per truck is 40 miles per day.

For calculating fugitive, re-entrained PM emissions from on-road and non-road material delivery and handling equipment, a nominal VMT of 5 miles is used for each vehicle per day.

In deriving emission factors from NONROAD, the horsepower for each equipment represents the most popular in each equipment category.

The total length of each modeled scenario is used to define the number of days associated with vehicle/equipment evaporative emissions.

The choice of location and season are assumed to adequately represent differences in fuel characteristics affecting emissions.

Only two seasons (Summer and Winter) are used to represent all seasons.

14 U.S. Counties are used to represent all other counties in the U.S. (all other counties are mapped to the 14).

The default methods assume that all construction equipment use diesel as well as heavy-duty on-road vehicles, while passenger vehicles (including motorcycles) use gasoline.

Fugitive emissions are only modeled for:
Asphalt drying
Asphalt storage and batching
Concrete mixing/batching
Soil handling
Unstabilized land and wind erosion
Material movement (unpaved roads)
Material movement (paved roads)

On-Road vehicle speeds are not explicitly modeled. The associated emission factors for each modeled vehicle from MOVES represent averages over the driving cycles, the roadway type, and daily temperature variations.

The default equipment hours-of-use data are developed based on the overall size of the project provided by the user and activity rates based on expert engineering judgment.

Under the Construction Activity Type list (Activity Tab), when a choice between asphalt and concrete materials occurs, asphalt is always selected as default. To choose concrete, de-select the aphalt item and select the corresponding concrete item.

Two trips per day were assumed for each on-road material handling trucks.

Only CO2, CH4, and N2O are used to represent greenhouse gas emissions. Other potential greenhouse gases including air conditioning refrigerants were not included.

The following equipment are always modeled using diesel emission factors since gasoline-based emission factors are not available:

Asphalt Deliveries/Ten Wheelers
Bulldozer
Concrete Ready Mix Trucks
Concrete Ready Trucks Mix for Cores
Concrete Truck
Crack Filler (Trailer Mounted)
Delivery of Tanks (3)
Distributing Tanker
Dozer
Dump Truck
Dump Truck (12 cy)
Excavator
Excavator for U/G Services/Tanks
Flat Bed or Dump Trucks
Flatbed Truck
Grader
Grout Wheel Truck
Hoist Equipment with 40 Ton Rig
Hydralic Hammer
Hydroseeder
Line Painting Truck and Sprayer
Material Deliveries
Off-Road Truck
Pickup Truck
Scraper
Seed Truck Spreader
Small Dozer
Survey Crew Trucks
Ten Wheelers
Ten Wheelers- Material Delivery
Tool Truck
Tractor Trailer- Equipment Delivery
Tractor Trailer- Material Delivery
Tractor Trailer- Steel Deliveries
Tractor Trailer- Stone Delivery
Tractor Trailer- Topsoil & Seed
Tractor Trailer- Truck Delivery
Tractor Trailer with Boom Hoist- Curbs Del & Place
Tractor Trailer with Boom Hoist- Delivery
Tractor Trailers- Rebar Deliveries
Tractor Trailers Temp Fac.
Truck for Topsoil & Seed Del&Spread
Water Truck
Excavator with Bucket
Excavator with Hoe Ram

==========

APPENDIX F

Agency Coordination

PVD South Cargo Facility
Supplemental Environmental Assessment
Early Agency Coordination
Contact List

Rhode Island Historical Preservation & Heritage Commission
Elizabeth Totten
Project Review
Old State House
150 Benefit St.
Providence, RI 02903-1209
elizabeth.totten@preservation.ri.gov

Rhode Island Department of Transportation (RIDOT)
Steven Pristawa
State Traffic Safety Engineer
2 Capitol Hill
Providence, RI 02903
steve.pristawa@dot.ri.gov

*Coordination with the U.S. Fish and Wildlife Service was completed through the Information for Planning and Consultation (IPaC) website

March 5, 2024

Steven Pristawa
State Traffic Safety Engineer
Rhode Island Department of Transportation
2 Capitol Hill
Providence, RI 02903

Re: **Early Agency Coordination Letter**
South Cargo Facility
Supplemental Environmental Assessment
Rhode Island T. F. Green International Airport (PVD)
Warwick, RI

Dear Mr. Pristawa,

The Rhode Island Airport Corporation (RIAC) is preparing a Supplemental Environmental Assessment (EA) for proposed improvements along Airport Connector Road at the Rhode Island T. F. Green International Airport (PVD) in Warwick, Rhode Island. As shown in the attached figures, the roadway improvements involve the construction of an at-grade roundabout. The work will be phased allowing the existing roadway to remain open throughout construction with no impact to the arrivals or departures lanes. All proposed work will remain on airport property.

In 2023, RIAC completed an EA for the proposed South Cargo Facility project at PVD. The proposed project included the construction of a 140,000-square foot cargo building, aircraft parking apron, truck loading dock, access road and circulation, employee parking, truck parking/staging area, noise wall and other related activities. In accordance with the National Environmental Policy Act (NEPA), RIAC and its consultant developed an EA which evaluated the potential physical, environmental, and social impacts of the proposed action. As the lead Federal agency, the Federal Aviation Association (FAA) issued a Finding of No Significant Impact (FONSI) on June 12, 2023. Based on the analysis in the Final EA, the FAA determined that the proposed South Cargo Facility will not result in significant impacts to resources identified in the FAA Order 1050.1F *Desk Reference*.

Since issuing the 2023 FONSI, the FAA has determined that the approved action needs to be updated to include project components not explicitly considered by the 2023 EA, specifically the proposed roundabout. The Supplemental EA document will be prepared in accordance with the NEPA and FAA Order 1050.1F, *Policies and Procedures* and its Desk Reference. On behalf of RIAC, we are sending you this early coordination packet to solicit early comments regarding potential environmental, social, or economic issues for consideration when preparing this EA. You are asked to study the enclosed information and provide a written evaluation of the potential impacts upon resources that are under your jurisdiction within 30-days of receipt of this packet. If

no reply has been received within 30-days, it will be indicated in the EA document that your agency has no comment on the project. Please send any written comments to the following email address: tkoutropoulos@chasolutions.com.

We hope the information contained herein is sufficient for you to complete your evaluation. Should you have any questions, please contact Taylor Koutropoulos at (317) 493-3321 or me at (216) 273-8638.

Sincerely,

Mark Heckroth, ENV SP
Senior Project Manager

Cc: Dawn Mineker, P.E., RIAC
Cheryl Quaine, FAA New England Region

March 5, 2024

Elizabeth Totten
Project Review
Rhode Island Historical Preservation & Heritage Commission
Old State House
150 Benefit St.
Providence, RI 02903-1209

Re: **Section 106 Project Initiation**
South Cargo Facility
Supplemental Environmental Assessment
Rhode Island T. F. Green International Airport (PVD)

Dear Ms. Totten:

The Rhode Island Airport Corporation (RIAC) is preparing a Supplemental Environmental Assessment (EA) for proposed improvements along Airport Connector Road at the Rhode Island T. F. Green International Airport (PVD) in Warwick, Rhode Island. As shown in the attached figures, the roadway improvements include the construction of an at-grade roundabout. The work will be phased allowing the existing roadway to remain open throughout construction with no impact to the arrivals or departures lanes. All proposed work will remain on airport property.

In 2023, RIAC completed an EA for the proposed South Cargo Facility project at PVD. The proposed project involved the construction of a 140,000-square foot cargo building, aircraft parking apron, truck loading dock, access road and circulation, employee parking, truck parking/staging area, noise wall and other related activities. In accordance with the National Environmental Policy Act (NEPA), RIAC and its consultant developed an EA which evaluated the potential physical, environmental, and social impacts of the proposed action. As the lead Federal agency, the Federal Aviation Association (FAA) issued a Finding of No Significant Impact (FONSI) on June 12, 2023. Based on the analysis in the Final EA, the FAA determined that the proposed South Cargo Facility will not result in significant impacts to resources identified in the FAA Order 1050.1F *Desk Reference*.

Since issuing the 2023 FONSI, the FAA has determined that the approved action needs to be updated to include project components not explicitly considered by the 2023 EA, specifically the proposed roundabout. 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), CHA has prepared this letter to assist the FAA with the initiation of the Section 106 consultation process for the project and to seek input from the RIHPHC.

Description of Undertaking:
As shown in the attached figures, the roadway improvements include the construction of a roundabout. A stormwater basin and a salt shed will also be constructed as part of the proposed project. The project is located on airport property, in an area that has been disturbed from previous development. Existing buildings are not present within the project area.

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 APE is limited to the area immediately surrounding the location of the proposed roundabout. It consists of a vacant parking lot, existing Airport Connector Road, and existing ramps for arrivals and departures to PVD. The APE has been previously disturbed with various roadway improvements into the Airport.

Identification of Historic Properties:
Utilizing the information contained in the 2023 Final EA and FONSI, the APE for the proposed roadway improvements has a very low potential for historical, architectural, archeological, and cultural resources given the location of the proposed improvements and the previous disturbance within the APE.

The Supplemental EA document will be prepared in accordance with the NEPA and FAA Order 1050.1F, *Policies and Procedures* and its Desk Reference. On behalf of RIAC, we are sending you this early coordination packet to solicit early comments regarding potential environmental, social, or economic issues for consideration when preparing this EA. You are asked to study the enclosed information and provide a written evaluation of the potential impacts upon resources that are under your jurisdiction within 30-days of receipt of this packet. If no reply has been received within 30-days, it will be indicated in the EA document that your agency has no comment on the project. Please send any written comments to the following email address: tkoutropoulos@chasolutions.com.

We hope the information contained herein is sufficient for you to complete your evaluation. Should you have any questions, please contact Taylor Koutropoulos at (317) 493-3321 or me at (216) 273-8638

Sincerely,

Mark Heckroth, ENV SP
Senior Project Manager

Cc: Dawn Mineker, P.E., RIAC
Cheryl Quaine, FAA New England Region

Rhode Island Airport Corporation

CHA

Proposed Salt Shed

Proposed Stormwater Basin

Proposed Roundabout

Previous 2023 EA Study Limits

POST RD

AIRPORT CONNECTOR RD

AVIATION AVE

EVANS AVE

COLLINGWOOD DR

STRAWBERRY FIELD RD

PALACE AVE

GRAPHIC SCALE (FEET)

0 150 300 600

LEGEND

Supplemental EA Study Limits

Proposed Action

Rhode Island
Airport Corporation

CHA

Proposed Salt Shed

POST RD

AIRPORT CONNECTOR RD

Proposed Pavement Removal

Proposed Stormwater Basin

AIRPORT CONNECTOR RD
ARRIVALS (LOWER LEVEL)

AIRPORT CONNECTOR RD
DEPARTURES (UPPER LEVEL)

EVANS AVE

Proposed At-Grade Roundabout

GRAPHIC SCALE (FEET)

0 50 100 200

LEGEND

Supplemental EA Study Limits

Proposed Action

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

March 28, 2024

Via email: tkoutropoulos@chasolutions.com

Taylor Koutropoulos, ENV SP
Environmental Planner, Assistant Project Manager
CHA
272 West Exchange Street, Suite 101
Providence, Rhode Island

RE: RIHPHC Project No. 17135
T.F. Green State Airport Improvements
2000 Post Road
Warwick, Rhode Island

Dear Ms. Koutropoulos:

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the information that you provided for the above-referenced project. In addition to the new cargo building and related parking improvements, the Rhode Island Airport Corporation proposes a new roundabout, stormwater basin, and salt shed 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. To the west of the airport, Hillsgrove Mill Village has been determined eligible for listing in the National Register through consensus. CHA has identified the Area of Potential Effect as limited to the area surrounding the location for the roundabout – this does not include the area around the salt shed. Please provide more information on the proposed salt shed including the size and height of the building. Please update the maps to include any historic resources within the vicinity of the project area to assist in our review.

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/State Historic Preservation Officer

240328.04est

Koutropoulos, Taylor

From: Koutropoulos, Taylor
Sent: Monday, April 1, 2024 3:32 PM
To: Totten, Elizabeth (HPHC)
Cc: Dawn Mineker P.E.; 'Cheryl.j.quaine@faa.gov'; Heckroth, Mark
Subject: RE: [--EXTERNAL--]: RE: South Cargo Facility at PVD Supplemental Environmental Assessment Section 106 Initiation
Attachments: Attachment A.pdf; PVD_Supplemental_EA_Historical Resources.pdf

Hello,

Per your and Mr. Emidy's request, please see the attached figure which shows the location of historic resources in the potential viewshed of the APE. We have also attached a photo log of the site. As you can see from the mapping and our site photos, the historic resources are not within the viewshed of the proposed intersection improvements or the proposed salt shed. They appear to be blocked by the existing airport terminal itself and commercial buildings (Airport Rental Car Center) along Post Road and Jefferson Boulevard. Although our original letter described the APE as "the area immediately surrounding the location of the proposed roundabout", the exhibit that was included with the letter did depict the proposed salt shed within the APE study limits.

To address your second question, the proposed salt shed will be built on the vacant parking lot and is expected to be 40' x 58' with an above ground height of 24'.

We are working to provide the FAA with a draft EA by 4/19. We are hopeful this supplemental information will allow your agency to provide an official response in the next 1-2 weeks. If not, please let us know so we can make appropriate adjustments. Please let me know if I can provide anything further to aid your review.

Thank you,

Taylor Koutropoulos, ENV SP
Environmental Planner, Assistant Project Manager
CHA
Office: (317) 493-3321 Cell: (219) 880-9871
tkoutropoulos@chasolutions.com
www.chasolutions.com

Please note my email address has changed

Finding a better way.

From: Totten, Elizabeth (HPHC) <Elizabeth.Totten@preservation.ri.gov>
Sent: Thursday, March 28, 2024 11:29 AM
To: Koutropoulos, Taylor <TKoutropoulos@chasolutions.com>
Cc: Dawn Mineker P.E. <dmineker@pvdairport.com>; 'Cheryl.j.quaine@faa.gov' <Cheryl.J.Quaine@faa.gov>; Heckroth, Mark <MHeckroth@chasolutions.com>
Subject: [--EXTERNAL--]: RE: South Cargo Facility at PVD Supplemental Environmental Assessment Section 106 Initiation

Rhode Island Airport Corporation

CHA

Proposed Salt Shed

POST RD

AIRPORT CONNECTOR RD

1

2

3

Proposed Pavement Removal

5

Proposed Stormwater Basin

4

8

AIRPORT CONNECTOR RD
ARRIVALS (LOWER LEVEL)

AIRPORT CONNECTOR RD
DEPARTURES (UPPER LEVEL)

7

EVANS AVE

6

Proposed At-Grade Roundabout

GRAPHIC SCALE (FEET)

0 50 100 200

LEGEND

Airport Property Line

Supplemental EA Study Limits

1 **Photo Point**

Proposed Action

PP1 looking east

PP1 looking south

PP2 looking east

PP2 looking south

PP3 looking east

PP3 looking north

PP4 looking north

PP4 looking south

PP4 looking west

PP5 looking east

PP5 looking south

PP5 looking west

PP6 looking north

PP7 looking south

PP7 looking west

PP8 looking east

PP8 looking north

PP8 looking south

PP8 looking west

Rhode Island State Airport Terminal

Hillsgrove Mill Village (Iron Works Building)

Hangar No.2

Previous 2023 EA Study Limits

KILVERT ST

JEFFERSON BLVD

POST RD

Rhode Island Airport Corporation

CHA

GRAPHIC SCALE (FEET)

0 400 800 1600

LEGEND

- Airport Property Line
- Supplemental EA Study Limits
- Historic District
- Historic Sites

Proposed Action

STATE OF RHODE ISLAND

HISTORICAL PRESERVATION & HERITAGE COMMISSION

Old State House 150 Benefit Street Providence, RI 02903

Telephone 401-222-2678 Fax 401-222-2968
TTY 401-222-3700 www.preservation.ri.gov

April 12, 2024

Via email: tkoutropoulos@chasolutions.com

Taylor Koutropoulos, ENV SP
Environmental Planner, Assistant Project Manager
CHA
272 West Exchange Street, Suite 101
Providence, Rhode Island

RE: RIHPHC Project No. 17135
T.F. Green State Airport Improvements
2000 Post Road
Warwick, Rhode Island

Dear Ms. Koutropoulos:

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the additional information that you provided for the above-referenced project. In addition to the new cargo building and related parking improvements, the Rhode Island Airport Corporation proposes a new roundabout, stormwater basin, and salt shed at the T.F. Green State Airport in Warwick, RI.

As you are aware, 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. To the west of the airport, Hillsgrove Mill Village has been determined eligible for listing in the National Register through consensus. Updated maps including known historic resources have been provided for our review. The area of potential effect should be updated to reflect any visual effects of the new building; however, there do not appear to be any historic properties within such an APE as infill will block the new building from the T.F. Green Airport. Therefore, based upon the information provided, it is our opinion the project will have no adverse effect upon historic resources.

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
State Historic Preservation Officer

240412.05est

www.chasolutions.com