

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

APPENDIX B – AGENCY COORDINATION AND APPROVALS

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

AGENCIES AND OTHER INDIVIDUALS CONSULTED

Federal Agencies

Federal Emergency Management Agency

Region 4
3003 Chamblee-Tucker Road
Atlanta, GA 30341
POC: Robert P. Ashe, Regional Administrator
Email: FEMA-R4-Info@fema.dhs.gov

U.S. Army Corps of Engineers

Jacksonville District
60 Forsyth St Rm 9M15
Atlanta, GA 30303-8801
Email: Regulatory.Permits@usace.army.mil

U.S. Environmental Protection Agency

Region 4
61 Forsyth Street SW
Atlanta, GA 30303
POC: Ntale Kajumba, NEPA Program Manager
Email: kajumba.ntale@epa.gov

U.S. Fish and Wildlife Service

Florida Ecological Services Field Office
Vero Beach Branch Office
777 37th Street
Suite D-101
Vero Beach, FL 32960
POC: Jose Rivera, Environmental Review and
Consultation Supervisor
Email: FW4FLESRegs@fws.gov

State Agencies

Florida Department of Transportation District 1

801 N. Broadway Avenue
Bartow, Florida 33830-3809
POC: Jamie Driggers, P.E., District One Secretary
Email: james.driggersjr@dot.state.fl.us

Florida Fish and Wildlife Conservation Commission

Southwest Region
3900 Drane Field Road
Lakeland, FL 33811-1207
POC: Allie McCue
Email: allie.mccue@myfwc.com

Local Agencies

City of Sarasota Planning Department

1575 Second Street, 4th Floor
Sarasota, FL 34236
POC: Steve Cover, Director of Planning
Email: Steve.Cover@SarasotaFL.gov

City of Sarasota Public Works, Transportation Planning

1761 12th Street
Sarasota, FL 34236
POC: Nikesh Patel, P.E., Director of Public Works
Email: transplan@sarasotafl.gov

Manatee County Natural Resources Department

Manatee County Administration Building
1112 Manatee Ave West,
Bradenton, FL 34205
POC: Charlie Hunsicker, Director of Natural
Resources
Email: charlie.hunsicker@mymanatee.org

Manatee County Public Works Department

Manatee County Administration Building
1112 Manatee Ave West
Bradenton, FL 34205
Email: publicworks@mymanatee.org

Sarasota County Department of Environmental Permitting and Projects

1 Apex Rd
Sarasota, FL 34240
POC: Rachel Herman, Environmental Protection
Division Manager
Email: rherman@scgov.net

Sarasota County Transportation Planning

1001 Sarasota Center Blvd
Sarasota, FL 34240
POC: Ms. Paula R. Wiggins, P.E.
Email: pwiggins@scgov.net

December 10, 2025

[via email: state.clearinghouse@dep.state.fl.us]

Mr. Chris Stahl
Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Blvd, MS 47
Tallahassee, Florida 32399-3000

**RE: STATE CLEARINGHOUSE FEDERAL CONSISTENCY REVIEW FOR CONCOURSE AND
TERMINAL PARKING EXPANSIONS AT SARASOTA BRADENTON INTERNATIONAL
AIRPORT (SRQ), SARASOTA AND MANATEE COUNTIES, FLORIDA**

Dear Mr. Stahl:

The Sarasota Manatee Airport Authority (the “Airport Sponsor” or SMAA) proposes expansions to passenger terminal and parking facilities at Sarasota Bradenton International Airport (SRQ, or the Airport), referred to as the Proposed Project. The Proposed Project (enclosed **Figure 1**) includes construction of a two-level concourse from the existing ground-level portion of Concourse A to Concourse B. This project would construct four new aircraft gates, but would provide a net gain of three gates because it requires the elimination of existing Gate B1 in Concourse B.

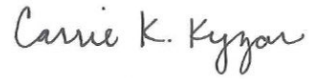
The Proposed Project also includes a four-level passenger parking garage located south of the passenger terminal across from the curbside roadway. The proposed garage will provide approximately 500 spaces per level but could be expanded in the future to provide additional spaces per level. A rental car customer facility is proposed between the terminal curb roadway and the north side of the proposed parking garage. This facility will accommodate rental car counters, offices, passenger queuing and circulation space as well as an elevator core. The facility will allow the removal of existing rental car facilities in the existing baggage claim hall thereby decreasing passenger congestion and improving passenger flows. New roadways and ramps will be constructed in conjunction with the proposed parking garage to provide vehicular access to and from the garage for both rental cars and public vehicles. These roads will also allow for a new toll plaza and a recirculation route to the terminal.

The SMAA, in coordination with the Federal Aviation Administration (FAA), is requesting review of the Proposed Project’s early consistency with the Florida Coastal Management Program. Additionally, the SMAA and FAA are requesting early agency input on any environmental concerns and issues that should be considered in the environmental planning and permitting process for the Proposed Project. To accomplish this, we would like to receive your comments relating to the Proposed Project as they pertain to your specific area of expertise or regulatory jurisdiction.

Should you wish to comment, please provide comments by February 9, 2026. Comments may be submitted via email to robert.furr@flysrq.com, and carrie.kyzar@aecom.com.

Please feel free to contact me directly with questions or additional needs related to this transmittal.

Sincerely,

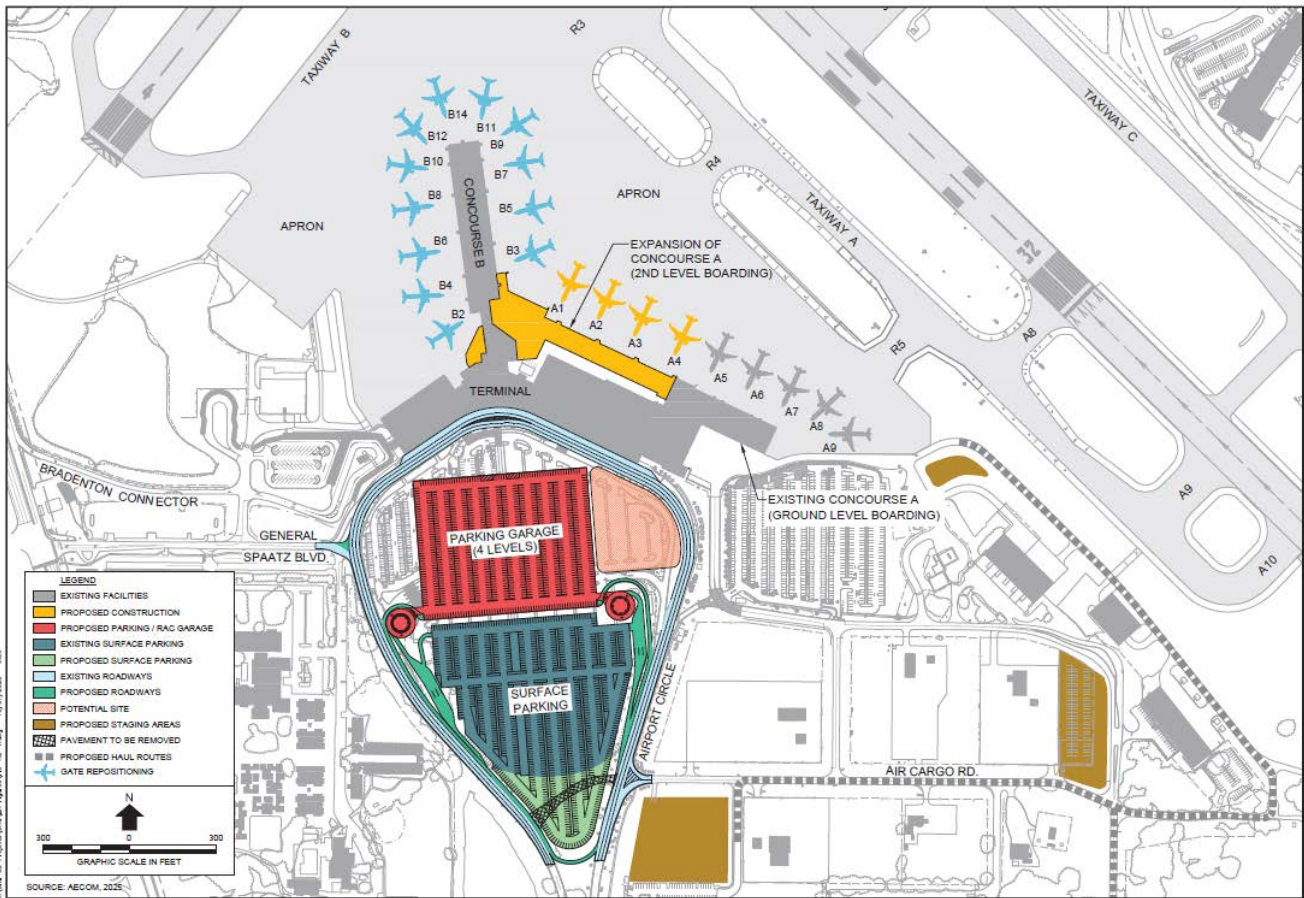


Carrie K. Kyzar
AECOM Project Manager
carrie.kyzar@aecom.com

Attn: Howard Klein
7650 West Courtney Campbell Causeway
Tampa, FL 33607
850-393-1161

Enclosure (1)

Copy: Heather Chasez, FAA
Robert Furr, SMAA
File



PL04 - 3D Project Visuals - Figure 1: 1.3-1.4.mxd 10/27/2025 9:38

Kyzar, Carrie

From: State_Clearinghouse <State.Clearinghouse@FloridaDEP.gov>
Sent: Friday, February 6, 2026 4:24 PM
To: Kyzar, Carrie
Cc: State_Clearinghouse
Subject: State Clearance Letter for FL202512120654C - Sarasota Bradenton International Airport Expansion of Passenger Terminal and Parking Facilities in Sarasota County, Florida
Attachments: DOS_comments_FL202512120654C_2024-2486-C 106 ClearingHouse Sarasota FF.pdf

This Message Is From an External Sender

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

[Report Suspicious](#)

February 6, 2026

Carrie K. Kyzar
Environmental Planner, AECOM
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876, USA

RE: Department of Transportation, Federal Aviation Administration - Sarasota Bradenton International Airport Expansion of Passenger Terminal and Parking Facilities in Sarasota County, Florida
SAI # FL202512120654C

Dear Carrie:

The Florida State Clearinghouse has coordinated the review of the proposed project under the following authorities: Presidential Executive Order 12372; § 403.061(43), Florida Statutes (F.S.); the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection's South District Office reviewed the proposed project and did not have specific comments to offer at this time beyond following all applicable rules and statutes when designing the project and applying for the applicable permits. The Southwest Florida Water Management District also reviewed the proposed project and recommends a preapplication meeting with the Water Management District Environmental Resource Permit (ERP) staff prior to any site work. For assistance or additional information concerning the District's ERP program, please contact Robin McGill, Senior Professional ERP Evaluation Engineer, at (813) 985-7481 or Robin.McGill@swfwmd.state.fl.us.

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, in the National Register of Historic Places. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations in 36 CFR Part 800: Protection of Historic Properties. Their letter is attached.

Based on the information submitted and minimal project impacts, the State has no objections to the subject project and, therefore, it is consistent with the Florida Coastal Management Program (FCMP). The State's final concurrence of the project's consistency with the FCMP will be determined during any environmental permitting processes, in accordance with Section 373.428, F.S., if applicable. Thank you for the opportunity to review the proposed project. If you have any questions or need further assistance, please do not hesitate to contact me at (850) 717-9037.

Sincerely,

Lindsay Weaver



Lindsay Weaver

Florida State Clearinghouse
Office of Intergovernmental Programs
Florida Department of Environmental Protection
State.Clearinghouse@FloridaDEP.gov
Office: 850-717-9037



FW: Request for Section 106 Review

From Chasez, Heather (FAA) <Heather.Chasez@faa.gov>

Date Wed 9/17/2025 1:17 PM

To Sanford, Paul <paul.sanford@aecom.com>

 1 attachment (222 KB)

2024-4499 106 FAA Sarasota FF.pdf;

This Message Is From an External Sender

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Report Suspicious

Hey Paul,

Please see below.

Cheers,

Heather Chasez

Environmental Protection Specialist
Federal Aviation Administration-FAA
Orlando Airports District Office-ADO
8427 SouthPark Circle, Suite 524
Orlando, FL 32819
Main: 407-487-7220
Direct: 407-487-7236

From: Dubose, Michael L. <Michael.Dubose@dos.fl.gov>

Sent: Tuesday, August 13, 2024 4:01 PM

To: Chasez, Heather (FAA) <Heather.Chasez@faa.gov>

Subject: Re: Request for Section 106 Review

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Good Afternoon,

I have attached our comments for the project. Please let me know if you have any questions.

Sincerely,

Michael DuBose

Historic Preservationist

Compliance and Review

Bureau of Historic Preservation

Division of Historical Resources

Florida Department of State

Office: 850.245.6342

Michael.DuBose@dos.fl.gov

R.A. Gray Building

500 South Bronough Street Tallahassee, Florida 32399

From: Chasez, Heather (FAA) <Heather.Chasez@faa.gov>

Sent: Wednesday, August 7, 2024 14:07

To: CompliancePermits <CompliancePermits@DOS.MyFlorida.com>

Subject: Request for Section 106 Review

EMAIL RECEIVED FROM EXTERNAL SOURCE

The attachments/links in this message have been scanned by Proofpoint.

Hello,

The Federal Aviation Administration (FAA) is reviewing a development project at the Sarasota-Bradenton International Airport (SRQ) for National Environmental Policy Act (NEPA) compliance and compliance with Section 106 of the National Historic Preservation Act (NHPA) in order to issue a NEPA document. I am requesting a review of the project resulting in an opinion from your office if a Phase I CRAS is required to satisfy Section 106 or if it is deemed unnecessary and implementing provisions for unanticipated discoveries is sufficient.

Project Address/Location: 6000 Airport Circle, Sarasota, Florida 34243; Section: 01 Township: 36S Range: 17E; Lat: 27.386547° Long: -82.553434°

Property Description: The property is currently the airport's terminal, apron, parking area, and associated roadways. There are no structures to be demolished, though the current parking area will be reconfigured. The only areas to be disturbed that currently are not paved are along the existing roadway where lanes and ramps are to be added. These areas have been previously graded and contain maintained grass and trees. Please see the attached aerial.

Project Description: The project is to include the construction of Concourse A (the Ground Boarding Facility on the figure is currently under construction), a rental car facility, 4-level parking garage, reconfiguration of surface parking area, and improvements to the on-airport Airport Circle roadway and ramps. Please see the attached graphic.

I appreciate your time reviewing this project. Please let me know if any additional information is needed.

Cheers,

Heather Chasez

Environmental Protection Specialist

Federal Aviation Administration-FAA

Orlando Airports District Office-ADO

8427 SouthPark Circle, Suite 524

Orlando, FL 32819

Main: 407-487-7220

Direct: 407-487-7236



FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

CORD BYRD
Secretary of State

Heather Chasez
Environmental Protection Specialist
Federal Aviation Administration-FAA
Orlando Airports District Office-ADO
8427 SouthPark Circle, Suite 524
Orlando, FL 32819

August 13, 2024

DHR Project File No.: 2024-4499, Received by DHR: August 7, 2024
Project: *Sarasota-Bradenton International Airport (SRQ) - Proposed Parking Garages and Associated Facilities*
County: Sarasota

To Whom It May Concern:

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

Based on the information received, it is the opinion of this office that the proposed project will have no effect on historic properties. However, unexpected finds may occur during ground disturbing activities, and we request that the permit, if issued, should include the following special condition regarding inadvertent discoveries:

- If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The applicant shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850)-245-6333. Project activities shall not resume without verbal and/or written authorization.
- In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.

If you have any questions, please contact Michael DuBose, Historic Preservationist, by email at Michael.DuBose@dos.fl.gov or by telephone at 850.245.6342.

Sincerely,


Alissa Slade Lotane

Director, Division of Historical Resources & State Historic Preservation Officer

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com





FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

CORD BYRD
Secretary of State

Florida State Clearinghouse
Florida Department of Environmental Protection
3800 Commonwealth Blvd., M.S. 47
Tallahassee, FL 32399-2400

January 8, 2026

DHR Project File No.: 2024-2486-C, Received by DHR: December 12, 2025
Application No.: FL202512120654C
Project: *Concourse and Terminal Parking at Sarasota Bradenton International Airport*
County: Sarasota

To Whom It May Concern:

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places (NRHP)*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*. This project is subject to compliance with the Federal Aviation Administration (FAA).

Based on the information provided, it is the opinion of this office that the proposed project will have no effect on historic properties. However, the permit, if issued, should include the following special condition regarding unexpected discoveries:

- If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The applicant shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850)-245-6333. Project activities shall not resume without verbal and/or written authorization.
- In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

If you have any questions, please contact Michael DuBose, Historic Preservationist, by email at Michael.DuBose@dos.fl.gov or by telephone at 850.245.6342.

Sincerely,

Alyssa Lotane
Director, Division of Historical Resources
& State Historic Preservation Officer

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com





SARASOTA
BRADENTON
INTERNATIONAL

March 11, 2026

Submitted Electronically

MEMORANDUM FOR: SARASOTA COUNTY, MANATEE COUNTY AND CITY OF SARASOTA

From: Robert L. Furr, RA
SVP, Engineering, Planning & Facilities
Sarasota Manatee Airport Authority
Sarasota Bradenton International Airport
600 Rick Piccolo Circle
Sarasota, FL 34243

Subject: Preparation of an Environmental Assessment for Concourse and Terminal Parking Expansions at Sarasota Bradenton International Airport (SRQ), Sarasota and Manatee Counties, Florida

The Sarasota Manatee Airport Authority (the "Airport Sponsor" or SMAA) proposes expansions to passenger terminal and parking facilities at Sarasota Bradenton International Airport (SRQ, or the Airport), referred to as the Proposed Project. The Proposed Project (enclosed **Figure 1**) includes construction of a two-level concourse from the existing ground-level portion of Concourse A to Concourse B. This project would construct four new aircraft gates, but would provide a net gain of three gates because it requires the elimination of existing Gate B1 in Concourse B.

The Proposed Project also includes a four-level passenger parking garage located south of the passenger terminal across from the curbside roadway. The proposed garage will provide approximately 930 spaces per level but could be expanded in the future to provide additional spaces per level. A rental car customer facility is proposed between the terminal curb roadway and the north side of the proposed parking garage. This facility will accommodate rental car counters, offices, passenger queuing and circulation space as well as an elevator core. The facility will allow the removal of existing rental car facilities in the existing baggage claim hall thereby decreasing passenger congestion and improving passenger flows. New roadways and ramps will be constructed in conjunction with the proposed parking garage to provide vehicular access to and from the garage for both rental cars and public vehicles. These roads will also allow for a new toll plaza and a recirculation route to the terminal.

The SMAA, in coordination with the Federal Aviation Administration (FAA), is requesting early agency input on the pre-planning technical study, *Sarasota Bradenton International Airport Concourse A Expansion Traffic Impact Analysis*, February 2026. We are sending this pre-planning technical study for your input, so that we can address and analyze any issues of concern in the Draft Environmental Assessment (EA). The Draft EA will be available electronically for review during the public comment period, which is anticipated to begin in June 2026.

Should you wish to comment, please provide comments within 30 days of receipt of this letter. If no comments are received within 30 days, the report will be considered acceptable. Comments may be submitted via email to robert.furr@flysrq.com, and carrie.kyzar@aecon.com.

Please feel free to contact me directly with questions or additional needs related to this transmittal.

Sincerely,

A handwritten signature in blue ink, appearing to read "Robert Furr".

Robert Furr, RA
SVP, Engineering, Planning & Facilities
Sarasota Manatee Airport Authority
Sarasota Bradenton International Airport

Enclosure (1)

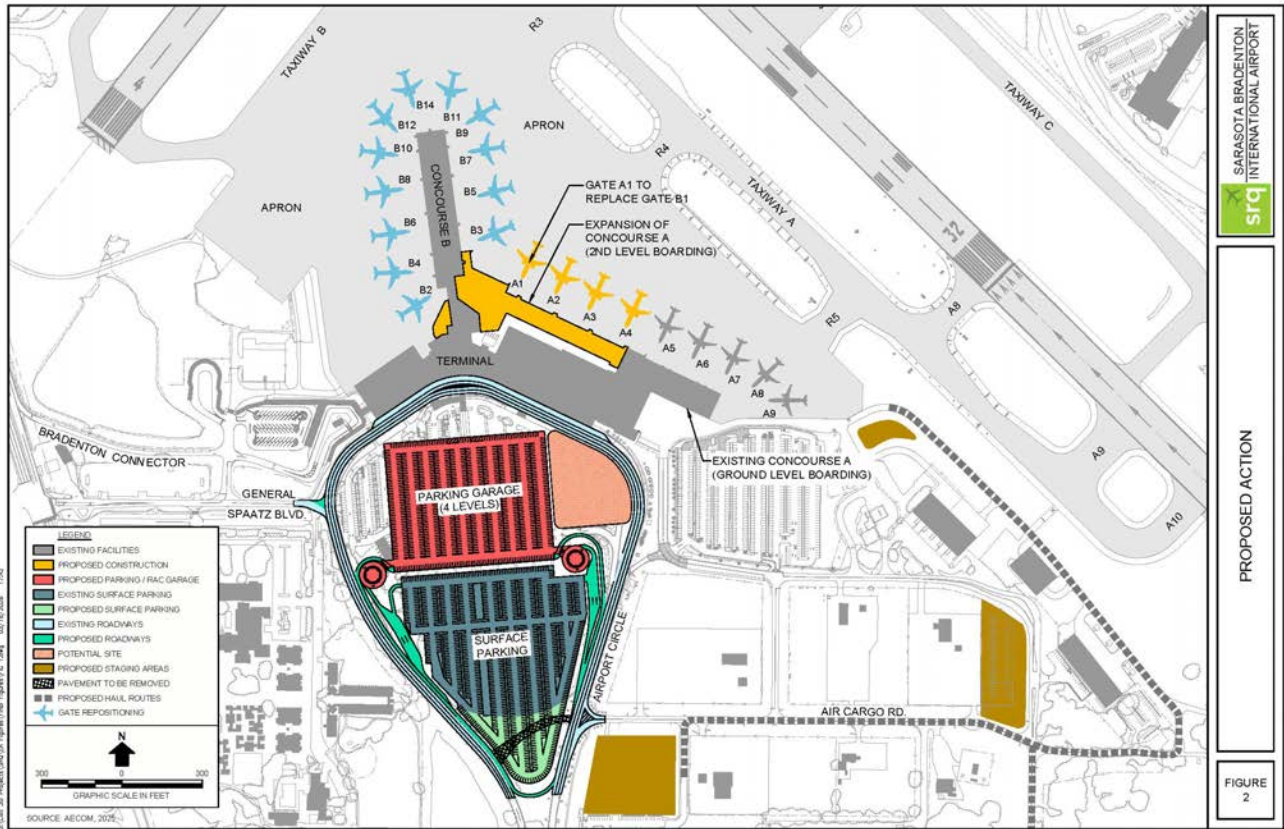
Copy: Heather Chasez, FAA
Carrie Kyzar, AECOM
File

DISTRIBUTION

Ms. Paula R. Wiggins, P.E.
pwiggins@scgov.net
Interim Transportation Senior Manager
Sarasota County
Transportation Planning
1001 Sarasota Center Blvd
Sarasota, FL 34240

Traffic Management Division
publicworks@mymanatee.org
Manatee County
Public Works Department
Manatee County Administration Building
1112 Manatee Ave West
Bradenton, FL 34205

Transportation Planning
transplan@sarasotafl.gov
City of Sarasota
Public Works
Transportation Planning
1761 12th Street
Sarasota, FL 34236



Busam, Michael

From: TransPlan <TransPlan@sarasotaFL.gov>
Sent: Friday, April 10, 2026 2:01 PM
To: Kyzar, Carrie; TransPlan
Cc: Robert Furr; Chasez, Heather (FAA); Busam, Michael
Subject: Re: Early Agency Input - Pre-Planning Study at Sarasota Bradenton International Airport (SRQ)

This Message Is From an External Sender

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Report Suspicious

Good afternoon,

Below are some suggested comments the City may want to provide during the early agency input period.

- **Background Traffic Growth Assumptions**

The analysis relies on historical growth rates for University Parkway and US-41 rather than the regional planning model. Given the continued development activity along the University Parkway corridor, it may be helpful to confirm the assumptions against MPO forecasts, FDOT corridor planning efforts, and recently approved developments in the area to ensure the background traffic projections are representative of future conditions.

- **University Parkway / Old Bradenton Road Intersection**

The analysis indicates this intersection is expected to operate with significant delay in future conditions regardless of the airport expansion. While the report attributes this primarily to background traffic, this location functions as an important gateway to the airport corridor. The City recommends evaluating whether operational improvements or corridor signal coordination could improve future operations at this location.

- **US-41 / University Parkway Regional Intersection**

The study did not include the US-41 and University Parkway intersection in the operational analysis. Given that this is the primary regional access point for the airport and already experiences high seasonal volumes, the City recommends at least a screening-level review to confirm that airport growth would not materially affect future operations at that location.

- **Transportation Network Company (TNC) Operations**

The analysis assumes a relatively small percentage of airport traffic is related to rideshare services. Given the continued growth in rideshare usage at airports nationwide, it may be helpful to confirm the assumed share and ensure that staging, pickup, and circulation patterns associated with the Ground Transportation Center are adequately reflected in the operational analysis.

- **Multimodal Considerations**

While the study focuses primarily on vehicle traffic, the City encourages continued coordination regarding pedestrian access, transit connectivity, and potential future multimodal improvements within the airport access area, particularly along University Parkway and General Spaatz Boulevard.

- **Seasonal Traffic Conditions**

The City appreciates that the analysis attempted to account for peak conditions; however, given the significant seasonal fluctuations in the Sarasota region, it would be helpful to confirm that the operational evaluation reflects conditions during peak tourism periods.

- **Future Growth Sensitivity**

The passenger forecasts used for the analysis appear reasonable based on available projections; however, given

recent passenger growth at SRQ, the City recommends considering whether a higher growth sensitivity scenario should be reviewed as part of the Environmental Assessment.

Overall, the City supports continued coordination with the Sarasota Manatee Airport Authority and FAA as the Environmental Assessment advances.



Corinne Arriaga, AICP, CPH

Chief Transportation Planner

Phone: (941) 263-6362

Email: Corinne.Arriaga@sarasotafl.gov

1761 12th Street, Sarasota, FL 34236



From: Kyzar, Carrie <carrie.kyzar@aecom.com>

Sent: Thursday, March 12, 2026 11:05 AM

To: TransPlan <TransPlan@sarasotaFL.gov>

Cc: Robert Furr <robert.furr@flysrq.com>; Chazez, Heather (FAA) <heather.chazez@faa.gov>; Busam, Michael <Michael.Busam@aecom.com>

Subject: Early Agency Input - Pre-Planning Study at Sarasota Bradenton International Airport (SRQ)

Caution: This email originated from outside the City's email system. Be Suspicious of Attachments, Links and Requests for Login Information. Verify requester via phone call before exchanging sensitive information. **Think B4U Click!**

To whom it may concern,

The Sarasota Manatee Airport Authority (SMAA) proposes to expand passenger terminal and parking facilities at Sarasota Bradenton International Airport (Proposed Action), as further detailed in the attached letter. The SMAA, in coordination with the Federal Aviation Administration (FAA), is requesting early agency input on the pre-planning technical study, Sarasota Bradenton International Airport Concourse A Expansion Traffic Impact Analysis, February 2026. We are sending this pre-planning technical study for your input, so that we can address and analyze any issues of concern in the Environmental Assessment. To accomplish this, we would like to receive your comments relating to the pre-planning technical study within 30-days of receipt of this email.

Thank you for your assistance. Please let us know if you have any questions.

Carrie

Carrie K. Kyzar

Environmental Planner

Environmental Planning & Permitting

Office Hours: Mon-Fri, 0800-1200 CST

M +1-850-393-1161

carrie.kyzar@aecom.com

AECOM

12420 Milestone Center Drive, Suite 150
Germantown, MD 20876, USA
T +1-301-820-3000
aecom.com

Delivering a better world

[LinkedIn](#) | [Twitter](#) | [Facebook](#) | [Instagram](#)



Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact this office by phone or in writing. E-mail messages sent or received by City of Sarasota officials and employees in connection with official City business are public records subject to disclosure under the Florida Public Records Act.

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

APPENDIX C – AIR QUALITY TECHNICAL REPORT

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

**ENVIRONMENTAL ASSESSMENT FOR
CONCOURSE AND TERMINAL PARKING
EXPANSIONS AT
SARASOTA BRADENTON
INTERNATIONAL AIRPORT
(SRQ)**

Air Quality Technical Report

Prepared for:

**Sarasota Manatee Airport Authority
and
Federal Aviation Administration**

Prepared by:

AECOM

February 2026

TABLE OF CONTENTS

1.	Introduction	1
2.	Anaysis Methodology.....	1
2.1.	Construction Emissions	1
2.2.	Operational Emissions	7
3.	References	18

LIST OF TABLES

Table 1: Estimated Annual Operating Hours for Construction Nonroad Activity.....	2
Table 2: Estimated AVMT for Construction On-Road Activity.....	3
Table 3: Nonroad Equipment Emissions Rates (Grams per Horsepower-hour at Operating Load).....	5
Table 4: On-Road Vehicle Emissions Rates (Grams per Vehicle Mile Traveled).....	6
Table 5: Annual Aircraft Operations by Project Scenario	9
Table 6: Proposed Project Estimated Annual On-Road Activity.....	17
Table 7: On-road Vehicle Emission Rates (Grams per Vehicle Mile Traveled)	17

ACRONYMS AND ABBREVIATIONS

AADT	Average Annual Daily Traffic
ACEIT	Airport Construction Emissions Inventory Tool
ACRP	Airport Cooperative Research Program
AEDT	Aviation Environmental Design Tool
APU	Auxiliary Power Unit
AVMT	Annual Vehicle Miles of Travel
BMP	Best Management Practice
CO	Carbon Monoxide
CO _{2e}	Carbon Dioxide Equivalent
EA	Environmental Assessment
EF	Emission Factor
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
GHG	Greenhouse Gas
GSE	Ground Support Equipment
HDDV	Heavy Duty Diesel Vehicle
HP	Horsepower
LDGT	Light Duty Gasoline Truck
LDGV	Light Duty Gasoline Vehicle
MOVES	Motor Vehicle Emissions Simulator
mph	miles per hour
NO _x	Nitrogen Oxides
PM	Particulate Matter
PM _{2.5}	Particulate Matter equal to or less than 2.5 micrometers in diameter
PM ₁₀	Particulate Matter equal to or less than 10 micrometers in diameter
SMAA	Sarasota Manatee Airport Authority
SO ₂	Sulfur Dioxide
SRQ	Sarasota Bradenton International Airport
TIA	Traffic Impact Analysis
TPY	Tons Per Year
TSP	Total Suspended Particulate
VOC	Volatile Organic Compounds

1. INTRODUCTION

This Air Quality Technical Report details the assessment scope, calculation methodology, input data, and other technical information used in the analysis of air quality impacts associated with the proposed expansion of Concourse A and construction of Terminal Parking development at Sarasota Bradenton International Airport (i.e., SRQ, or the Airport), hereinafter referred to as the Proposed Project. Sarasota and Manatee Counties are in attainment of all National Ambient Air Quality Standards.

The air quality impacts analysis described herein was designed and conducted in accordance with guidelines provided in the Federal Aviation Administration (FAA) Aviation Emissions and Air Quality Handbook, Version 4 (2024). While assessing the Proposed Project against the screening methodology in the handbook, it was determined that sufficient information is not available to definitively answer all of the screening questions (namely, an aircraft sequencing and delay assessment and ground support equipment operating time survey). Thus, to demonstrate the analysis has taken a hard look at the potential air quality impacts from the Proposed Project, a quantitative air quality analysis (i.e., emissions inventory) of the construction and operational emissions sources was recommended.

2. ANALYSIS METHODOLOGY

2.1. CONSTRUCTION EMISSIONS

Construction period emission inventories of the following criteria pollutants and their precursors were prepared for the Proposed Project: carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), and volatile organic compounds (VOC). Greenhouse gas (GHG) emissions, expressed in metric tons of carbon dioxide equivalent (CO₂e) emissions, were also computed. The inventories include annual emissions from the following construction emissions sources: nonroad equipment (i.e., construction equipment), on-road vehicles, and fugitive sources including asphalt paving and dust generation from site-wide construction activities. Nonroad equipment and on-road vehicle emissions were computed using **Equations 1** and **2**, respectively.

Annual hours of nonroad equipment operation and on-road annual vehicle miles of travel (AVMT) were derived using an engineering estimate of probable materials quantities and construction cost developed for the proposed expansion of Concourse A and parking and rental car facilities development at the north end of the existing surface parking and rental car area. This information was input to the Airport Cooperative Research Program Airport Construction Emissions Inventory Tool (ACRP ACEIT), which then estimates the number and types of equipment to be used on the project and the deployment schedule (monthly and annually); see **Table 1** and **Table 2** for nonroad equipment and on-road vehicle activity, respectively.

Equation 1:

$$\text{Emissions}_{(\text{tpy})} = \sum_{v=i}^n \text{EF}_v \times \text{HP}_v \times \frac{\text{hours}}{\text{day}} \times \frac{\text{days}}{\text{year}} \div 2,000 \div 453.59$$

Where:

Emissions_(tpy) = annual emissions (tons per year)EF_v = emissions rate for equipment v(i)...v(n) (grams per horsepower-hour of operation)HP_v = rated horsepower for equipment v(i)...v(n)

2,000 = pounds per ton

453.59 = grams per pound

Equation 2:

$$\text{Emissions}_{(\text{tpy})} = \sum_{v=i}^n \text{EF}_v \times \frac{\text{miles}}{\text{day}} \times \frac{\text{days}}{\text{year}} \div 2,000 \div 453.59$$

Where:

Emissions_(tpy) = annual emissions (tons per year)EF_v = emissions rate for vehicle v(i)...v(n) (grams per mile)

2,000 = pounds per ton

453.59 = grams per pound

Table 1: Estimated Annual Operating Hours for Construction Nonroad Activity

Nonroad Equipment	Fuel	2027	2028
40 Ton Crane	Diesel	192	480
40 Ton Rough Terrain	Diesel	154.36	617.44
40 Ton Rough Terrain Crane	Diesel	28.8	115.2
90 Ton Crane	Diesel	1075.36	1996.84
Asphalt Paver	Diesel	27.3	113.7
Backhoe	Diesel	1090.6	1179.4
Bob Cat	Diesel	480	0
Caisson Drilling Rig	Diesel	28.8	115.2
Chain Saw	Gasoline	0	6
Chipper/Stump Grinder	Diesel	0	6
Concrete Boom Pump	Gasoline	345.6	1382.4
Concrete Pump	Gasoline	44.64	92.16
Concrete Ready Mix Trucks	Diesel	580.8	1819.2
Concrete Truck	Diesel	131.08	78.12
Curb/Gutter Paver	Diesel	85	43.4
Dozer	Diesel	437	472.1
Dump Truck	Diesel	710.2	406
Dump Truck (12 cy)	Diesel	684.6	737.4
Excavator	Diesel	270.5	373.8
Excavator with Bucket	Diesel	646.7	0
Excavator with Hoe Ram	Diesel	406.7	0
Flatbed Truck	Diesel	0	62.1
Fork Truck	Diesel	8152.8	5914.8
Forklift	Diesel	230.4	921.6
Front Loader	Diesel	66.8	267.2
Front Loader for Subgrade Materials	Diesel	19	76
Generator	Gasoline	576	144
Generator Sets	Gasoline	240	0

Nonroad Equipment	Fuel	2027	2028
Grader	Diesel	26.1	30.2
High Lift	Diesel	2503.32	2860.68
Hydroseeder	Gasoline	0	1
Loader	Diesel	173.7	177.6
Man Lift	Diesel	6720	3840
Man Lift (Fascia Construction)	Diesel	142.08	251.52
Material Deliveries	Diesel	121.6	44.8
Off-Road Truck	Diesel	0	1
Other General Equipment	Gasoline	325.9	476
Pickup Truck	Diesel	1678.6	749.3
Pumps	Gasoline	34.6	24.9
Roller	Diesel	340.5	534.8
Scraper	Diesel	120	100.6
Skid Steer Loader	Diesel	8.3	130.3
Surfacing Equipment (Grooving)	Gasoline	10.6	48.3
Survey Crew Trucks	Diesel	204.64	33.96
Ten Wheelers- Material Delivery	Diesel	14.4	57.6
Tool Truck	Diesel	1923.52	1870.48
Tractor Trailer- Material Delivery	Diesel	2032.52	1853.48
Tractor Trailer- Steel Deliveries	Diesel	319.84	972.76
Tractor Trailer- Stone Delivery	Diesel	47.8	191.2
Tractor Trailer with Boom Hoist- Curbs Del & Place	Diesel	9.8	39.2
Tractor Trailers Temp Fac.	Diesel	81.98	14.52
Tractors/Loader/Backhoe	Diesel	88.5	156.1
Trencher	Diesel	115.2	460.8
Trencher for U/G Piping	Diesel	47.8	191.2
Trowel Machine	Diesel	23.04	5.76
Trowel Machines (4) machines	Diesel	230.4	921.6
Truck for Topsoil & Seed Del&Spread	Diesel	9.8	39.2
Water Truck	Diesel	402	36

Table 2: Estimated AVMT for Construction On-Road Activity

Vehicle Type	Fuel	MOVES Type	2027	2028
Heavy Duty Truck	Diesel	HDDV	538,080	1,011,920
Passenger Car	Gasoline	LDGV	446,794	564,769
Passenger Truck	Gasoline	LDGT	446,794	564,769

Notes: HDDV = Heavy Duty Diesel Vehicle, includes trucks used for material delivery, concrete delivery, demolition debris hauling, excavated material hauling; LDGV = Light Duty Gasoline Vehicle, includes 50 percent of construction employee commute vehicles; LDGT = Light Duty Gasoline Truck, includes 50 percent of construction employee commute vehicles; MOVES = Motor Vehicle Emissions Simulator

Because construction equipment and vehicle emissions rates contained in ACEIT are not sufficiently representative of local conditions, equipment and vehicle emissions rates were instead generated using the current version of the U.S. Environmental Protection Agency (EPA) Motor Vehicle Emissions Simulator (MOVES5). MOVES5 was invoked at the project-level using input databases specific to Sarasota County and Manatee County, Florida. Input databases were adapted from EPA's most recent National Emissions Inventory, which incorporates Sarasota County- and Manatee County-specific information to the extent it was submitted to the EPA by state and local air quality and transportation agencies.

Vehicle age distributions, inspection and maintenance programs (to the extent applied), fuel supply, and other data were held constant for future years; that is, projections or adjustments were not applied unless available from locally developed data. A summer design hour representative of a July weekday in Sarasota County and Manatee County from 5:00 to 6:00 p.m. was selected for emissions rate modeling based on the worst-case temperature/humidity hourly condition, according to the MOVES 'ZoneMonthHour' input database. Emissions rates for on-road vehicles were generated for five mile-per-hour (mph) increments ranging from 5 to 65 mph. For the purposes of emissions calculations, it was assumed that all on-road vehicles would travel at an average speed of 35 miles per hour. **Table 3** and **Table 4** contain the modeled emission rates for nonroad equipment and on-road vehicles, respectively.

Table 3: Nonroad Equipment Emissions Rates (Grams per Horsepower-hour at Operating Load)

Equipment	Fuel Type	Horsepower	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
2027									
Aerial Lifts	Gasoline	75	8.735	0.667	0.033	0.031	0.003	0.547	353.094
Bore/Drill Rigs	Gasoline	3	103.219	0.985	0.159	0.146	0.005	4.711	627.062
Cement & Mortar Mixers	Gasoline	11	138.256	0.804	0.056	0.051	0.004	4.587	532.691
Chain Saws < 6 HP (com)	Gasoline	6	133.719	0.759	4.874	4.484	0.003	36.617	359.640
Chippers/Stump Grinders (com)	Nonroad Diesel Fuel	100	1.036	2.390	0.179	0.174	0.002	0.186	590.084
Commercial Turf Equipment (com)	Gasoline	6	103.160	0.983	0.158	0.146	0.005	3.785	627.056
Cranes	Nonroad Diesel Fuel	300	0.053	0.231	0.012	0.012	0.001	0.017	531.026
Crawler Tractor/Dozers	Nonroad Diesel Fuel	175	0.067	0.238	0.016	0.015	0.001	0.011	536.823
Excavators	Nonroad Diesel Fuel	175	0.056	0.190	0.013	0.012	0.001	0.009	536.822
Forklifts	Nonroad Diesel Fuel	100	0.050	0.855	0.012	0.012	0.002	0.007	596.151
Generator Sets	Gasoline	11	138.454	0.807	0.056	0.052	0.004	4.128	532.692
Graders	Nonroad Diesel Fuel	300	0.032	0.147	0.009	0.008	0.001	0.011	536.813
Off-highway Trucks	Nonroad Diesel Fuel	600	0.026	0.124	0.007	0.007	0.001	0.010	536.812
Other General Industrial Eqp	Gasoline	6	106.429	1.095	0.210	0.193	0.005	5.013	627.332
Pavers	Nonroad Diesel Fuel	175	0.083	0.299	0.020	0.019	0.001	0.013	536.823
Pumps	Gasoline	6	104.145	1.016	0.174	0.160	0.005	5.235	627.140
Rollers	Nonroad Diesel Fuel	100	0.193	1.005	0.035	0.034	0.002	0.016	596.150
Scrapers	Nonroad Diesel Fuel	600	0.122	0.345	0.023	0.022	0.001	0.022	536.813
Skid Steer Loaders	Nonroad Diesel Fuel	75	2.643	3.862	0.435	0.422	0.002	0.559	694.882
Surfacing Equipment	Gasoline	11	140.239	0.840	0.062	0.057	0.004	3.250	532.769
Tractors/Loaders/Backhoes	Nonroad Diesel Fuel	100	1.193	1.761	0.201	0.195	0.002	0.210	695.582
Trenchers	Gasoline	75	5.895	0.486	0.035	0.032	0.003	0.373	350.237
2028									
Aerial Lifts	Gasoline	75	8.162	0.631	0.034	0.031	0.003	0.516	352.515
Bore/Drill Rigs	Gasoline	3	103.231	0.985	0.159	0.147	0.005	4.713	627.063
Cement & Mortar Mixers	Gasoline	11	138.211	0.803	0.056	0.051	0.004	4.580	532.685
Chain Saws < 6 HP (com)	Gasoline	6	133.718	0.759	4.874	4.484	0.003	36.617	359.640
Chippers/Stump Grinders (com)	Nonroad Diesel Fuel	100	0.907	2.181	0.158	0.153	0.002	0.161	590.125
Commercial Turf Equipment (com)	Gasoline	6	103.160	0.983	0.158	0.146	0.005	3.785	627.056
Cranes	Nonroad Diesel Fuel	300	0.045	0.203	0.011	0.010	0.001	0.015	531.026
Crawler Tractor/Dozers	Nonroad Diesel Fuel	175	0.061	0.212	0.014	0.014	0.001	0.010	536.823
Excavators	Nonroad Diesel Fuel	175	0.053	0.178	0.012	0.012	0.001	0.009	536.822
Forklifts	Nonroad Diesel Fuel	100	0.050	0.855	0.012	0.011	0.002	0.007	596.150
Generator Sets	Gasoline	11	138.435	0.806	0.056	0.052	0.004	4.126	532.691
Graders	Nonroad Diesel Fuel	300	0.027	0.132	0.008	0.008	0.001	0.011	536.812

Equipment	Fuel Type	Horsepower	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
Off-highway Trucks	Nonroad Diesel Fuel	600	0.023	0.118	0.007	0.007	0.001	0.010	536.811
Other General Industrial Eqp	Gasoline	6	106.429	1.095	0.210	0.193	0.005	5.013	627.333
Pavers	Nonroad Diesel Fuel	175	0.074	0.265	0.017	0.017	0.001	0.012	536.823
Pumps	Gasoline	6	104.146	1.016	0.174	0.160	0.005	5.235	627.139
Rollers	Nonroad Diesel Fuel	100	0.159	0.971	0.030	0.029	0.002	0.014	596.151
Scrapers	Nonroad Diesel Fuel	600	0.095	0.281	0.019	0.018	0.001	0.019	536.813
Skid Steer Loaders	Nonroad Diesel Fuel	75	2.232	3.627	0.362	0.351	0.002	0.472	695.099
Surfacing Equipment	Gasoline	11	140.235	0.840	0.062	0.057	0.004	3.250	532.768
Tractors/Loaders/Backhoes	Nonroad Diesel Fuel	100	1.075	1.671	0.181	0.176	0.002	0.185	695.639
Trenchers	Gasoline	75	5.857	0.485	0.035	0.032	0.003	0.371	350.236

Source: EPA MOVES5

Table 4: On-Road Vehicle Emissions Rates (Grams per Vehicle Mile Traveled)

Vehicle Type	Fuel Type	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
2027								
Passenger car	Gasoline	3.402	0.046	0.017	0.005	0.002	0.016	270.785
Passenger truck	Gasoline	3.356	0.056	0.019	0.005	0.002	0.017	363.745
Single Unit Short Haul Truck	Diesel	1.094	1.757	0.130	0.090	0.003	0.159	429.742
2028								
Passenger car	Gasoline	3.321	0.042	0.017	0.005	0.002	0.015	266.877
Passenger truck	Gasoline	3.271	0.052	0.019	0.005	0.002	0.016	360.202
Single Unit Short Haul Truck	Diesel	1.018	1.593	0.101	0.064	0.003	0.136	420.013

Source: EPA MOVES5

Note: PM₁₀ and PM_{2.5} each include primary exhaust emissions, brake wear emissions, and tire wear emissions

Equation 3 was used to estimate dust emissions from site-wide construction activities, adapted from EPA's AP-42 methodology (USEPA, 1995). EPA studies have concluded that ten percent of the dust emissions in the PM₁₀ or less size fractions are PM_{2.5} (Pace, 2005). Therefore, uncontrolled PM₁₀ dust emissions were factored by 0.10 to derive the PM_{2.5} component. Further, dust suppression and erosion control Best Management Practices (BMPs) during construction, such as site watering and track-out prevention measures, will ensure that PM impacts from construction activities are minimized. According to EPA, adherence to these BMPs can result in a dust control efficiency of 75 percent, which was applied to the calculation to represent controlled PM emissions (USEPA, 1992).

Equation 3:*

$$PM_{10(tpy)} = EF_{TSP} \times \frac{\text{days}}{\text{year}} \times \frac{\text{acres}}{\text{day}} \times 0.45 \div 2,000$$

Where:

PM_{10(tpy)} = annual PM₁₀ dust emissions (tons per year)

EF_{TSP} = total suspended particulate (TSP) emissions rate (80 pounds per acre-day)

0.45 = estimated ratio of PM₁₀ to TSP

2,000 = pounds per ton

*Represents uncontrolled emissions of PM₁₀. Controlled emissions are derived by applying a 75% control factor.

$$PM_{2.5} = PM_{10} \times 0.10$$

Estimation of annual evaporative VOC emissions from asphalt curing is based upon the EPA methods outlined in AP-42 as well as the Emissions Inventory Improvement Program (USEPA, 1995a; USEPA, 2001). **Equation 4** outlines this method. Because the asphalt characterization is not known, assuming that 35 percent of liquefied asphalt is diluent that can evaporate as VOC, 95 percent of this diluent would evaporate during asphalt curing, and that the density of the diluent is 1.98 pounds per liter of diluent applied.

Equation 4:

$$VOC_{(tpy)} = A \times AR \times VD \times EF \times D \div 2,000$$

Where:

VOC_(tpy) = annual VOC paving emissions (tons per year)

A = area of pavement in square meters(m²)

AR = asphalt application rate (0.679 liter/m²)

VD = volume fraction of diluent (0.35)

AF = mass fraction of diluent which evaporates as VOC (0.95)

D = solvent density (1.98 pounds/liter)

2,000 = pounds per ton

2.2. OPERATIONAL EMISSIONS

Operations of aircraft, aircraft Auxiliary Power Units (APU), and Ground Support Equipment (GSE), would change as a result of the expanded concourse development included in the Proposed Project, which would allow SRQ to accommodate projected airline operational demand. Additionally, an increase in on-road vehicle trips, including passenger vehicles, employee commute vehicles, and delivery truck trips would result from increased airline operation and rental car activities associated with projected airline operational demand. Operations of stationary combustion sources and on-airport motor vehicles would not be expected

to increase substantially as a result of the Proposed Project. Therefore, operational emissions estimates for the future year conditions with implementation of the Proposed Project include emissions from aircraft, APUs, GSE, passenger vehicle traffic, Airport and airline employee commute vehicle traffic, and delivery truck traffic.

Emissions from aircraft, APUs, and GSE were estimated using FAA's Aviation Environmental Design Tool (AEDT), 3g. Air emission analyses for airports are required to use AEDT for these sources. The analysis used AEDT default emission rates for aircraft, APU, and GSE. Aircraft operations and fleet mixes used for the EA study years are provided in **Table 5**.

Table 5: Annual Aircraft Operations by Project Scenario

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
Air Carrier/ Commuter	Airbus A319-100 Series	3,606	4,003	3,208	3,517	2,868
	Airbus A319-100 X/LR	170	188	151	166	135
	Airbus A320-200 Series	7,524	7,620	6,108	6,138	5,004
	Airbus A320-NEO	1,471	5,905	4,733	11,130	9,074
	Airbus A321-100 Series	456	2,018	1,618	2,787	2,272
	Airbus A321-200 Series	146	649	520	896	730
	Boeing 717-200 Series	67	0	0	0	0
	Boeing 737-700 Series	3,710	1,524	1,222	1,228	1,001
	Boeing 737-800 Series	8,990	8,572	6,871	8,552	6,972
	Boeing 737-900-ER	3,308	5,067	4,062	4,501	3,669
	Boeing 757-200 Series	1,570	762	611	0	0
	Boeing 767-400	0	0	0	0	0
	Boeing MD-88	0	0	0	0	0
	Boeing MD-90	0	0	0	0	0
	Bombardier CRJ-700	0	0	0	0	0
	Bombardier CRJ-700-ER	0	0	0	0	0
	Bombardier CRJ-900	702	762	611	818	667
	Embraer ERJ170	132	150	120	162	132
	Embraer ERJ170-LR	2	2	2	2	2
	Embraer ERJ175	199	226	181	243	198
	Embraer ERJ175-LR	302	345	277	371	302
	Embraer ERJ190-LR	668	305	244	409	333
	Subtotal, Air Carrier/Commuter	33,023	38,098	30,538	40,920	33,360
General Aviation/ Military/- Itinerant ¹	Aerospatiale SA-350D Astar (AS-350)	9	10	10	10	10
	Aerostar PA-60	38	40	40	41	41
	Agusta A-109	3	3	3	3	3
	Aviat Husky A1B	16	17	17	17	17
	AVRO 683 Lancaster (FAS)	6	7	7	7	7
	Beech 23 Musketeer Sundowner (FAS)	9	10	10	10	10
	Beech 24 Musketeer Super Sierra (FAS)	13	13	13	14	14
	Beech 77 Skipper (FAS)	63	67	67	68	68
	Beech 95 (FAS)	82	87	87	88	88

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Beechcraft 76 Duchess	25	27	27	27	27
	Bell 206 JetRanger	358	382	382	387	387
	Bell 407 / Rolls-Royce 250-C47B	943	1,005	1,005	1,019	1,019
	Bell 427	13	13	13	14	14
	Bellanca Viking (FAS)	9	10	10	10	10
	Boeing Stearman PT-17 / A75N1	38	40	40	41	41
	Bombardier (Canadair) CRJ200 ExecLiner	6	7	7	7	7
	Bombardier Challenger 300	355	379	379	384	384
	Bombardier Challenger 350	157	168	168	170	170
	Bombardier Challenger 600	251	268	268	272	272
	Bombardier Challenger 601	6	7	7	7	7
	Bombardier Challenger 604	6	7	7	7	7
	Bombardier Challenger 605	25	27	27	27	27
	Bombardier CRJ-200	3	3	3	3	3
	Bombardier Global 5000	47	50	50	51	51
	Bombardier Global 6000	3	3	3	3	3
	Bombardier Global Express	97	104	104	105	105
	Bombardier Learjet 24-XR	3	3	3	3	3
	Bombardier Learjet 31	245	261	261	265	265
	Bombardier Learjet 35	226	241	241	244	244
	Bombardier Learjet 36	3	3	3	3	3
	Bombardier Learjet 40	154	164	164	166	166
	Bombardier Learjet 45	374	399	399	404	404
	Bombardier Learjet 45-XR	6	7	7	7	7
	Bombardier Learjet 55	50	54	54	54	54
	Bombardier Learjet 60	600	640	640	649	649
	Bombardier Learjet 70	25	27	27	27	27
	Bombardier Learjet 75	94	101	101	102	102
	Britten-Norman BN-2 Islander	3	3	3	3	3
	Cessna 140 (FAS)	22	23	23	24	24
	Cessna 150 Series	116	124	124	126	126
	Cessna 162 (FAS)	289	308	308	312	312
	Cessna 172 Skyhawk	24,587	26,204	26,204	26,557	26,557

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Cessna 177 (FAS)	324	345	345	350	350
	Cessna 182	2,012	2,144	2,144	2,173	2,173
	Cessna 182 R (FAS)	66	70	70	71	71
	Cessna 182 Turbo (FAS)	16	17	17	17	17
	Cessna 185 Skywagon	31	34	34	34	34
	Cessna 206	201	214	214	217	217
	Cessna 207 (Turbo) Stationair (FAS)	6	7	7	7	7
	Cessna 208 Caravan	91	97	97	98	98
	Cessna 210 Centurion	358	382	382	387	387
	Cessna 210 Turbo (FAS)	9	10	10	10	10
	Cessna 310	145	154	154	156	156
	Cessna 335/340 (FAS)	3	3	3	3	3
	Cessna 337 Skymaster	22	23	23	24	24
	Cessna 340	126	134	134	136	136
	Cessna 400 (FAS)	195	208	208	211	211
	Cessna 402	25	27	27	27	27
	Cessna 414	220	235	235	238	238
	Cessna 421 Piston	163	174	174	177	177
	Cessna 425 Conquest I	41	44	44	44	44
	Cessna 441 Conquest II	50	54	54	54	54
	Cessna 500 Citation I	57	60	60	61	61
	Cessna 501 Citation ISP	233	248	248	251	251
	Cessna 560 Citation Excel	657	700	700	710	710
	Cessna 560 Citation V	3	3	3	3	3
	Cessna 560 Citation XLS	865	921	921	934	934
	Cessna 650 Citation III	440	469	469	475	475
	Cessna 680 Citation Sovereign	277	295	295	299	299
	Cessna 680-A Citation Latitude	151	161	161	163	163
	Cessna 750 Citation X	182	194	194	197	197
	Cessna Aircraft Company 180F	16	17	17	17	17
	CESSNA CITATION 510	443	472	472	479	479
	Cessna CitationJet CJ/CJ1 (Cessna 525)	1,544	1,645	1,645	1,667	1,667
	Cessna CitationJet CJ4 (Cessna 525C)	365	389	389	394	394

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Cessna S550 Citation S/II	1,179	1,256	1,256	1,273	1,273
	Cessna T303 Crusader (FAS)	19	20	20	20	20
	CIRRUS SF-50 Vision	242	258	258	261	261
	Cirrus SR20	1,540	1,642	1,642	1,664	1,664
	Cirrus SR22 Turbo (FAS)	10,802	11,512	11,512	11,667	11,667
	Columbia Aircraft Lancair (COL3/4 All Types) (FAS)	85	90	90	92	92
	Commander 114/115 (FAS)	119	127	127	129	129
	Daher TBM 900 Series	151	161	161	163	163
	Dassault Falcon 100	72	77	77	78	78
	Dassault Falcon 200	50	54	54	54	54
	Dassault Falcon 2000	723	771	771	781	781
	Dassault Falcon 20-C	3	3	3	3	3
	Dassault Falcon 20-F	9	10	10	10	10
	Dassault Falcon 50-EX	176	188	188	190	190
	Dassault Falcon 900-EX	340	362	362	367	367
	Diamond DA40	318	338	338	343	343
	Diamond DA42 Twin Star L360	145	154	154	156	156
	Diamond DA62	31	34	34	34	34
	Diamond DV-20 Katana (FAS)	19	20	20	20	20
	EADS Socata TB-10 Tobago	6	7	7	7	7
	EADS Socata TB-9 Tampico	9	10	10	10	10
	EADS Socata TBM-700	255	271	271	275	275
	Eclipse 500 / PW610F	610	650	650	659	659
	Embraer EMB110 Bandeirante	72	77	77	78	78
	Embraer ERJ135 Legacy Business	38	40	40	41	41
	Embraer ERJ135-LR	44	47	47	48	48
	Embraer ERJ190	3	3	3	3	3
	Embraer Legacy 450 (EMB-545)	60	64	64	65	65
	Embraer Legacy 500 (EMB-550)	82	87	87	88	88
	Embraer Phenom 100 (EMB-500)	874	931	931	944	944
	Embraer Phenom 300 (EMB-505)	600	640	640	649	649
	EPIC LT/Dynasty	119	127	127	129	129

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Eurocopter EC-130	6	7	7	7	7
	Eurocopter EC-T2 (CPDS)	66	70	70	71	71
	EXTRA EA-300 (FAS)	9	10	10	10	10
	Falcon 7X	57	60	60	61	61
	GippsAero GA8 Airvan (FAS)	3	3	3	3	3
	Glasair (FAS)	47	50	50	51	51
	Grumman AA-5A/B (FAS)	110	117	117	119	119
	Gulfstream Aerospace Gulfstream G500 (G-7)	3	3	3	3	3
	Gulfstream American GA-7 Cougar (FAS)	9	10	10	10	10
	Gulfstream G100	53	57	57	58	58
	Gulfstream G150	75	80	80	81	81
	Gulfstream G200	141	151	151	153	153
	Gulfstream G280	226	241	241	244	244
	Gulfstream G350	431	459	459	465	465
	Gulfstream G450	25	27	27	27	27
	Gulfstream G-5 Gulfstream 5 / G-5SP Gulfstream G500	321	342	342	346	346
	Gulfstream G550	47	50	50	51	51
	Gulfstream G600	3	3	3	3	3
	Gulfstream G650	60	64	64	65	65
	Gulfstream III (FAS)	66	70	70	71	71
	Gulfstream IV-SP	19	20	20	20	20
	Honda HA-420 Hondajet	198	211	211	214	214
	Hughes 500D	104	111	111	112	112
	Israel IAI-1124-A Westwind II	6	7	7	7	7
	Kaman SH-2 Seasprite	53	57	57	58	58
	Lancair 360	31	34	34	34	34
	Lancair Evolution (FAS)	35	37	37	37	37
	Lancair Legacy 2000 (FAS)	19	20	20	20	20
	LTV A-7 Corsair II	189	201	201	204	204
	Maule MT-7-235	6	7	7	7	7
	Mitsubishi MU-2	79	84	84	85	85
	Mooney M20-K	987	1,052	1,052	1,066	1,066

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	North American T-6 Texan (FAS)	28	30	30	31	31
	Piaggio P.180 Avanti	19	20	20	20	20
	Pilatus PC-12	780	831	831	842	842
	Pilatus Turbo Trainer PC-9	123	131	131	132	132
	Piper PA-18-150 (FAS)	22	23	23	24	24
	Piper PA-23 Apache/Aztec	119	127	127	129	129
	Piper PA-24 Comanche	242	258	258	261	261
	Piper PA-27 Aztec	170	181	181	183	183
	Piper PA-28 Cherokee Series	5,615	5,984	5,984	6,065	6,065
	Piper PA-30 Twin Comanche	41	44	44	44	44
	Piper PA-31 Navajo	2,314	2,466	2,466	2,499	2,499
	Piper PA-31T Cheyenne	79	84	84	85	85
	Piper PA-32 Cherokee Six	993	1,059	1,059	1,073	1,073
	Piper PA-34 Seneca	217	231	231	234	234
	Piper PA-42 Cheyenne Series	53	57	57	58	58
	Piper PA-44-180 (FAS)	207	221	221	224	224
	Piper PA46 (Piston)	387	412	412	418	418
	Piper PA46-TP Meridian	937	998	998	1,012	1,012
	Quest Kodiak 100	19	20	20	20	20
	Raytheon Beech 55 Baron	176	188	188	190	190
	Raytheon Beech 60 Duke	9	10	10	10	10
	Raytheon Beech 99	1,022	1,089	1,089	1,104	1,104
	Raytheon Beech Baron 58	352	375	375	380	380
	Raytheon Beech Bonanza 36	7,463	7,954	7,954	8,061	8,061
	Raytheon Beechjet 400	424	452	452	458	458
	Raytheon Hawker 1000	38	40	40	41	41
	Raytheon Hawker 4000 Horizon	9	10	10	10	10
	Raytheon Hawker 800	751	801	801	812	812
	Raytheon King Air 100	38	40	40	41	41
	Raytheon King Air 90	9	10	10	10	10
	Raytheon Premier I	258	275	275	278	278
	Raytheon Super King Air 200	1,034	1,102	1,102	1,117	1,117
	Raytheon Super King Air 300	406	432	432	438	438

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Robinson R22 Mariner	16	17	17	17	17
	Robinson R44 Raven / Lycoming O-540-F1B5	185	198	198	200	200
	Rockwell Sabreliner 65	16	17	17	17	17
	Rockwell Twin Commander 500	9	10	10	10	10
	Rockwell Twin Commander 690	22	23	23	24	24
	Ryan Navion F	154	164	164	166	166
	Sikorsky S-76 Spirit	41	44	44	44	44
	Sikorsky UH-60 Black Hawk	6	7	7	7	7
	SOCATA TBM 850	182	194	194	197	197
	Tecnam P2006T (FAS)	97	104	104	105	105
	Vans RV10 (FAS)	88	94	94	95	95
	Vans RV12 (FAS)	821	874	874	886	886
	Vans RV4 (FAS)	3	3	3	3	3
	Vans RV6 (FAS)	176	188	188	190	190
	Vans RV-7	69	74	74	75	75
	Vans RV8 (FAS)	69	74	74	75	75
	Vans RV9 (FAS)	13	13	13	14	14
	Velocity (FAS)	6	7	7	7	7
	Vulcanair P.68	22	23	23	24	24
	Subtotal, General Aviation/Military Itinerant	87,354	93,100	93,100	94,353	94,353
General Aviation/ Military Local	Aerostar PA-60	20	20	20	20	20
	Beech 23 Musketeer Sundowner (FAS)	20	20	20	20	20
	Beech 95 (FAS)	20	20	20	20	20
	Beechcraft 76 Duchess	40	40	40	40	40
	Cessna 140 (FAS)	20	20	20	20	20
	Cessna 150 Series	80	80	80	80	80
	Cessna 172 Skyhawk	19,563	19,581	19,581	19,598	19,598
	Cessna 177 (FAS)	20	20	20	20	20
	Cessna 182	219	219	219	219	219
	Cessna 182 R (FAS)	20	20	20	20	20
	Cessna 206	159	159	159	159	159
	Cessna 208 Caravan	20	20	20	20	20
	Cessna 210 Centurion	60	60	60	60	60

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Cessna 310	40	40	40	40	40
	Cessna 400 (FAS)	60	60	60	60	60
	Cessna 414	80	80	80	80	80
	Cessna 425 Conquest I	20	20	20	20	20
	Cirrus SR20	1,075	1,076	1,076	1,077	1,077
	Cirrus SR22 Turbo (FAS)	9,314	9,322	9,322	9,330	9,330
	Columbia Aircraft Lancair (COL3/4 All Types) (FAS)	20	20	20	20	20
	Diamond DA40	80	80	80	80	80
	Diamond DV-20 Katana (FAS)	100	100	100	100	100
	EADS Socata TBM-700	20	20	20	20	20
	Mooney M20-K	80	80	80	80	80
	Piaggio P.180 Avanti	20	20	20	20	20
	Pilatus PC-12	318	319	319	319	319
	Piper PA-24 Comanche	20	20	20	20	20
	Piper PA-27 Aztec	20	20	20	20	20
	Piper PA-28 Cherokee Series	159	159	159	159	159
	Piper PA-31 Navajo	3,264	3,267	3,267	3,270	3,270
	Piper PA-31T Cheyenne	80	80	80	80	80
	Piper PA-32 Cherokee Six	80	80	80	80	80
	Piper PA-34 Seneca	80	80	80	80	80
	Piper PA-42 Cheyenne Series	20	20	20	20	20
	Piper PA46-TP Meridian	80	80	80	80	80
	Raytheon Beech 99	279	279	279	279	279
	Raytheon Beech Baron 58	80	80	80	80	80
	Raytheon Beech Bonanza 36	8,040	8,047	8,047	8,055	8,055
	Raytheon Super King Air 200	60	60	60	60	60
	Raytheon Super King Air 300	80	80	80	80	80
	SOCATA TBM 850	40	40	40	40	40
	Subtotal, General Aviation/Military Local	43,863	43,902	43,902	43,941	43,941
	Grand Total	164,240	175,100	167,540	179,214	171,654

Notes: Values reflect rounding.

Sources: (SMAA, 2024; SMAA, 2025; SMAA and AECOM, 2025; FAA, 2025a; FAA, 2025b)

A Traffic Impact Analysis (TIA) was performed for the Proposed Project, which provides estimated peak hour volumes and turn movement counts at six intersections on Airport property for the EA study years. These volumes were used to estimate EA study year peak hour traffic volume on 14 individual road segments on airport property and then converted to average annual daily traffic (AADT) for each segment. The AADT was multiplied by each segment's length and then multiplied by 365 days per year to determine a total on-Airport AVMT for the Proposed Project and the No Action Alternative.

Roadway segments include varying speed limits. Therefore, a weighted average speed was developed based on posted speed limits for each segment and the AVMT for each segment. This weighted average of 35 mph was used to develop emission rates in MOVES. The TIA also developed estimated percentages of gasoline-powered passenger vehicles, including passenger cars and passenger trucks, and heavy-duty diesel vehicles, which include cargo-type trucks (single-unit short haul) used for deliveries and waste hauling, for each of the studied roadway segments. These percentages were applied to the AVMT for each on-Airport roadway segment to further refine emissions estimates. Emissions from surface traffic were estimated using **Equation 2**, using emission rates for 2029 and 2034 obtained from MOVES as described in **Section 2.1**. The net increase in AVMT by vehicle type for the Proposed Project as compared to the No Action Alternative for each EA study year is provided in **Table 6**. EA study year emission rates for on-road vehicles are shown in **Table 7**.

Table 6: Proposed Project Estimated Annual On-Road Activity

Vehicle Type	2029 No Action	2029 Proposed Project	2029 Net Increase	2034 No Action	2034 Proposed Project	2034 Net Increase
Passenger Car	1,880,783	1,928,770	47,987	2,092,776	2,146,171	53,395
Passenger Truck	1,880,783	1,928,770	47,987	2,092,776	2,146,171	53,395
Single Unit Short Haul Truck	79,613	81,954	2,341	88,587	91,192	2,605

Sources: (Patel, Greene and Associates, 2025; SMAA and AECOM, 2025)

Table 7: On-road Vehicle Emission Rates (Grams per Vehicle Mile Traveled)

Vehicle Type	Fuel Type	Average Speed (mph)	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
2029									
Passenger Car	Gasoline	35	3.047	0.033	0.016	0.004	0.002	0.013	254.646
Passenger Truck	Gasoline	35	3.017	0.038	0.018	0.005	0.002	0.014	349.854
Single Unit Short Haul Truck	Diesel	35	0.963	1.280	0.090	0.055	0.003	0.115	408.219
2034									
Passenger Car	Gasoline	35	2.268	0.012	0.015	0.004	0.001	0.009	211.654
Passenger Truck	Gasoline	35	2.232	0.016	0.016	0.004	0.002	0.010	307.178
Single Unit Short Haul Truck	Diesel	35	0.745	0.689	0.060	0.025	0.002	0.046	383.625

Source: EPA MOVES5

3. REFERENCES

- FAA. (2024, July). *Aviation Emissions and Air Quality Handbook, Version 4*. Retrieved from https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/files/airquality_handbook_version_4.pdf
- FAA. (2025a). *FAA Terminal Area Forecast Detail Report - Forecast Issued January 2025*.
- FAA. (2025b). Traffic Flow Management System Counts (TFMSC) Aviation System Performance Metrics (ASPM).
- Pace, T. (2005). *Examination of the Multiplier Used to Estimate PM_{2.5} Fugitive Dust Emissions From PM₁₀*. Retrieved from https://gaftp.epa.gov/air/nei/ei_conference/EI14/session5/pace.pdf
- Patel, Greene and Associates. (2025). *Sarasota Bradenton International Airport Concourse A Expansion Traffic Impact Analysis*.
- SMAA. (2024). *Activity Report - Sarasota Bradenton International Airport - December 2024*. Retrieved from <https://flysrq.com/sites/default/files/2025-02/Monthly%20Activity%20Report%2012-2024.pdf>
- SMAA. (2025). Radar Data Capture and Operational Data Summary for the Period 01 March 2024 - 31 March 2024. Provided by L. Guilbert, SMAA, 15 April 2025.
- SMAA and AECOM. (2025). *Final Memorandum: SMAA Forecast of Passenger Enplanements, H. Klein, AECOM, to M. Elliott, FAA*.
- USEPA. (1992). *Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures*. OAQPS, EPA-450/2-92-004. Retrieved from <https://www.nrc.gov/docs/ml1224/ML12241A395.pdf>
- USEPA. (1995). *Compilation of Air Pollutant Emissions Factors (AP-42). Fifth Edition, Volume I Chapter 13: Miscellaneous Sources*. Retrieved from <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-fifth-edition-volume-i-chapter-13-miscellaneous-0>
- USEPA. (1995a). *Compilation of Air Pollutant Emission Factors (AP-42). Fifth Edition Volume I Chapter 4.5: Asphalt Paving Operations*. Retrieved from <https://www.epa.gov/sites/default/files/2020-10/documents/c4s05.pdf>
- USEPA. (2001). *Emissions Inventory Improvement Program (EIIP), Volume III: Chapter 17, "Asphalt Paving"*. Retrieved from https://www.epa.gov/sites/default/files/2015-08/documents/iii17_apr2001.pdf

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

APPENDIX D – BIOLOGICAL EVALUATION

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

SARASOTA BRADENTON INTERNATIONAL AIRPORT CONCOURSE A EXPANSION BIOLOGICAL EVALUATION TECHNICAL MEMORANDUM

PREPARED FOR: AECOM

Sarasota, Florida | October 2025

PREPARED BY:



PATEL, GREENE AND ASSOCIATES

12570 Telecom Drive
Temple Terrace, FL 33637

TABLE OF CONTENTS

- 1. INTRODUCTION1
- 2. PROJECT OVERVIEW.....1
- 3. ALTERNATIVES ANALYSIS1
- 4. EXISTING NATURAL CONDITIONS4
 - Methodology.....4
 - Soils4
 - Land Uses/Vegetative Cover Types.....6
- 5. PROTECTED SPECIES AND HABITAT8
 - Introduction8
 - Methodology.....8
 - Results8
 - Listed Wildlife.....10
 - Federally-Listed Species*10
 - State-Listed Species*11
 - Other Protected Species*13
 - Listed Plant Species*13
 - Critical Habitat.....13
- 6. WETLANDS, SURFACE WATERS, AND OTHER SURFACE WATERS.....14
 - Existing Wetlands, Surface Waters, and Other Surface Waters14
- 7. OTHER SURFACE WATER IMPACTS.....15
- 8. ESSENTIAL FISH HABITAT16
- 9. PERMIT REQUIREMENTS.....16
- 10. CONCLUSIONS16
- 11. REFERENCES18

APPENDICES

Appendix A: Report Figures

- Figure 1: Project Location Map
- Figure 2: NRCS Soils Map
- Figure 3: Land Use and Vegetative Cover Types Map
- Figure 4: Wildlife Survey Observation Points Map (Data from WHA)
- Figure 5: Active Wood Stork Nesting Colonies Map
- Figure 6: Other Surface Water Impacts Map

Appendix B: Conceptual Airport Expansion Figures

Appendix C: IPaC Reports

Appendix D: Standard Protection Measures for the Eastern Indigo Snake

Appendix E: Eastern Indigo Snake Effect Determination Key

Appendix F: Wood Stork Effect Determination Key

TABLES

Table 1 - Concourse Expansion Alternatives1

Table 2 - Terminal Parking Expansion Alternatives2

Table 3 - Concourse Expansion Alternatives Evaluation Summary3

Table 4 - Terminal Parking Expansion Alternatives Evaluation Summary3

Table 5 - Soil Types within the Action Area5

Table 6 - Land Use/Vegetative Cover Types within the Action Area7

Table 7 - Federal and State-Protected Species Probability of Occurrence in the Action Area9

Table 8 - Other Surface Waters (OSW) within the Action Area14

Table 9 - Other Surface Waters (OSW) Impacts within the Action Area16

INTRODUCTION

The Sarasota Bradenton International Airport (SRQ) has experienced considerable growth in air traffic in recent years. To address the growing demand for air travel to and from the area, SRQ is planning improvements to the airport described herein as the “Action Area”. Patel, Greene and Associates, LLC (PGA) conducted this environmental review to document the existing natural resources in the proposed Action Area and to summarize potential impacts to federal and state-listed species and their protected habitats.

PROJECT OVERVIEW

SRQ is located at 6000 Airport Circle, Sarasota. The airport location is shown in Appendix A: Report Figures: Figure 1. SRQ plans to expand the existing passenger terminal concourse to better serve air travel demand in the surrounding area. The preferred option is the expansion of Concourse A (Appendix B) which would consist of a two-story structure with four new aircraft gates, providing a net gain of three gates since existing Gate B1 will be eliminated as part of the project. The new concourse would include an expanded passenger security checkpoint area as well as additional passenger amenities including concessions and restrooms. SRQ also intends to construct a new multi-level parking garage with a passenger connector to the terminal, the preferred option of which is depicted in Appendix B. The project is expected to be completed by 2029.

ALTERNATIVES ANALYSIS

Four (4) Concourse Expansion Alternatives and three (3) Terminal Parking Expansion Alternatives were considered. Details of each alternative are provided in Tables 1 and 2 below. Figures showing the alternatives considered are provided in Appendix B.

The No-Build Alternative served as a baseline for comparison of future conditions and potential impacts. However, the no-build, or no-action alternative will not meet the needs of the airport at this time due to the increase in passenger traffic and air travel demand at the airport. Therefore, the No-Build Alternative is not the Preferred Alternative. However, the No-Build Alternative will remain a viable option during the PD&E Study.

Table 1: Concourse Expansion Alternatives

Alternative	Description
Alternative 1 – Construct Concourse A (Figure 3.2-1)	Construct multi-level Concourse A on approximately 72,000 SF of existing aircraft apron between existing Concourse B and Ground Boarding Facility, to include four new gates. Eliminate existing Gate B1 to accommodate Concourse A construction for an overall net gain of three new parking positions.
Alternative 2 – Expand Concourse B (Figure 3.2-2)	Extend existing multi-level Concourse B to the north by approximately 20,100 SF for an addition of two new aircraft parking positions. Infill approximately 14,800 square yards (SY) of unpaved area at the intersection of Taxiways A and B in order to provide additional taxi and pushback space for aircraft using the expanding concourse area.
Alternative 3 – Construct Concourse C (Figure 3.2-3)	Construct multi-level Concourse C on approximately 102,700 SF of aircraft apron area west of existing Concourse B, which requires installation of approximately 26,800 SY of additional apron pavement, for an addition of four new aircraft parking positions. Demolish approximately 200,500 SF of parking/roadway area and 6,400 SF of building space associated with the Ground Transportation Center in order to accommodate Concourse and pavement expansion.
Alternative 4 – Expand	Expand the single-level Ground Boarding Facility to the east over an approximate 40,000 SF apron

Alternative	Description
Ground Boarding Facility (Figure 3.2-4)	area to provide three new aircraft parking positions, which requires installation of approximately 19,000 SY of new pavement. Demolish the existing shade parking lot to the east of the existing Ground Boarding Facility (255,000 SF of parking area in total).

Sources: SMAA and AECOM, 2025.

Table 2: Terminal Parking Expansion Alternatives

Alternative	Description
Alternative 1 – Construct Parking Garage (Figure 3.3-1)	Construct four-level parking garage on 288,000 SF of area directly south of the passenger terminal, including a rental car customer facility on the north side of the proposed parking garage. Requires removal of existing rental car return and short-term parking facilities over approximately 305,000 SF of space to accommodate garage construction. Extend existing long-term parking facilities southward by 62,600 SF. Construct 56,150 SF of roadways and ramps to provide vehicular access to and from the garage for both rental cars and public vehicles, including recirculation to the terminal.
Alternative 2 – Construct Parking Garage and Consolidated Quick Turnaround Area (Figure 3.3-2)	Construct four-level parking garage on 288,000 SF of area directly south of the passenger terminal, including a rental car customer facility on the north side of the proposed parking garage. Requires removal of existing rental car return and short-term parking facilities over approximately 305,000 SF of space to accommodate garage construction. Construct a consolidated Quick Turnaround (QTA) facility for rental cars on approximately 279,500 SF of area south of the proposed garage. Construct additional 252,000 SF surface parking lot to the west of Airport Circle along General Spaatz Boulevard to replace parking area lost to the QTA. Construct 59,475 SF of roadways and ramps to provide vehicular access to and from the garage for both rental cars and public vehicles, including recirculation to the terminal.
Alternative 3 – Construct Off-Site Parking Garage (Figure 3.3-3)	Construct off-site four-level parking garage on 288,000 SF of area on a property southeast of the terminal at Bradenton Road and University Parkway. Existing rental car and passenger parking facilities at the airport would remain as is. Construct 46,800 SF of roadways and ramps to provide vehicular access to and from the garage via Bradenton Road.

Sources: SMAA and AECOM, 2025.

The four concourse expansion alternatives and three terminal parking expansion alternatives were evaluated and are summarized in Tables 3 and 4 below. After the evaluation, Alternative 1 of the Concourse Expansion Alternatives and Alternative 1 of the Parking Expansion Alternatives were chosen as the Preferred Alternatives. Alternative 1 of the Concourse Expansion Alternatives had the least amount of impacts to Land Conversion, Listed Species Utilization/Habitat and Wetlands and Surface Waters, while Alternatives 2, 3, and 4 contained potential impacts to foraging habitats for listed species and/or included the filling of other surface waters (OSWs). After an analysis of the alternatives, Alternative 1 for Concourse Expansion was determined to be the least detrimental to the environment.

Alternative 1 of the Parking Expansion Alternatives had no wetland or surface water impacts but included the conversion of upland areas with ornamental trees to surface parking. Both Alternatives 2 and 3 had impacts to ditches/canals and reservoirs (stormwater ponds). After an analysis of the alternatives, Alternative 1 of the Parking Expansion Alternatives was determined to be the least detrimental to the environment.

Table 3: Concourse Expansion Alternatives Evaluation Summary

Category	Criterion	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	Alternative 4	No-Action
Potential Natural Resources Impacts	Land Cover Conversion	None	Apron expansion into upland grassed area	Requires filling of a linear ditch (OSW 8, 0.05 acres); Conversion of upland grassed areas for apron expansion	Small apron expansion into upland grassed area	None
	Listed Species Utilization/Habitat	None	Potential foraging area for listed species	Potential foraging areas for listed species in both grassed areas and the linear ditch	Minor potential foraging area for listed species	None
	Wetlands and Other Surface Waters	None	None	Linear ditch impacts (0.05 acres)	None	None

Sources: AECOM, 2025; PGA, 2025.

Table 4: Terminal Parking Expansion Alternatives Evaluation Summary

Category	Criterion	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Action
Potential Natural Resources Impacts	Land Cover Conversion	Conversion of upland grassed and ornamental tree areas	Conversion of upland grassed and tree areas, will impact 0.59 acres of OSW 7 (stormwater pond)	Requires filling/relocating of a linear ditch/canal (OSW 1, 0.24 acres)	None
	Listed Species Utilization/Habitat	Potential foraging habitat in upland grassed areas with ornamental trees	Potential foraging habitat in upland grassed areas with ornamental trees; potential foraging and nesting habitat in OSW 7	Potential foraging and nesting areas for listed species in the linear ditch/canal	None
	Wetlands and Other Surface Waters	None	Filling 0.59 of stormwater pond (OSW 7)	Linear ditch/canal impacts (0.24 acres)	None

Sources: AECOM, 2025; interVISTAS, 2025; PGA, 2025

EXISTING NATURAL CONDITIONS

The Action Area is primarily defined as the proposed area of expansion and potential equipment staging areas/airport haul routes during construction. As part of the ongoing SRQ airport master planning, transportation planning, and environment review process, alternatives for both the concourse expansion and parking garage construction have been identified and considered (Appendix B), so the Action Area additionally includes those areas to ensure environmental information is available for their further evaluation.

This section presents a description of existing conditions within the Action Area, including soils and land use/vegetative cover types within both upland and wetland communities.

Methodology

To determine the approximate locations and boundaries of existing upland and wetland communities within the Action Area, available site-specific data was collected and reviewed. The information included:

- True color aerial imagery of the assessment area (1 inch = 200 feet) (2022);
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>);
- U.S. Geological Survey (USGS) 7.5 Minute Topographic quadrangle maps, Bradenton, FL, 2024;
- Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 4th Edition (2007);
- Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System Handbook, 3rd Edition (FDOT 1999);
- Florida Administrative Code, 1994. Chapter 62-340, F.A.C. Delineation of the Landward Extent of Wetlands and Surface Waters. Accessed April 2025 (<https://www.flrules.org/gateway/chapterhome.asp?chapter=62-340>);
- Quinton, B. et al, Environmental Science Associates (ESA), Sarasota Bradenton International Airport, Wildlife Hazard Assessment, May 2018;
- Sarasota Bradenton International Airport, Wildlife Hazard Management Plan, Exhibit 11 of the Airport Certification Manual, September 2018;
- Statewide Land Use Cover FDEP Open Data Portal, 2017-2023 (<https://ca.dep.state.fl.us/mapdirect>);
- U.S Army Corps of Engineers. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Plain Region (Version 2.0) (ERDC/EL TR-10-20);
- U.S. Fish and Wildlife Service (USFWS), Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, *et al.*, 2013); and
- USFWS, National Wetlands Inventory, Wetlands Online Mapper.

Prior to the field review, the approximate boundaries of upland and wetland communities within the Action Area were mapped on true color aerial photographs. Environmental scientists familiar with Florida natural communities conducted a field review of the Action Area on April 10, 2025. The field review consisted of pedestrian transects of representative habitat/land use types found within the Action Area. Each vegetative community type within the Action Area was traversed and visually inspected to verify approximate community boundaries. Attention was given to identifying dominant plant species composition for each community, exotic plant infestations, and other disturbances such as soil subsidence, clearing, canals, power lines, etc. The field review was also completed to identify and document wildlife and signs of wildlife usage at each habitat type within the Action Area.

Soils

Based on the NRCS Web Soil Survey, the Action Area is comprised of nine (9) soil types. Four (4) of the soil types are listed as hydric and five (5) of the remaining non-hydric soil types may contain hydric soil inclusions. The location of each soil type is shown in Figure 2 of Appendix A: Report Figures. The soil types mapped within the Action Area, their corresponding map

unit symbol, hydric soil classification, description and location, average seasonal high-water depth, acreage, and percentage of the Action Area are provided in Table 5.

Table 5: Soil Types within the Action Area

Soil Map Unit and Name	Hydric (Y/N)	Description and Location	Average SHWT ² Depth	Acres within the Action Area	Percent of Action Area
(20) Eau Gallie-Eau Gallie wet, fine sand, 0 to 2 percent slopes	N ¹	Found on flatwoods on marine terraces, poorly drained, 19% hydric soil inclusions, Located in the northern portion of the Action Area	6 to 18 inches	7.85	6.34%
(35) Ona fine sand, orstein substratum	N ¹	Found on flatwoods on marine terraces, poorly drained, 15% hydric soil inclusions, Located in the northern portion of the Action Area	6 to 18 inches	3.85	3.11%
(51) Bradenton fine sand-Urban land complex, 0 to 2 percent slopes	Y	Found on flats and flatwoods on marine terraces, poorly drained, Located in the southern and eastern portions of the Action Area	3 to 18 inches	1.11	0.90%
(55) Eau Gallie-Myakka fine sands-Urban land complex, 0 to 2 percent slopes	N ¹	Found on flatwoods on marine terraces, poorly drained, 4% hydric soil inclusions, Located throughout the central portions of the Action Area	6 to 18 inches	40.19	32.45%
(57) Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	Y	Found on flats and depressions on marine terraces, very poorly drained, Located in the southern portion of the Action Area	At surface	0.83	0.67%
(63) Holopaw fine sand, ponded-Urban land complex, 0 to 1 percent slopes	Y	Found on depressions and flatwoods on marine terraces, very poorly drained, Located in the southwest and northeast portions of the Action Area	At surface	6.01	4.85%
(66) Manatee loamy fine sand, ponded-Urban land complex, 0 to 1 percent slopes	Y	Found on drainageways and depressions on marine terraces, very poorly drained, Located in the southeast portion of the Action Area	At surface	8.09	6.53%
(67) Ona fine sand-Urban land complex, 0 to 2 percent slopes	N ¹	Found on flatwoods on marine terraces, poorly drained, 5% hydric soil inclusions, Located in the central portion of the Action Area	6 to 18 inches	52.68	42.53%
(68) Orsino fine sand-Urban land complex, 0 to 2 percent slopes	N ¹	Found on ridges and knolls on marine terraces, moderately well drained, 1% hydric soil inclusions, Located on the southeast portion of the Action Area	42 to 60 inches	3.24	2.62%
Total Hydric				16.04	12.95%
Total Non-Hydric				107.81	87.05%
Total				123.85	100.00%

(1) Contains hydric soil inclusions

(2) Seasonal High-Water Table

Land Uses/Vegetative Cover Types

All vegetative habitats and land use categories within the Action Area were classified using the Florida Department of Transportation (FDOT) Florida Land Use, Cover, and Forms Classification System (FLUCFCS) (FDOT 1999). Wetland and surface water habitats were also classified using the U.S. Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

Based on in-house and field reviews, seven (7) land use/vegetative cover types have been identified within the Action Area. The locations of each land use/vegetative cover type are shown in Figure 3 of Appendix A: Report Figures and Table 6 summarizes the acreage of each land use/vegetative cover type within the Action Area. A brief description and the location of each land use/vegetative cover type is provided below.

(120) Residential, Medium Density

Residential, Medium Density land use describes residential areas that consist of two to five (2-5) dwelling units per acre. This land use type is located in the southern portion of the Action Area south and east of the former race track. This land use includes single family homes west of Bradenton Road and the Palms of Sarasota located south of the former Sarasota Kennel Club Race Track east of Bradenton Road. Residential, Medium Density land use comprises 2.06 acre of the Action Area.

(140) Commercial and Services

Commercial and Services land use describes properties used for the distribution of goods and services and includes associated parking and infrastructure. This land use type is located in the southern portion of the Action Area east of Airport Circle and north of University Parkway and consists of the Kompose Hotel and the Hampton Inn and Suites. At the time of the field review, the facilities contained mowed and maintained grass with ornamental plantings for landscaping. Commercial and Services comprises 0.84 acre of the Action Area.

(183) Race Tracks

The Race Tracks land use describes areas used for racing, card games, and betting facilities. It includes the race tracks, buildings, parking areas, and associated infrastructure. Within the Action Area, this land use includes the former Sarasota Kennel Club race track site located in the southeast corner of the Action Area east of Bradenton Road. The former race track site consists of a stormwater pond, parking areas, and open land. Infrastructure has been recently removed from the site. Race Tracks comprise 20.15 acres of the Action Area.

(811) Airports

Airports land use includes terminals, concourses, infield areas, buildings, parking areas, and other infrastructure associated with air travel. This land use is located in the central portion of the Action Area surrounding Airport Circle north of University Parkway. Portions of the Bradenton Connector, Rental Car Road and Air Cargo Avenue are located within this land use area. The airport property contained mowed and maintained bahia (*Paspalum notatum*) and Bermuda (*Cynodon dactylon*) grass with ornamental plantings for landscaping at the time of the field review. Airports land use comprises 96.97 acres of the Action Area.

(814) Roads and Highways

Roads and Highways land use consists of roadways that are used for the movement of people and the distribution of goods. This land use is located along Bradenton Road on the west side of the Race Tracks land use in the southeast corner of the Action Area. Roads and Highways land use comprises 0.68 acre of the Action Area.

Table 6: Land Use/Vegetative Cover Types within the Action Area

Habitat Type	FLUCFCS Classification ¹	USFWS Classification ²	FNAI Description ³	Acres within the Action Area	Percent of Action Area
UPLANDS					
Residential, Medium Density	120	N/A	Developed	2.06	1.66%
Commercial and Services	140	N/A	Developed	0.84	0.68%
Race Tracks	183	N/A	Developed	20.15	16.27%
Airports	811	N/A	Developed	96.97	78.30%
Roads and Highways	814	N/A	Developed	0.68	0.55%
Total Uplands				120.70	97.46%
SURFACE WATERS					
Streams and Waterways	510	R2UB3Ex ⁴	Canal/Ditch	1.22	0.98%
Reservoirs	530	PUB3Hx ⁵	Impoundment	1.93	1.56%
Total Surface Waters				3.15	2.54%
Total				123.85	100.00%

(1) Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System Handbook (FLUCFCS) (Third Edition, 1999).

(2) U.S. Fish and Wildlife Service (USFWS), Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979).

(3) Florida Natural Areas Inventory (FNAI), Cooperative Land Cover to FNAI Natural Community Crosswalk Table (2022).

(4) R2UB3Ex: Riverine, Lower Perennial, Unconsolidated Bottom, Mud, Seasonally Flooded/Saturated; Excavated

(5) PUB3Hx: Palustrine, Unconsolidated Bottom, Mud, Permanently Flooded, Excavated

(510) Streams and Waterways

Streams and Waterways consist of wetland or upland cut conveyance systems that are mainly used for flood control and irrigation. Within the Action Area, ditch and canal segments are located in the central and northern portions of the Race Tracks land use in the southeast corner of the Action Area south of University Parkway, north of the Bradenton Connector in the northwest portion of the Airports land use, and along the east side of Airport Circle near Rental Car Road. The drainage system canals contained standing water and emergent wetland vegetation was present in the conveyance ditches at the time of the field review. Streams and Waterways comprise 1.22 acres of the Action Area.

(530) Reservoirs

This land use consists of artificial impoundments of water used for irrigation and flood control. Within the Action Area, reservoirs are located in the northwest portion of the Action Area north of the Bradenton Connector, in the southwest portion of the Action Area west of Airport Circle, and east of the Race Tracks land use south of University Parkway. One reservoir is a stormwater pond located in the center of the old race track on the east side of the former Sarasota Kennel Club. The pond contained standing water and cattails at the time of the field review. The two remaining reservoirs are located on the airport property. These ponds were void of vegetation and contained mowed and maintained edges to discourage use by wading birds and wildlife. Reservoirs comprise 1.93 acres of the Action Area.

PROTECTED SPECIES AND HABITAT

Introduction

Listed species are afforded protective status by federal and state agencies. Federal protection is administered by the United States Department of the Interior, USFWS, and the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-NMFS) pursuant to the Endangered Species Act of 1973 (as amended). The USFWS administers the federal list of animal species (50 Code of Federal Regulations [CFR] 17) and plant species (50 CFR 23). Federal protection of marine species is the responsibility of the NOAA-NMFS.

The Florida Fish and Wildlife Conservation Commission (FWC) affords protection to animal species designated as Endangered, Threatened or Species of Special Concern, pursuant to Chapter 68A-27, F.A.C. The State of Florida also protects and regulates plant species designated as endangered, threatened, or commercially exploited as identified on the Regulated Plant Index (5B-40.0055, F.A.C.), which is administered by the Florida Department of Agriculture and Consumer Services (FDACS), Division of Plant Industry, pursuant to Chapter 5B-40, F.A.C.

Methodology

In order to determine federal and state-protected plant and animal species that have the potential to occur within the Action Area, available site-specific data was collected and evaluated. In addition to the data reviewed under the Existing Natural Conditions section, literature and databases reviewed as part of this evaluation included:

- Audubon Center for Birds of Prey, Bald Eagle Nest Locator, last updated 2024 (<https://cbop.audubon.org/conservation/about-eaglewatch-program>);
- FDACS, Florida Statewide Endangered and Threatened Plant Conservation Program (2023);
- FWC, Florida's Endangered and Threatened Species, Updated December 2022;
- FWC, Fish and Wildlife Research Institute. Wading Bird Colonies Florida database (http://ocean.floridamarine.org/TRGIS/Description_Layers_Terrestrial.htm);
- Florida Natural Areas Inventory (FNAI), Biodiversity Matrix Map Server (<http://www.fnai.org/biointro.cfm>);
- Quinton, B. et al, Environmental Science Associates (ESA), Sarasota Bradenton International Airport, Wildlife Hazard Assessment, May 2018;
- Sarasota Bradenton International Airport, Wildlife Hazard Management Plan, Exhibit 11 of the Airport Certification Manual, September 2018;
- USFWS, Critical Habitat Portal website (<http://criticalhabitat.fws.gov/crithab/>);
- USFWS, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12;
- USFWS, Environmental Conservation Online System (ECOS), Information for Planning and Consultation (IPaC); and
- USFWS, Wood Stork Nesting Colonies Maps (Florida Wood Stork Foraging Areas | Florida Department of Environmental Protection Geospatial Open Data).

The FNAI Web Biodiversity Matrix was evaluated for documented occurrences of listed species within one mile of the Action Area. Copies of the IPaC Reports for the Action Area are provided in Appendix C.

Results

Based upon information collected, twenty-three (23) federal or state-listed or protected plant and animal species were identified as having the potential to occur within the Action Area. Table 7 provides a complete tabular listing of these protected species, their federal or state protection status, effect determination, whether habitat is present in the Action Area, and a ranking of probability of occurrence within the Action Area.

Table 7: Federal and State-Protected Species Probability of Occurrence in the Action Area

Species	Designated Status		Effects Determination	Habitat Available in the Action Area	Probability of Occurrence in the Action Area
	USFWS	FWC			
Federally-Listed Species					
Eastern indigo snake (<i>Drymarchon corais couperi</i>)	T	FT	“Not Likely to Adversely Affect”	Yes	Low
Wood stork (<i>Mycteria americana</i>)	T	FT	“No Effect”	Yes	Moderate
Monarch butterfly (<i>Danaus plexippus</i>)	C	NL	Listing Pending; Anticipated “No Effect”	Yes	Low
State-Listed Species					
Gopher tortoise (<i>Gopherus polyphemus</i>)	NL	ST	“No Effect Anticipated”	Yes	Low
Florida sandhill crane (<i>Antigone canadensis pratensis</i>)	NL	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Florida burrowing owl (<i>Athene cunicularia floridana</i>)	NL	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Little blue heron (<i>Egretta caerulea</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Reddish egret (<i>Egretta rufescens</i>)	N	ST	“No Effect Anticipated”	Yes	Low
Tricolored heron (<i>Egretta tricolor</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Southeastern American kestrel (<i>Falco sparverius paulus</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Roseate spoonbill (<i>Platalea ajaja</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Black skimmer (<i>Rynchops niger</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Least tern (<i>Sternula antillarum</i>)	N	ST	“No Adverse Effect Anticipated”	Yes	Moderate
Listed Plant Species					
Pygmy fringe-tree (<i>Chionanthus pygmaeus</i>)	E	E	“No Effect”	No	Low
Florida perforate cladonia (<i>Cladonia perforata</i>)	E	E	“No Effect”	No	Low
Sanibel lovegrass (<i>Eragrostis pectinacea var. tracyi</i>)	NL	E	“No Effect Anticipated”	Yes	Low
Aboriginal prickly apple (<i>Harrisia aboriginum</i>)	E	E	“No Effect”	No	Low
Edison's ascyrum (<i>Hypericum edisonianum</i>)	UR	E	“No Effect Anticipated”	Yes	Low
Lowland loosestrife (<i>Lythrum flagellare</i>)	NL	E	“No Effect Anticipated”	Yes	Low
Sleeping beauty waterlily (<i>Nymphaea jamesoniana</i>)	NL	E	“No Effect Anticipated”	Yes	Low
St. John's black-eyed susan (<i>Rudbeckia nitida</i>)	NL	E	“No Effect Anticipated”	Yes	Low
Other Species of Concern					
Bald eagle (<i>Haliaeetus leucocephalus</i>)	(1)	(2)	“No Effect”	Yes	Moderate
Osprey (<i>Pandion haliaetus</i>)	(3)	(4)	“No Effect”	Yes	Moderate

* Species designated statuses are based on the 2016 FWC Imperiled Species Management Plan, 2016-2026, last updated 2022.

C – Candidate Species for listing under ESA; E – Endangered; T – Threatened; NL – Not Listed; S- State; F- Federal, FDACS for State Listed Plants

(1) The bald eagle is no longer listed under ESA, but it is federally protected by the Bald and Golden Eagle Protection Act.

(2) While not listed under Chapter 68A-27, FAC, the Bald Eagle is protected under the FFWCC Bald Eagle Management Plan.

(3) The osprey is not federally-listed, but is protected under the U.S. Migratory Bird Treaty Act.

(4) Although it is no longer listed as a state Species of Concern, the osprey is still included in FWC's Imperiled Species Management Plan.

The probability of occurrence for each species is designated as low, moderate, or high based on the habitat requirements for each species, the presence of the habitat within the Action Area, and documented occurrence of the species within one mile of the Action Area. A low ranking indicates that there may be small quantities of suitable habitat available within the Action Area, but little sustaining resources, and the species has not been documented within one mile of the Action Area. A moderate ranking indicates that suitable habitat exists, and the species has been documented within one mile of the Action Area. A high ranking indicates that suitable habitat exists, and the species was observed during field reviews.

While the proposed project has taken all practicable measures to avoid and minimize impacts to potentially occurring protected species and their habitats, unavoidable impacts, although unlikely, may occur as a result of the improvements to Concourse A. A determination of the anticipated project “effect” on protected species was made based on their probability of occurrence within the Action Area, proposed changes to their habitat, and how each species is expected to respond to anticipated habitat changes. Descriptions for each species are provided below.

In addition to online data reviews and the most recent field review of the Action Area, the Wildlife Hazard Assessment (WHA) (May 2018) and the Sarasota Bradenton International Airport, Wildlife Hazard Management Plan (WHMP) (September 2018) were reviewed as part of this project. Based on the location of the observation areas used in the WHA, the closest Wildlife Survey Observation Points to the Action Area were S1, S2, S10, and L2. A map providing the location of the Wildlife Survey Observation Points from the WHA is provided as Figure 4 of Appendix A: Report Figures. While limited specific species location data was provided in the report during the wildlife hazard observations conducted between September 2016 to August 2017, the following protected and listed species were observed at least once: American kestrel, bald eagle, black skimmer, Florida burrowing owl, Florida sandhill crane, little blue heron, osprey, roseate spoonbill, tricolored heron, and wood stork (WHA: Table 5- Wildlife Species observed during the SRQ WHA: Pages 23-25). Due to the close proximity of these species to the Action Area, they have been included in Table 7 below and have been assigned a “moderate” Probability of Occurrence in the Action Area.

Listed Wildlife

Federally-Listed Species

While the Action Area is located in the USFWS Consultation Area for the Florida scrub jay (*Aphelocoma coerulescens*) (FT), Florida bonneted bat (*Eumops floridanus*) (FE), and the piping plover (*Charadrius melodus*) (FT), no suitable habitat is available in the Action Area for these species, none have been documented within one mile of the Action Area, and none were observed during WHA observations or during the most recent field review. In addition, the IPaC report states that the following species may be potentially affected by activities in the Action Area: Florida panther (*Puma concolor coryi*) (FE), West Indian manatee (*Trichechus manatus*) (FT), eastern black rail (*Laterallus jamaicensis*) (FT), Everglade snail kite (*Rostrhamus sociabilis plumbeus*) (FE), rufa red knot (*Calidris canutus rufa*) (FT), green sea turtle (*Chelonia mydas*) (FT), and Gulf sturgeon (*Acipenser oxyrinchus desotoi*) (FT). Although these species are listed in IPaC, none of these species were observed during field reviews and no habitat is available for these species in the Action Area. Based on this information, the proposed project should have “no effect” on these federally-listed species.

The eastern indigo snake (*Drymarchon corais couperi*) is listed as threatened by the USFWS. The indigo snake can be found in a variety of habitats including mesic flatwoods, swamps, wet prairies, xeric pinelands, and scrub areas. It may also utilize gopher tortoise burrows for shelter to escape hot or cold ambient temperatures within its range. Marginal suitable habitat is available for this species in the Action Area within overgrown vegetative areas located off-site in the Race Track land use area. Based on the review of FNAI data, no eastern indigo snakes have been documented within one mile of the Action Area within Manatee/Sarasota Counties. No eastern indigo snakes or gopher tortoise burrows were observed during the latest field reviews and none were observed during the WHA. As a result, the probability of occurrence of this species within the Action Area has been determined to be low. To minimize potential impacts, the most current version of the USFWS-approved Standard Protection Measures for the Eastern Indigo Snake will be implemented during construction of the project. A copy of the Standard Protection Measures is provided in Appendix D.

Based on the *Eastern Indigo Snake Programmatic Effect Determination Key (Revised July 2017)*, South Florida Ecological Service Office, the path to the determination is A>B>C>D>E> NLAA (A (Project is not located in open water or salt marsh) > B (Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake during site preparation and project construction > C (The project will impact less than 25 acres of eastern indigo snake habitat (e.g., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes.) > D (The project has known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped, or injured.) > E (Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of a burrow. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to the additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows, will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.) > NLAA). Based on the results of the Key, it has been determined that the proposed project is **"not likely to adversely affect"** the eastern indigo snake. A copy of the Effect Determination Key is provided in Appendix E.

The wood stork (*Mycteria americana*) is listed as threatened by USFWS. The wood stork is opportunistic and utilizes various habitat types, including forested wetlands, freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches. Water that is relatively calm, uncluttered by dense thickets of aquatic vegetation, and contains a permanent or seasonal water depth less than 16 inches is considered suitable foraging habitat for this species. Suitable habitat exists within the Action Area for this species and the Action Area is located within the 13-mile (Manatee County) and 18.6-mile (Sarasota County) core foraging area(s) (CFA) of three (3) active wood stork nesting colonies. While no wood storks were observed during the latest field review, they were observed during the WHA. Based on the results of the *USFWS South Florida Programmatic Concurrence for the Wood Stork (May 18, 2010)* effect determination key, the path to the effect determination is A>No Effect. Because the preferred concourse and parking alternatives will not impact suitable foraging habitat (SFH) for the wood stork, the project should have "no effect" on the wood stork. A figure showing the location of the wood stork colonies surrounding the Action Area is provided as Figure 5 of Appendix A: Report Figures. A copy of the Wood Stork Effect Determination Key is provided in Appendix F.

While the monarch butterfly (*Danaus plexippus*) is not currently state or federally-listed, the species has been a candidate species under the Endangered Species Act (ESA) since December 2020. This status is the result of extensive research by the USFWS, with annual reviews being conducted until a listing decision is made. The Action Area is located within the species' migration route as they return south in autumn and portions of the ditches outside the airport contain vegetated edges that may support *Asclepias* species that the monarch butterfly uses for laying eggs. According to FNAI, there have been no documented occurrences of this species within one mile of the Action Area and no individuals were observed during field reviews; therefore, the potential for occurrence is low. While marginal habitat is located along vegetated ditches in the Action Area, no individuals have been documented within one mile of the Action Area, so **the anticipated effect determination is "no effect"** for this species. If this species becomes listed prior to construction, further evaluation for impacts will be performed based on the guidance provided and consultation will occur with the USFWS, if warranted.

State-Listed Species

The gopher tortoise (*Gopherus polyphemus*) is listed as threatened by the FWC. The gopher tortoise requires well-drained, loose sandy soils for burrowing, and low-growing herbs and grasses for foraging. These conditions can be found in upland areas within the Action Area. According to FNAI, no gopher tortoises have been documented within one mile of the Action Area. No burrows were observed within the Action Area during the field review or during the latest WHA. As a result, the probability of occurrence of gopher tortoises within the Action Area has been determined to be low. Based on this information, it has been determined that **"no effect is anticipated"** for the gopher tortoise.

The Florida sandhill crane (*Grus canadensis pratensis*) is listed as threatened by the FWC. The sandhill crane is associated with shallow freshwater areas, pasture, and open woods habitats. Habitats such as wet and dry prairies, marshes, and marshy

lake margins are preferred. The primary concern for impacts to the Florida sandhill crane is the loss of nesting habitat (i.e., shallow water wetlands). Suitable foraging habitat for this species is available in the Action Area within the mowed open areas and individuals were documented during the latest WHA. No nesting habitat is available in the Action Area for this species. Since open areas will remain after construction for foraging and no marsh vegetation typically used for nesting should be affected, **“no adverse effect is anticipated”** for the Florida sandhill crane.

The Florida burrowing owl (*Athene cunicularia floridana*) is listed as threatened by the FWC. This species inhabits open areas that offer an expanse of short, herbaceous groundcover such as prairies, sandhills, and farmland. Within the Action Area, suitable habitat for this species is available within the open land areas of the airport. While no individuals or burrows were observed during the latest field review, burrowing owls were documented at the airport during the WHA. Because owls and/or burrows were observed during the WHA, pre-construction surveys will be completed in appropriate habitats. If any burrows are observed, the Airport will coordinate with the FWC. Based on this information, **“no adverse effect is anticipated”** for the Florida burrowing owl.

The little blue heron (*Egretta caerulea*), reddish egret (*Egretta rufescens*), tricolored heron (*Egretta tricolor*), and roseate spoonbill (*Platalea ajaja*) are wading bird species listed as threatened by FWC. These species are discussed collectively due to their similarity in feeding and nesting patterns. While no wetland habitats are located within the Action Area, the Action Area does contain wet ditches and canals which are considered suitable foraging habitat for these species. In addition, while none of these species were observed during the latest field review, each of the species (with the exception of the reddish egret) was observed during the latest WHA. The probability of occurrence is moderate for the observed species and low for the reddish egret. The non-preferred alternatives would have minor impacts to OSWs 1, 7, and 8, but these species have the ability to forage in adjacent waters and the impacts would not result in a total loss of suitable foraging habitat. The preferred alternative will have no impact to surface waters or other suitable foraging habitat; therefore, **“no adverse effect is anticipated”** for the little blue heron, tricolored heron, and the roseate spoonbill and **“no effect is anticipated”** for the reddish egret.

The southeastern American kestrel (*Falco sparverius paulus*) is listed as threatened by the FWC. This species prefers woodlands, pastures, open lands, residential, and agricultural areas. Marginal suitable foraging habitat is available for this species within open upland areas of the Action Area. While no individuals were observed during the latest field review, kestrels were documented onsite during the WHA. Because the majority of trees in the Action Area are ornamental, they are not considered suitable nesting habitat for the kestrel. This species prefers to nest in dead oak and pine trees (snags) that contain holes created by woodpecker species. Because open areas will remain available for foraging after construction and no snags used for nesting are located in the Action Area, **“no adverse effect is anticipated”** for the southeastern American kestrel.

The black skimmer (*Rynchops niger*) is listed as threatened by the FWC. This species can be found in coastal waters, including beaches, bays, estuaries, sandbars, tidal creeks (foraging), and also in inland waters of large lakes, phosphate pits, and flooded agricultural fields. The black skimmer nests primarily on sandy beaches, small coastal islands, dredge spoil islands, and gravel rooftops. At the time of the field review, no individuals were observed in the Action Area; however, black skimmers were observed at the airport during the latest WHA. Because the black skimmer has been documented onsite, it was assigned a moderate probability of occurrence. The non-preferred alternatives would have minor impacts to OSWs 1, 7, and 8, but this species has the ability to forage in adjacent waters. The preferred alternative will have no impacts to surface waters or other suitable foraging habitat; therefore, **“no adverse effect is anticipated”** for the black skimmer.

The least tern (*Sternula antillarum*) is listed as threatened by the FWC. This species can be found in coastal areas throughout Florida, including beaches, lagoons, bays, and estuaries. Least terns have also been known to use artificial nesting sites, including gravel rooftops, dredge spoil islands or other dredged material deposits, construction sites, causeways, and mining lands. At the time of the field review, no individuals were observed in the Action Area; however, least terns were observed at the airport during the latest WHA. The non-preferred alternatives would have minor impacts to OSWs 1, 7, and 8, but this species has the ability to forage in adjacent waters. The preferred alternative will have no impacts to surface waters or other suitable foraging habitat; therefore, **“no adverse effect is anticipated”** for the least tern.

Other Protected Species

Although the bald eagle (*Haliaeetus leucephalus*) has been removed from Federal and state listings, it is still protected by the Bald and Golden Eagle Protection Act in accordance with 16 United States Code 668 and the Migratory Bird Treaty Act (MBTA) in accordance with 16 United States Codes 703-712. The bald eagle typically uses riparian habitat associated with coastal areas, lake shorelines, and riverbanks. The nests are generally located near water bodies that provide a dependable food source. The Audubon Florida Eagle Watch nest locator website indicates there are three (3) documented nests within a one (1) mile buffer of the Action Area. The closest documented nests are MN009 and MN959 which are located approximately 0.57 miles (~3,010 feet) and 0.45 miles (~2,376 feet) west and northwest, respectively, of the Action Area. MN959 was occupied and MN009 nest status was unknown for 2024. The USFWS Bald Eagle Monitoring Guidelines state that “human activities... have the potential to cause disturbance within 660 feet of an active nest.” The primary buffer (330 feet) and secondary buffer (660 feet) were established to safeguard nests, eggs, nestlings, and adult eagles against harassment, disturbance, or destruction during adjacent construction projects and other human related activities. Because no eagle nests are located within 660 feet of the Action Area, the project should have **“no effect”** on the bald eagle.

The osprey (*Pandion haliaetus*) has been removed from state listings, but is still protected by the Migratory Bird Treaty Act in (MBTA) accordance with 16 United States Codes 703-712. The osprey typically uses riparian habitat associated with coastal areas, lake shorelines, and riverbanks. The nests are generally located near waterbodies that provide a dependable food source. The WHA previously documented an osprey nest back in 2018, but no ospreys or osprey nests were observed during the field review. Therefore, the proposed project should have **“no effect”** on the osprey.

In accordance with 16 United States Codes 703-712, the Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, barter, purchase, ship, export, import, or transport migratory birds, bird parts, nests, or eggs of birds that are protected under the Act without prior authorization by the USFWS. The MBTA was enacted in 1918 with the latest revision in 2023. Based on the IPaC report for the Action Area provided in Appendix C, numerous avian species protected by the MBTA have the potential to be located in the Action Area. During the review of the Action Area, the project was reviewed for impacts covered by the MBTA. While no nests were observed during the field review, the Sarasota Manatee Airport Authority will make the commitment to survey trees suitable for nesting and other potential nesting structures prior to demolition. Because no nests were observed during the field review, no adverse impacts to species protected under the MBTA are anticipated.

Listed Plant Species

A review of FNAI data indicates that five (5) state-listed plant species have the potential to occur in the Action Area: Sanibel lovegrass (*Eragrostis pectinacea* var. *tracyi*), Edison's ascyrum (*Hypericum edisonianum*), lowland loosestrife (*Lythrum flagellare*), sleeping beauty waterlily (*Nymphaea jamesoniana*), and St. John's black-eyed susan (*Rudbeckia nitida*). Each of these species can be found in ponds, along pond margins, in roadside ditches, or in disturbed sites. Although marginal suitable habitat is located in the Action Area for these species, ponds, pond margins and ditches are maintained to discourage use by wildlife and disturbed areas are heavily used by vehicles, so the probability of occurrence is low.

A review of IPAC data states that three (3) federally-listed plant species: the aboriginal prickly-apple (*Harrisia aboriginum*), pygmy fringe-tree (*Chionanthus pygmaeus*), and the Florida perforate cladonia (*Cladonia perforata*) have the potential to occur in the Action Area; however, these three species require scrub habitat which is not available in the Action Area. The Action Area is completely developed and consists of airport facilities, green spaces that are mowed and maintained with ornamental landscaping, parking areas that are frequented by high traffic, or areas that have been subjected to demolition (e.g., former Race Track site). Because none of these species were identified during the field reviews and no individuals have been documented within one mile of the Action Area, the project should have **“no effect”** on federally-listed plant species and **“no effect is anticipated”** for state-listed plant species.

Critical Habitat

The Action Area was evaluated for the occurrence of critical habitat as defined by the Endangered Species Act of 1973, as amended, and 50 CFR Part 424. The USFWS is the authority, as a federal agency, to protect from destruction or adverse

modification of the biological or physical constituent elements essential to the conservation of listed species. Critical Habitat is defined as the specific areas within the geographical area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection. No Critical Habitat for any federally-listed species was identified within the Action Area. Therefore, no potential impacts to critical habitat are proposed or expected.

WETLANDS, SURFACE WATERS, AND OTHER SURFACE WATERS

During the field reviews, the extent and types of wetlands, surface waters, and other surface waters within the Action Area were documented, evaluated, and delineated in accordance with:

- Chapter 62-340, Florida Administrative Code (F.A.C.), *Delineation of the Landward Extent of Wetlands and Surface Waters*;
- FDOT, Florida Land Cover Classification System (FLUCFCS) (1999);
- U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (1987) and *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (2010); and
- USFWS, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al. 2013).

Existing Wetlands, Surface Waters, and Other Surface Waters

During the field review, eight (8) other surface water (OSWs) were identified within the Action Area. No wetlands or natural surface waters were observed. The OSWs were identified as either excavated ditches/canals or reservoirs. Table 8 provides a tabular summary of each of the OSW's acreage within the Action Area. There are no wetlands or surface waters designated as Outstanding Florida Waters (OFWs) within the Action Area. The location of the OSWs is shown on Figure 6 in Appendix A: Report Figures.

Table 8: Other Surface Waters (OSW) within the Action Area

Other Surface Water (OSW) Identification	FLUCFCS ¹	FNAI ² Description	USFWS ³ Classification	Acres in the Action Area
Other Surface Waters				
OSW 1	510-Streams and Waterways	Canal/Ditch	R2UB3Ex	0.80
OSW 2	530-Reservoirs	Impoundment	PUB3Hx	0.06
OSW 3	510-Streams and Waterways	Canal/Ditch	R2UB3Ex	0.15
OSW 4	510-Streams and Waterways	Canal/Ditch	R2UB3Ex	0.10
OSW 5	510-Streams and Waterways	Canal/Ditch	R2UB3Ex	0.12
OSW 6	530-Reservoirs	Impoundment	PUB3Hx	0.38
OSW 7	530- Reservoirs	Impoundment	PUB3Hx	1.49
OSW 8	510-Streams and Waterways	Canal/Ditch	R2UB3Ex	0.05
Total Other Surface Waters				3.15

(1) Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System Handbook (FLUCFCS) (Third Edition, 1999)

(2) Florida Natural Areas Inventory (FNAI), Cooperative Land Cover to FNAI Natural Community Crosswalk Table (2022)

(3) U.S. Fish and Wildlife Service (USFWS), *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et. al., 1979)

OSW 1, 3, 4, 5, and 8

FLUCFCS: 510-Streams and Waterways

USFWS Classification: R2UB3Ex (Riverine, Lower Perennial, Unconsolidated Bottom, Mud, Seasonally Flooded/Saturated; Excavated)

OSW 1, 3, 4, 5, and 8 includes ditches and canals that are located in the Action Area. OSW 1 is located in the center and northern portion of the old Race Track at the southern portion of the Action Area. A portion of this area is historically underlain by hydric soils and standing water was present at the time of the latest field review. This canal system was vegetated and appeared to be unmaintained at the time of the field review.

OSWs 3, 4, and 5 are located in the southeastern portion of the Action Area on the eastern side of Airport Circle. These OSWs are mowed and maintained ditches that contain Bermuda and bahia grasses. The systems did not contain standing water at the time of the latest field review. This area is not underlain by hydric soils.

OSW 8 is located in the northwestern portion of the Action Area north of the Bradenton Connector. This area consists of a small, vegetated drainage ditch that is located adjacent to a parking lot. The system is mowed and maintained when dry. This area is not underlain by hydric soils.

OSW 2, 6, and 7

FLUCFCS: 530-Reservoirs

USFWS Classification: PUB3Hx (Palustrine, Unconsolidated Bottom, Mud, Permanently Flooded, Excavated)

OSW 2 is a portion of a reservoir (stormwater pond) located on the east side of the Race Track land use in the southeastern portion of the Action Area. The pond contained cattails at the time of the inspection and appeared to be unmaintained due to the demolition of the Race Track infrastructure. The pond area located in the Action Area is not underlain by hydric soils but contained standing water at the time of the latest field review.

OSW 6 is a portion of a reservoir (stormwater pond) located on the west side of the Airport Circle in the southwestern portion of the Action Area. The pond edges were mowed and maintained at the time of the inspection and a small amount of wetland vegetation was present in the pond. A portion of the pond area located in the Action Area is underlain by hydric soils and contained standing water at the time of the latest field review.

OSW 7 is a portion of a reservoir (stormwater pond) located on the west side of the Action Area north of the Bradenton Connector. This pond is located in close proximity to the infield and terminal of the airport. The pond edges were mowed and maintained at the time of the inspection and no wetland vegetation was present in the pond. This area is not underlain by hydric soils but contained standing water at the time of the latest field review.

OTHER SURFACE WATER IMPACTS

The Action Area was assessed for potential impacts to wetlands, surface waters, and other surface waters. Although no wetlands and surface waters were observed in the Action Area, eight (8) other surface waters (OSWs) are located in the Action Area. Three of the alternatives have proposed direct impacts to other surface waters (OSWs). The following impacts are summarized for the Concourse Expansion Alternative and Terminal Parking Expansion Alternatives in Table 9 below. Because these impact areas consist of an upland cut ditches/canals and reservoirs (stormwater ponds), no mitigation is anticipated or proposed. The location of the proposed impacts to OSW 1, 7, and 8 is shown on Figure 6 in Appendix A: Report Figures.

Table 9: Other Surface Waters (OSW) Impacts within the Action Area

Other Surface Water (OSW) Identification	FLUCFCS ¹	Alternative	USFWS ³ Classification	Acres in the Action Area	Acres of Impact
Other Surface Waters					
OSW 1	510-Streams and Waterways	Terminal Parking Expansion, ALT 3	R2UB3Ex	0.80	0.24
OSW 7	530- Reservoirs	Terminal Parking Expansion, ALT 2	PUB3Hx	1.49	0.59
OSW 8	510-Streams and Waterways	Concourse Expansion, ALT 3	R2UB3Ex	0.05	0.05
Total Other Surface Waters				2.34	0.88

(1) Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System Handbook (FLUCFCS) (Third Edition, 1999)

(2) Florida Natural Areas Inventory (FNAI), Cooperative Land Cover to FNAI Natural Community Crosswalk Table (2022)

(3) U.S. Fish and Wildlife Service (USFWS), Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979)

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended through October 11, 1996, requires the regional Fishery Management Councils and the Secretary of Commerce to describe and identify EFH for species under federal Fishery Management Plans. EFH is defined in the Magnuson-Stevens Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”

The Action Area is located in the southwest portion of central Florida and OSWs identified in the Action Area are freshwater systems that are not tidally influenced, marine, or estuarine environments. No potential impacts to EFH are proposed or expected. Therefore, the requirements of the Magnuson-Stevens Fishery Conservation and Management Act are not applicable to this project.

PERMIT REQUIREMENTS

Based upon the preferred project alternatives, construction is anticipated to require an Environmental Resource Permit (ERP) permit modification from the Southwest Florida Water Management District (SWFWMD). A Standard 404 permit from the U.S. Army Corps of Engineers (USACE) is not anticipated. A National Pollutant Discharge Elimination System (NPDES) permit is also anticipated. This permit requires the implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction.

A Sovereign Submerged Lands authorization is not anticipated to be required from the Florida Department of Environmental Protection (FDEP).

Depending on the type of permit required from the SWFWMD, the permitting process, if required, typically ranges from 90 to 210 days.

CONCLUSIONS

While the Action Area is located in the USFWS Consultation Area for the Florida scrub jay, Florida bonneted bat, and the piping plover, no suitable habitat is available in the Action Area for these species; therefore, the project should have “**no effect**” on these federally-listed species. In addition, the IPaC report states that the Florida panther, West Indian manatee, eastern black rail, Everglade snail kite, rufa red knot, green sea turtle, and Gulf sturgeon have the potential to be located in the Action Area; however, no habitat is available for these species. Based on this information, the project should have “**no effect**” on these federally-listed species.

While suitable habitat is present, it has been determined the project should have **“no effect”** on the wood stork, bald eagle, osprey, pygmy fringe-tree, Florida perforate cladonia, and the Aboriginal prickly apple. A **“not likely to adversely affect”** determination has been assigned to the eastern indigo snake. A **“no effect” anticipated determination** has been assigned for the monarch butterfly. If this species becomes listed prior to construction, further evaluation for impacts will be performed based on the guidance provided and consultation will occur with the USFWS, if warranted. **“No effect anticipated”** has been assigned to the state-listed gopher tortoise, reddish egret, Sanibel lovegrass, Edison’s ascyrum, lowland loosestrife, sleeping beauty waterlily and St. John’s black-eyed susan. “No adverse effect anticipated” has been assigned to the Florida sandhill crane, Florida burrowing owl, little blue heron, tri-colored heron, southeastern American kestrel, roseate spoonbill, black skimmer, and least tern due to sightings on the airport property during the WHA. To minimize potential impacts, the most current version of the USFWS-approved Standard Protection Measures for the Eastern Indigo Snake will be implemented during construction of the project.

At the present time, 0.24 acre of impacts to OSW 1, 0.59 acres of impacts to OSW 7, and 0.05 acres of impacts to OSW 8 are proposed for three of the seven project alternatives, but mitigation is not anticipated to be required. The Preferred Alternatives for the Concourse Expansion and the Terminal Parking Expansion should not impact wetlands or surface waters. The final amount of impacts will be identified, and any mitigation will be determined during the design and permitting phases of the project.

No Critical Habitat or Essential Fish Habitat are located in the Action Area; therefore, no impacts are proposed or expected.

A Sovereign Submerged Lands authorization is not anticipated to be required from the FDEP.

The project is anticipated to require an ERP permit modification from the SWFWMD, a National Pollutant Discharge Elimination System (NPDES) Permit from the FDEP, and the implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction. A Standard 404 permit from the USACE is not anticipated to be required.

REFERENCES

- Audubon Center for Birds of Prey. EagleWatch Program Website. National Audubon Society. (<https://cbop.audubon.org/conservation/about-eaglewatch-program>).
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Revised 2013. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services. Technical Publication FWS/OBS-79/31. 131 pp.
- Florida Administrative Code, 1994. Chapter 62-340, F.A.C. Delineation of the Landward Extent of Wetlands and Surface Waters. (<https://www.flrules.org/gateway/chapterhome.asp?chapter=62-340>).
- Florida Department of Agriculture and Consumer Services (FDACS). Florida Statewide Endangered and Threatened Plant Conservation Program (2025).
- Florida Department of Environmental Protection (FDEP). Wood Stork Nesting Colonies Maps. (Florida Wood Stork Foraging Areas | Florida Department of Environmental Protection Geospatial Open Data).
- Florida Department of Transportation (FDOT). Florida Land Use, Cover and Forms Classification System Handbook. 3rd Edition (FDOT 1999). 91 pp.
- Florida Fish and Wildlife Conservation Commission (FWC). Florida's Endangered Species, Threatened Species 12 pp.
- Florida Fish and Wildlife Conservation Commission pursuant to Rules 68A-27.003 through 68A-27.005, F.A.C. (<http://myfwc.com/wildlifehabitats/imperiled/>).
- FWC, Fish and Wildlife Research Institute. Wading Bird Colonies Florida database (http://ocean.floridamarine.org/TRGIS/Description_Layers_Terrestrial.htm).
- Florida Department of Environmental Protection (FDEP). Florida Land Use, Cover and Forms Classification System GIS Database. Statewide Land Use. 2017-2023.
- Florida Natural Areas Inventory (FNAI), Biodiversity Matrix Map Server (<http://www.fnai.org/biointro.cfm>).
- Florida Natural Areas Inventory. Element Occurrence Data Report (<http://www.fnai.org/trackinglist.cfm>).
- Hurt, Wade. 2007. Hydric Soils of Florida Handbook, Fourth Edition. Florida Association of Environmental Soil Scientists. Gainesville, Florida. 223 pp.
- Quinton, B. et al., Environmental Science Associates (ESA), Sarasota Bradenton International Airport, Wildlife Hazard Assessment. May 2018.
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Plain Region (Version 2.0) (ERDC/EL TR-10-20). U.S Army Corps of Engineers.
- Sarasota Bradenton International Airport. Wildlife Hazard Management Plan. Exhibit 11 of the Airport Certification Manual, September 2018.
- U.S. Department of Agriculture (USDA). Natural Resource Conservation Service (NRCS). Web Soil Survey. (<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>).
- U.S. Fish and Wildlife Service (USFWS). Bald Eagle Monitoring Guidelines (Revision of Bald Eagle Monitoring Guidelines Issued September 2006). September 2007.
- USFWS. Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, *et al.*, 2013).
- USFWS. Environmental Conservation Online System (ECOS), Information for Planning and Consultation (IPaC). (ECOS: Home)

USFWS. Critical Habitat Portal website (<http://criticalhabitat.fws.gov/crithab/>).

USFWS. Endangered and Threatened Wildlife and Plants. 50 CFR 17.11 and 17.12.

USFWS. National Wetlands Inventory. Wetlands Online Mapper. Accessed April 2025.

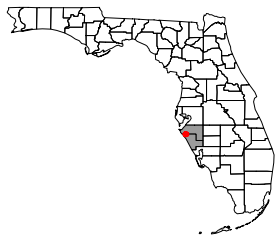
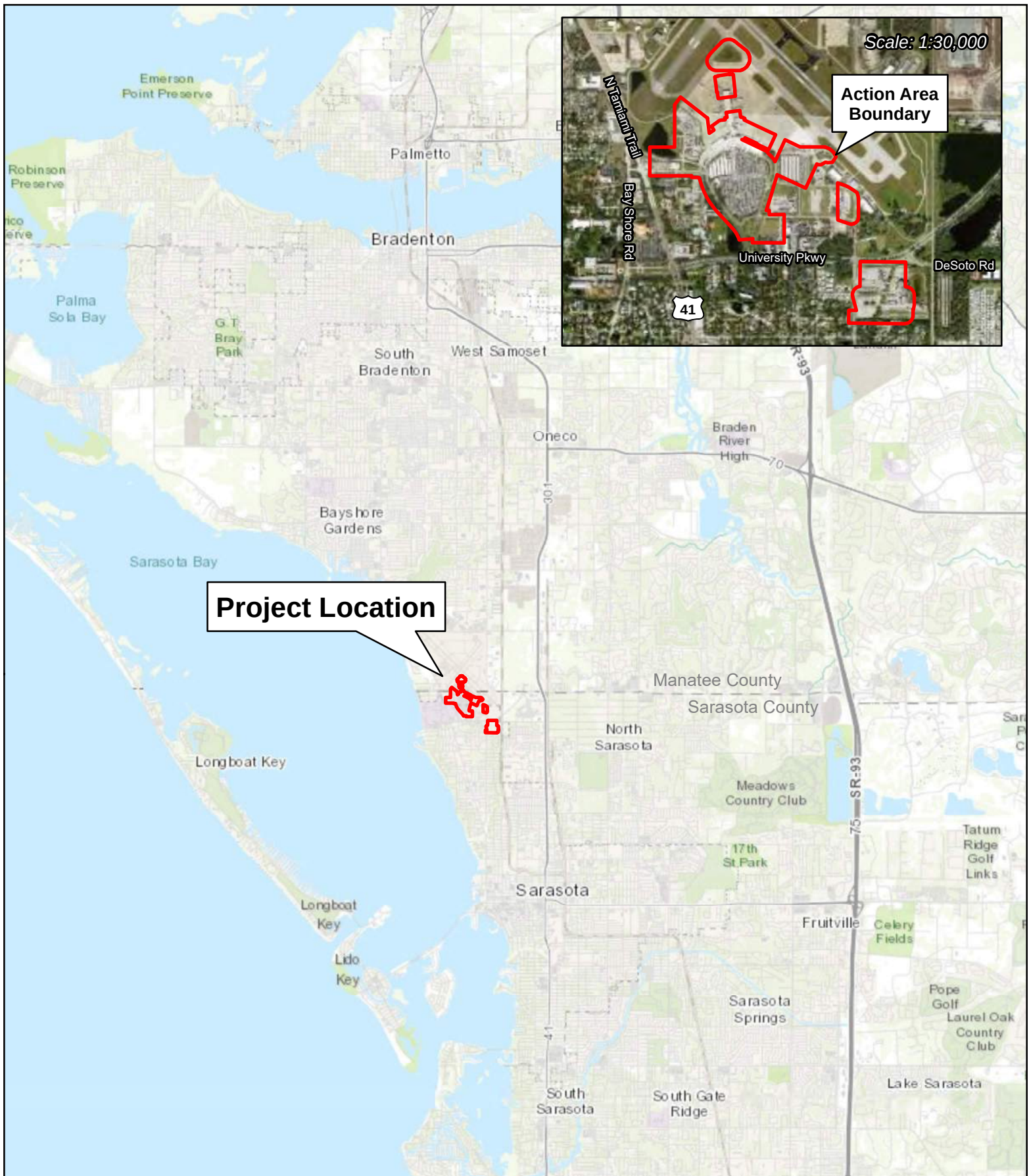
U.S. Geological Survey (USGS) 7.5 Minute Topographic quadrangle maps, Bradenton, FL, 2024.

Wunderlin, R. P., B. F. Hansen, A. R. Franck, and F. B. Essig. 2021. Atlas of Florida Plants (<http://florida.plantatlas.usf.edu/>).
[S. M. Landry and K. N. Campbell (application development), USF Water Institute.] Institute for Systematic Botany,
University of South Florida, Tampa, Florida.



Appendices

APPENDIX A



Scale: 1:150,000
Date: 5/7/2025

0 1 2 4 Miles

Figure 1: Project Location Map

Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03



Legend

- Action Area
- Soil Type Boundaries
- Hydric Soil Overlay

Source: USDA NRCS
Scale: 1:8,000
Date: 5/7/2025



0 250 500 1,000
Feet

Figure 2: NRCS Soils Map
Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03



Legend

Action Area

FLUCFCS Descriptions

 (120) Residential, Medium Density	 (530) Reservoirs
 (140) Commercial and Services	 (811) Airports
 (183) Race Tracks	 (814) Roads and Highways
 (510) Streams and Waterways	

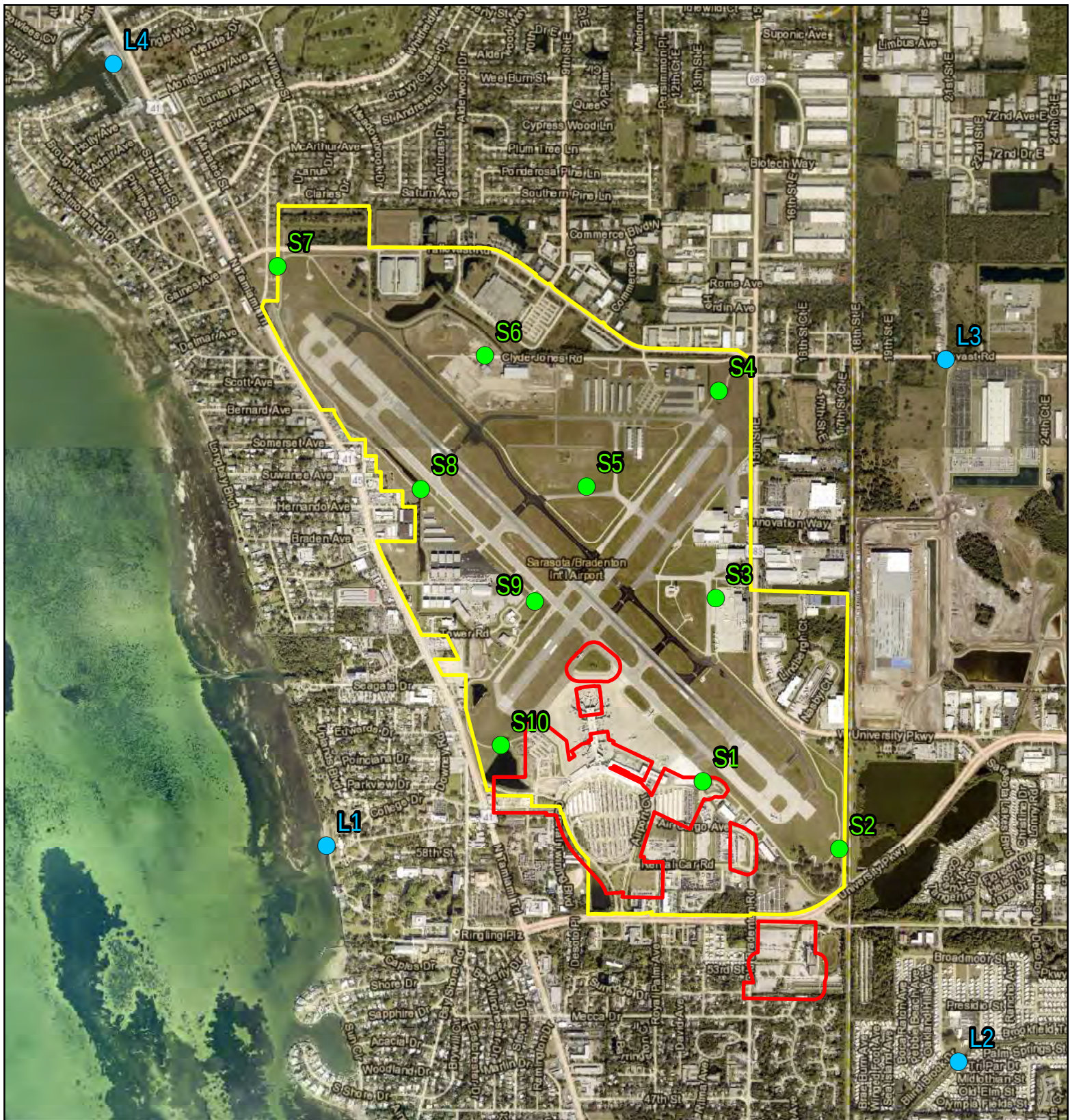
Figure 3: Land Use and Vegetative Cover Types Map

Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03

0 250 500 1,000
Feet

Source: FDOT, SCPA
Scale: 1:8,000
Date: 5/7/2025





Legend

- Airside Points
- Landside Points
- Action Area
- KSRQ Boundary

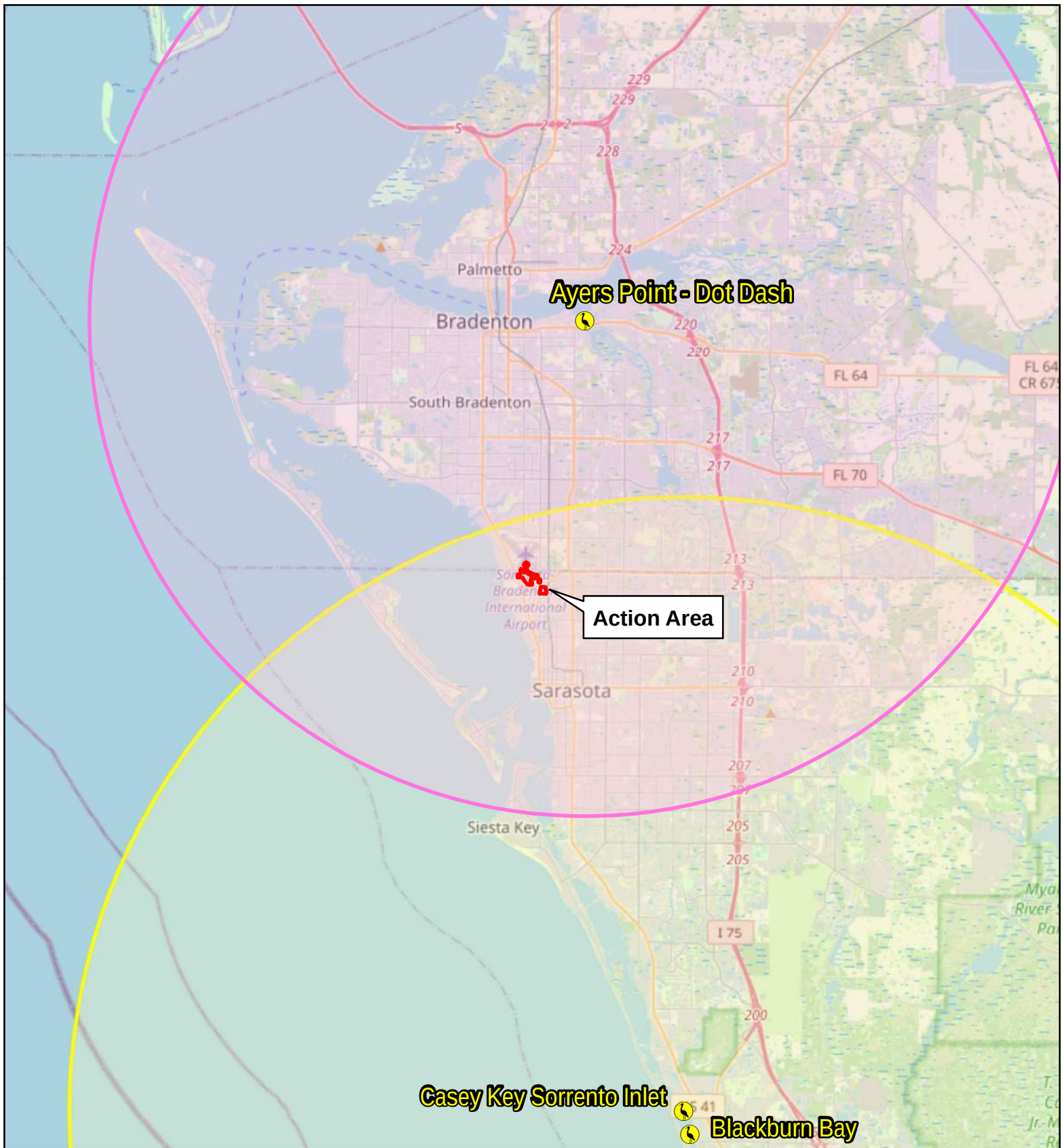
Figure 4: Wildlife Survey Observation Points Map

Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03

Source: Sarasota Bradenton International Airport
Wildlife Hazard Assessment (Fig. 9, Pg. 12)
Scale: 1:22,000
Date: May 2018

0 1,000 2,000 4,000
Feet





Legend

-  Active Wood Stork Nesting Colonies (2010-2019)
-  Action Area
-  15-mile Core Foraging Area Buffer (Central Florida)
-  18.6-mile Core Foraging Area Buffer (South Florida)

Source: FWS
Scale: 1:250,000
Date: 5/7/2025



0 1 2 4
Miles

Figure 5: Active Wood Stork Nesting Colonies Map

Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03



Legend

- Action Area
- Approximate OSW Impacts

FLUCFCS Descriptions

- (510) Streams and Waterways
- (530) Reservoirs

Source: FDOT
Scale: 1:8,000
Date: 7/10/2025

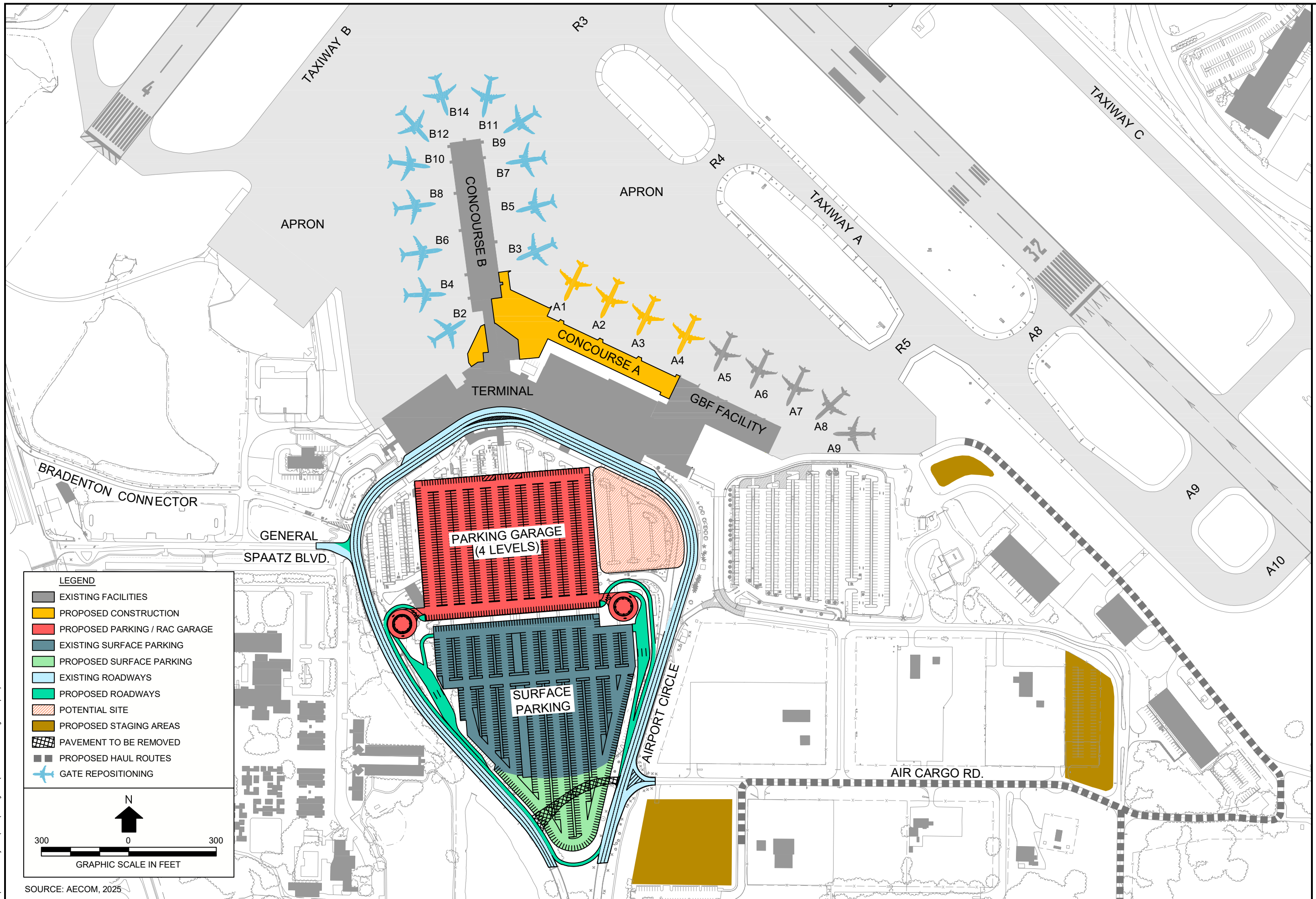


0 250 500 1,000
Feet

Figure 6: Other Surface Waters Impacts Map

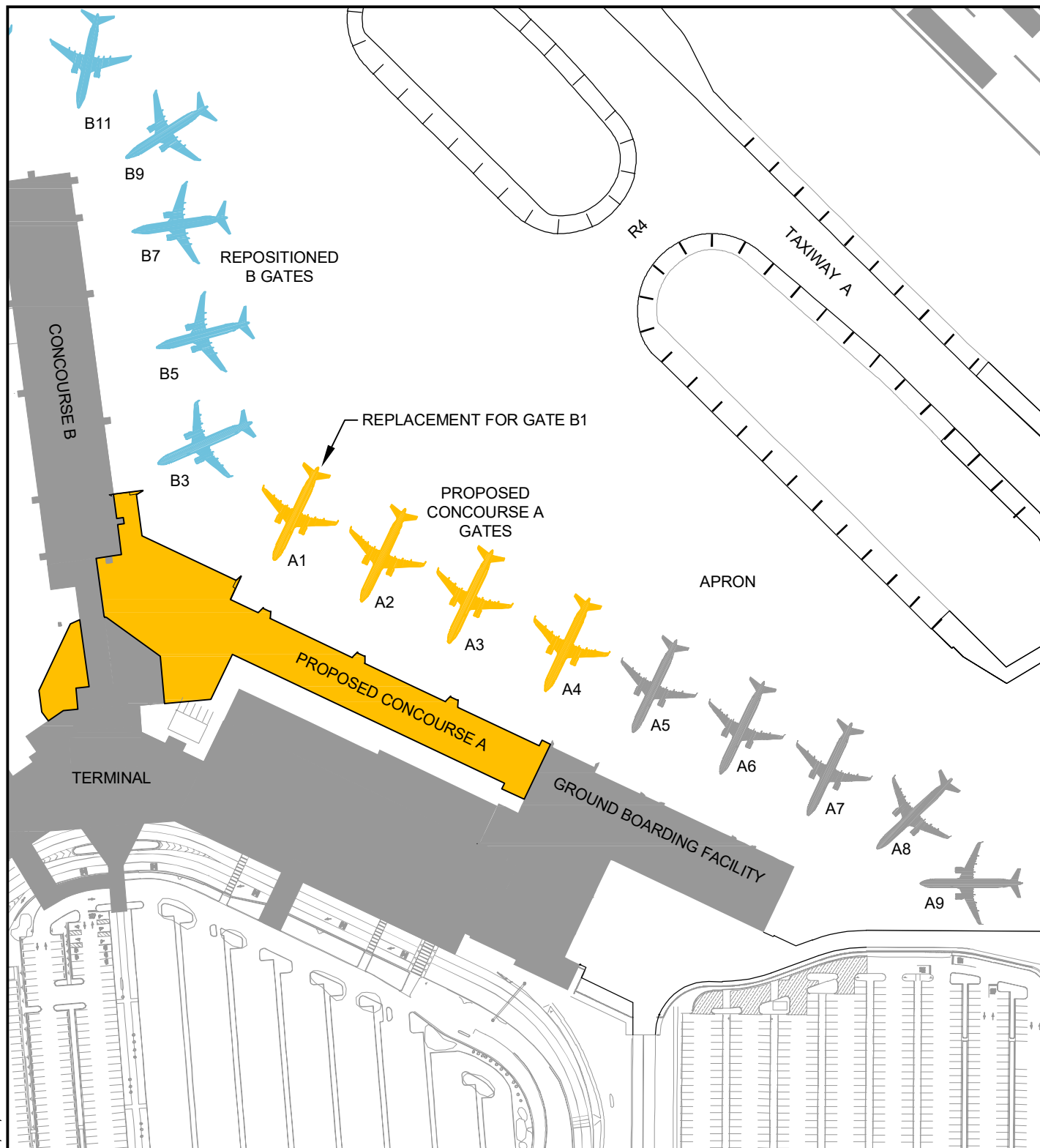
Concourse A Expansion Project
Sarasota Manatee Airport Authority
PN: 60743782 / Task 03

APPENDIX B



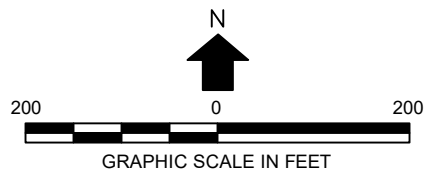
SOURCE: AECOM, 2025

D:\Civil 3D Projects\SRQ\EA Figures\FIG 3.2-1.dwg 01/30/2025 16:00



LEGEND	
	EXISTING FACILITIES
	PROPOSED CONSTRUCTION
	GATE REPOSITIONING

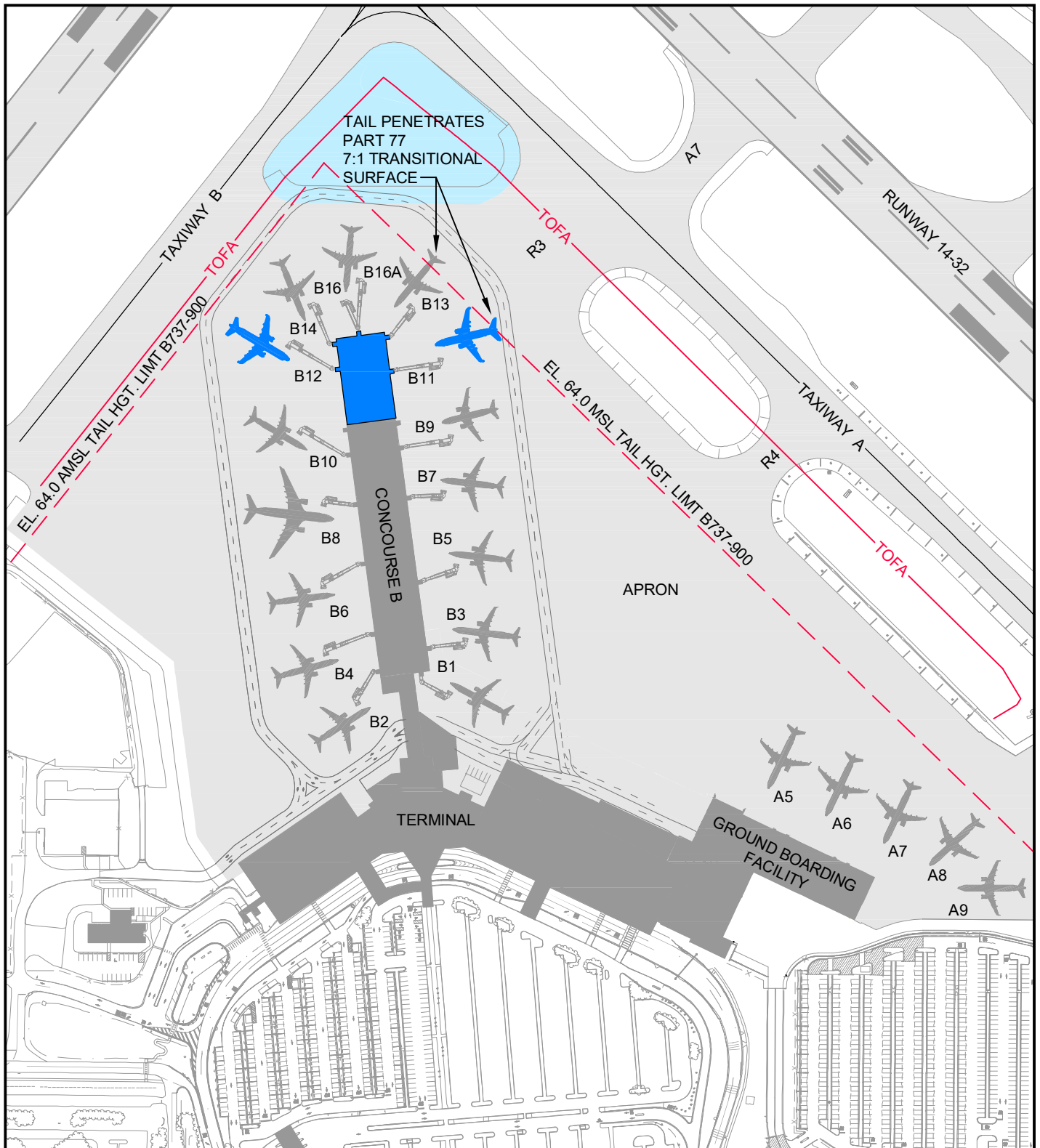
Source: AECOM, 2025



SARASOTA BRADENTON
INTERNATIONAL AIRPORT

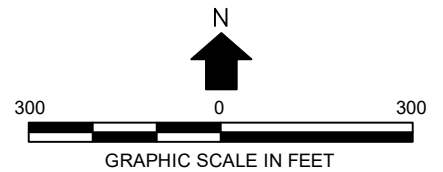
ALTERNATIVE 1
CONSTRUCT CONCOURSE A

FIGURE
3.2-1



LEGEND	
	EXISTING FACILITIES
	PROPOSED CONSTRUCTION
	PROPOSED APRON EXPANSION
	TOFA TAXIWAY OBJECT FREE AREA
	B737-900 TAIL HEIGHT LIMIT LINE
	NEW GATE

Source: AECOM, 2025



ALTERNATIVE 2 - EXPAND EXISTING CONCOURSE B

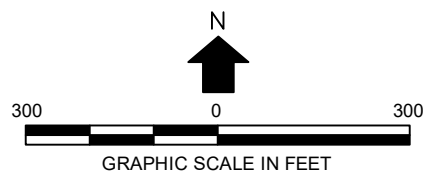
FIGURE 3.2-2

D:\Civil 3D Projects\SRQ\EA Figures\FIG 3.2-3.dwg 01/31/2025 15:23



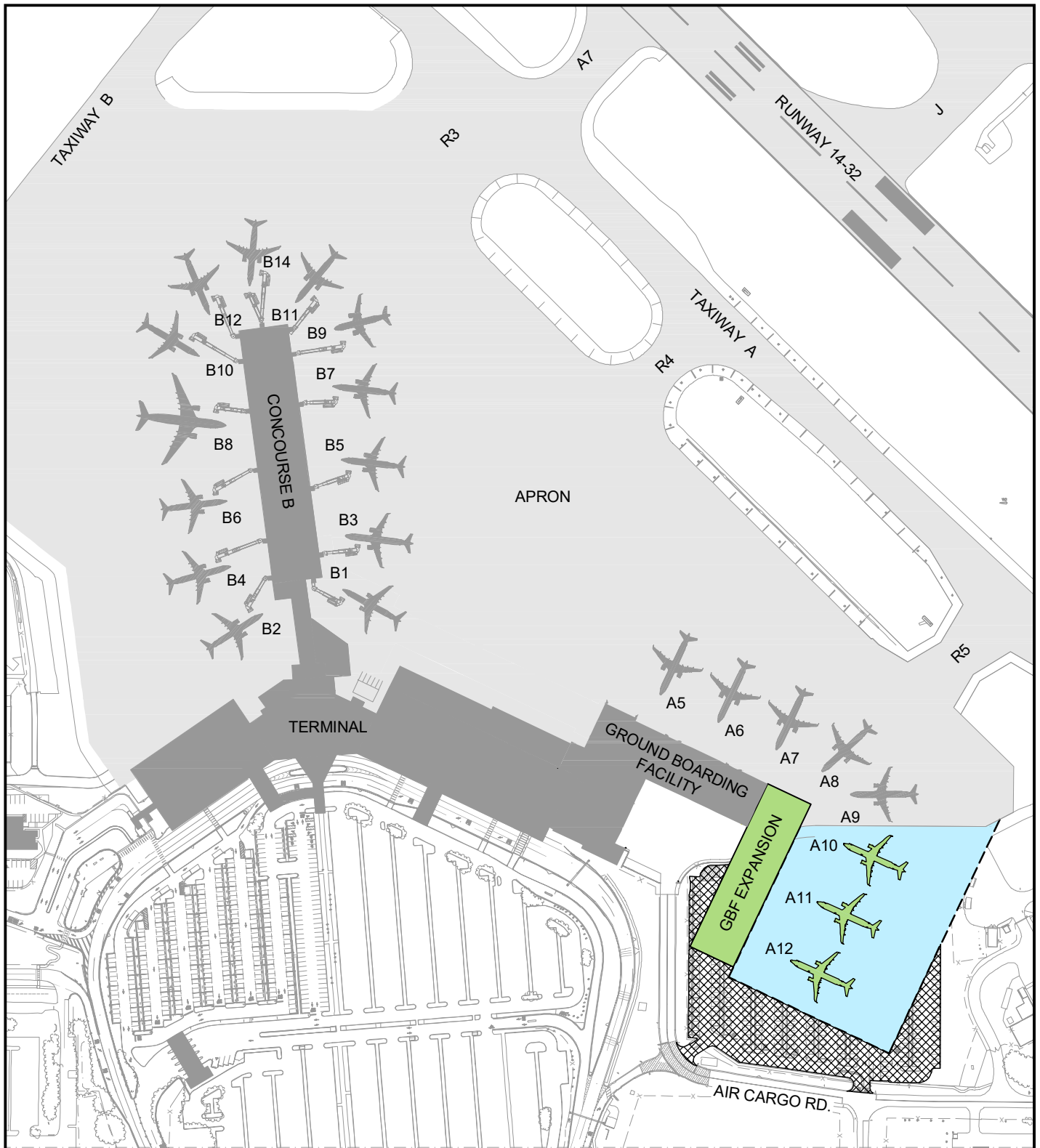
LEGEND			
	EXISTING FACILITIES		PROPOSED APRON EXPANSION
	PROPOSED CONSTRUCTION		PAVEMENT / BUILDING TO BE REMOVED

Source: AECOM, 2025



ALTERNATIVE 3 CONSTRUCT CONCOURSE C

FIGURE
3.2-3



LEGEND			
	EXISTING FACILITIES		PROPOSED APRON EXPANSION
	PROPOSED CONSTRUCTION		PAVEMENT TO BE REMOVED

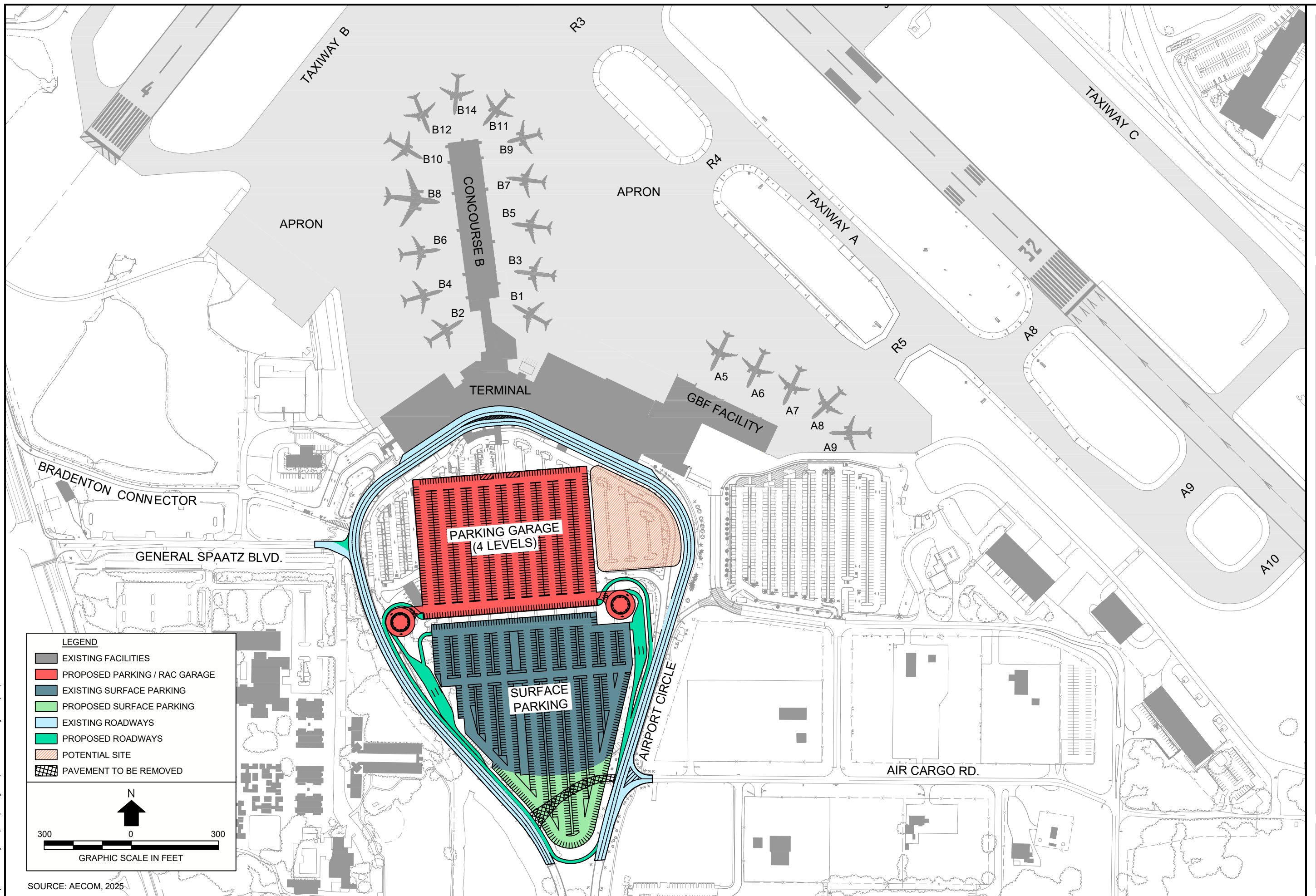
Source: AECOM, 2025

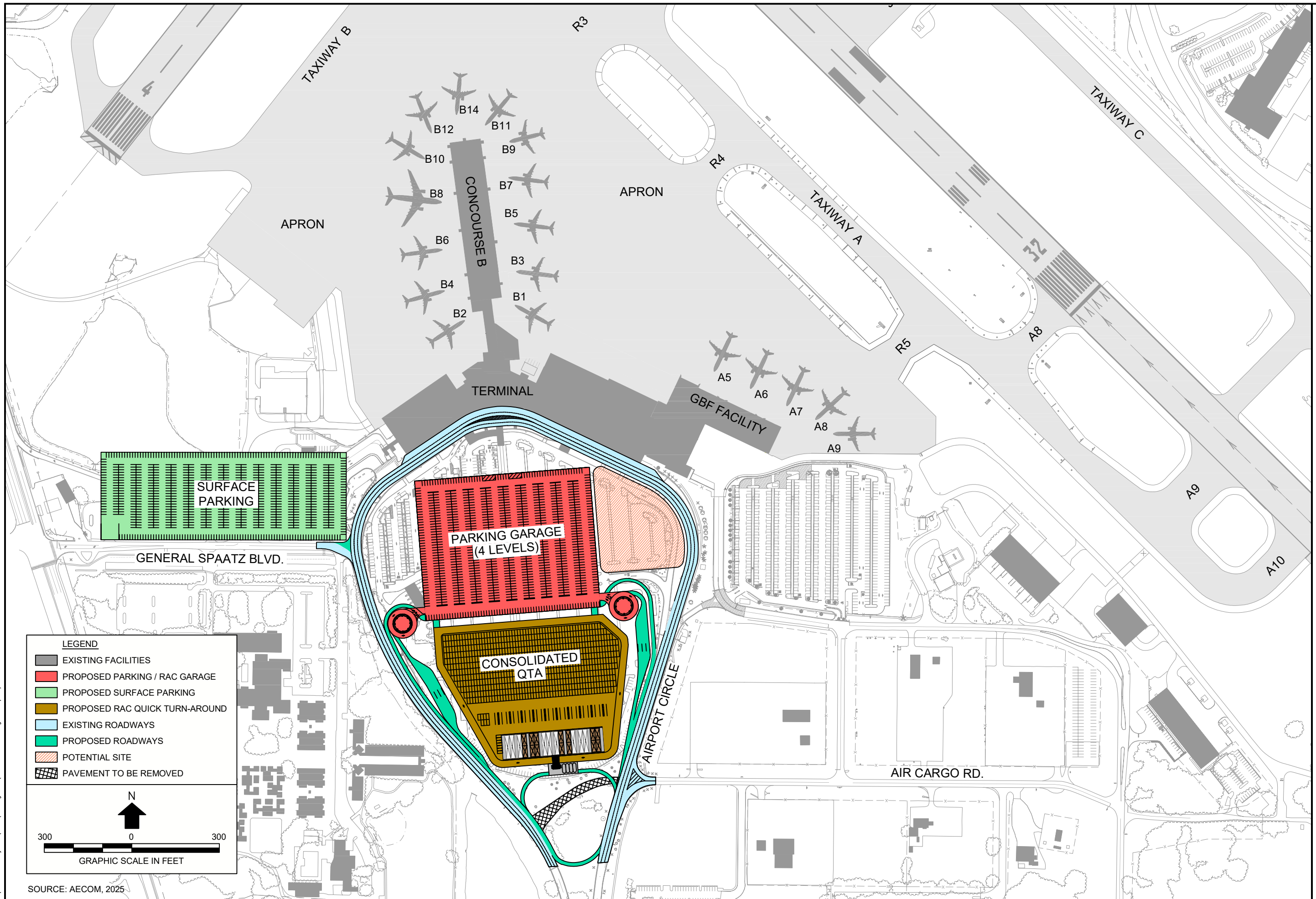


SARASOTA BRADENTON
INTERNATIONAL AIRPORT

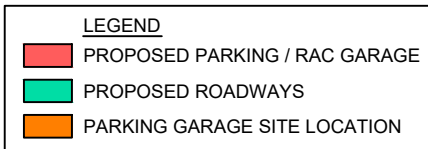
ALTERNATIVE 4 - EXPAND GROUND BOARDING FACILITY

FIGURE
3.2-4

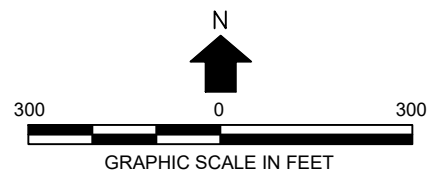




SOURCE: AECOM, 2025



Source: AECOM, 2025



SARASOTA BRADENTON
INTERNATIONAL AIRPORT

ALTERNATIVE 3 - CONSTRUCT
OFF-SITE PARKING GARAGE

FIGURE
3.3-3

APPENDIX C

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Manatee and Sarasota counties, Florida



Local office

Florida Ecological Services Field Office

☎ (352) 448-9151

📠 (772) 562-4288

✉ fw4flesregs@fws.gov

777 37th St
Suite D-101
Vero Beach, FL 32960-3559

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Florida Bonneted Bat <i>Eumops floridanus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8630	Endangered
Florida Panther <i>Puma (=Felis) concolor coryi</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1763	Endangered
Puma (=mountain Lion) <i>Puma (=Felis) concolor</i> (all subsp. except coryi) No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6049	SAT
West Indian Manatee <i>Trichechus manatus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4469	Threatened Marine mammal

Birds

NAME	STATUS
Eastern Black Rail <i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Threatened
Everglade Snail Kite <i>Rostrhamus sociabilis plumbeus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7713	Endangered

Rufa Red Knot <i>Calidris canutus rufa</i>	Threatened
Wherever found	
There is proposed critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/1864	

Wood Stork <i>Mycteria americana</i>	Threatened
No critical habitat has been designated for this species.	
https://ecos.fws.gov/ecp/species/8477	

Reptiles

NAME	STATUS
American Alligator <i>Alligator mississippiensis</i>	SAT
Wherever found	
No critical habitat has been designated for this species.	
https://ecos.fws.gov/ecp/species/776	
Eastern Indigo Snake <i>Drymarchon couperi</i>	Threatened
Wherever found	
No critical habitat has been designated for this species.	
https://ecos.fws.gov/ecp/species/646	
Green Sea Turtle <i>Chelonia mydas</i>	Threatened
There is proposed critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/6199	

Fishes

NAME	STATUS
Gulf Sturgeon <i>Acipenser oxyrinchus (=oxyrhynchus) desotoi</i>	Threatened
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/651	

Insects

NAME	STATUS
------	--------

Monarch Butterfly *Danaus plexippus*

Proposed Threatened

Wherever found

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME

STATUS

Aboriginal Prickly-apple *Harrisia (=Cereus) aboriginum*
(=gracilis)

Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/2833>

Pygmy Fringe-tree *Chionanthus pygmaeus*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1084>

Lichens

NAME

STATUS

Florida Perforate Cladonia *Cladonia perforata*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7516>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of

presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

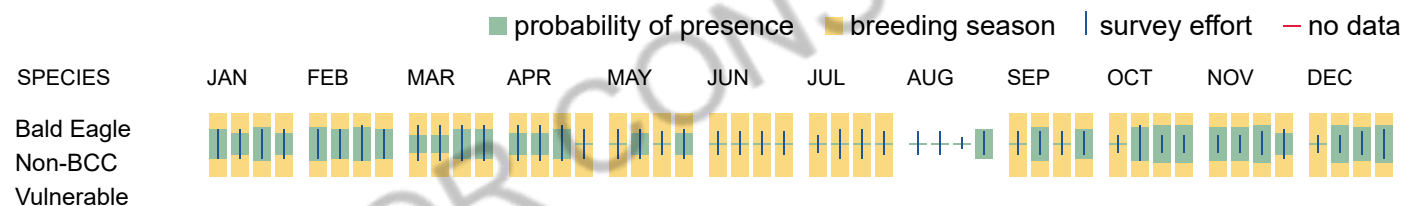
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests

might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases [birds of concern](#), including [Birds of Conservation Concern \(BCC\)](#), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the [Nationwide avoidance and minimization measures for birds](#) document, and any other project-specific avoidance and minimization measures suggested at the link [Measures for avoiding and minimizing impacts to birds](#) for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles document](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME

BREEDING SEASON

American Kestrel *Falco sparverius paulus*

Breeds Apr 1 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9587>

American Oystercatcher *Haematopus palliatus*

Breeds Apr 15 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8935>

Bachman's Sparrow *Peucaea aestivalis*

Breeds May 1 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/6177>

Bald Eagle *Haliaeetus leucocephalus*

Breeds Sep 1 to Jul 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Black Skimmer *Rynchops niger*

Breeds May 20 to Sep 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/5234>

Chimney Swift *Chaetura pelagica*

Breeds Mar 15 to Aug 25

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Great Blue Heron *Ardea herodias occidentalis*

Breeds Jan 1 to Dec 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Gull-billed Tern *Gelochelidon nilotica*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

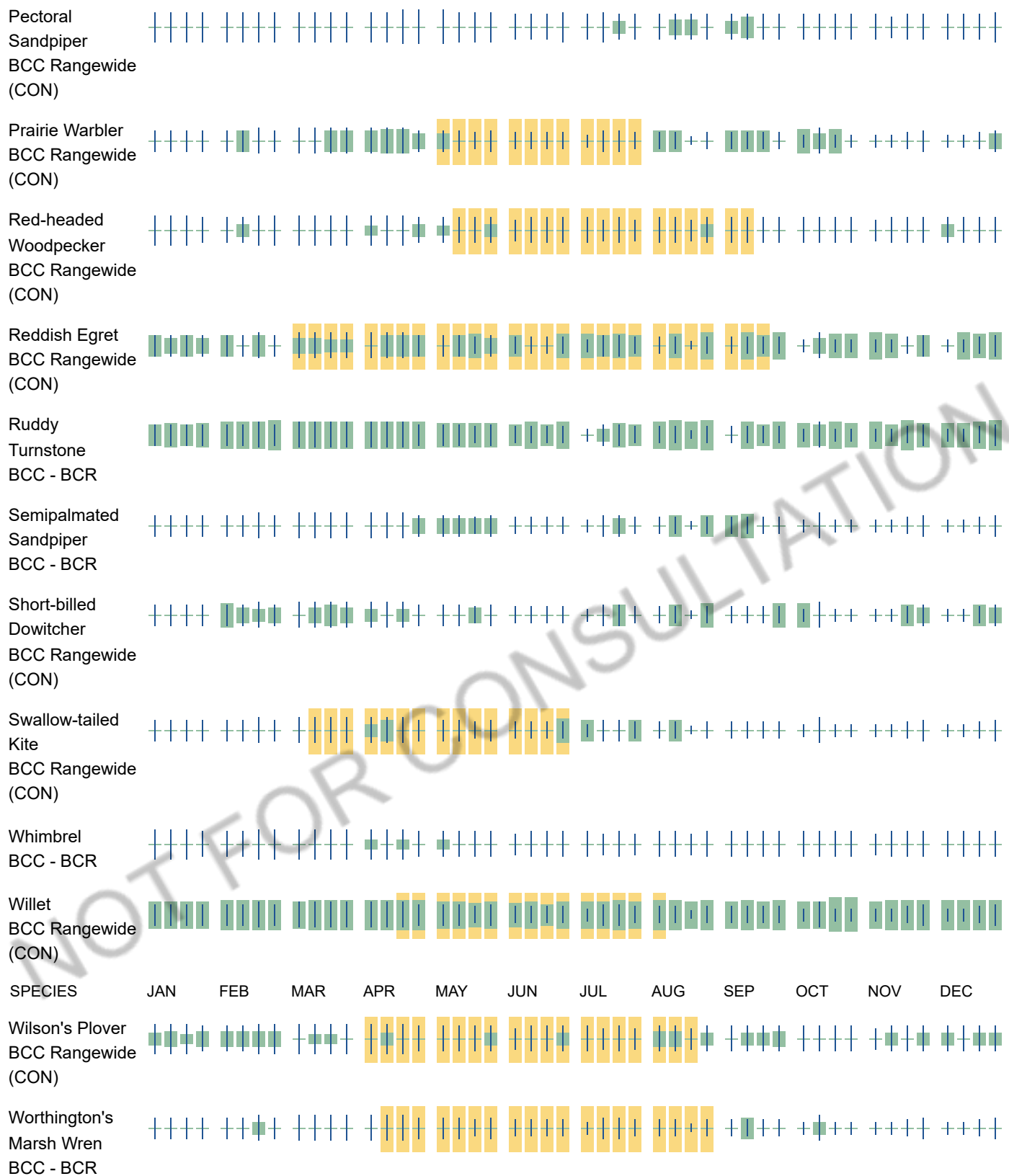
<https://ecos.fws.gov/ecp/species/9501>

King Rail <i>Rallus elegans</i>	Breeds May 1 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	
Least Tern <i>Sternula antillarum antillarum</i>	Breeds Apr 25 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Lesser Yellowlegs <i>Tringa flavipes</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	
Magnificent Frigatebird <i>Fregata magnificens</i>	Breeds Oct 1 to Apr 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Mangrove Cuckoo <i>Coccyzus minor</i>	Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Painted Bunting <i>Passerina ciris</i>	Breeds Apr 25 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Pectoral Sandpiper <i>Calidris melanotos</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Prairie Warbler <i>Setophaga discolor</i>	Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>	Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Reddish Egret <i>Egretta rufescens</i>	Breeds Mar 1 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7617	

Ruddy Turnstone <i>Arenaria interpres morinella</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Semipalmated Sandpiper <i>Calidris pusilla</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Short-billed Dowitcher <i>Limnodromus griseus</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
https://ecos.fws.gov/ecp/species/9480	
Swallow-tailed Kite <i>Elanoides forficatus</i>	Breeds Mar 10 to Jun 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
https://ecos.fws.gov/ecp/species/8938	
Whimbrel <i>Numenius phaeopus hudsonicus</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Willet <i>Tringa semipalmata</i>	Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Wilson's Plover <i>Charadrius wilsonia</i>	Breeds Apr 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Worthington's Marsh Wren <i>Cistothorus palustris griseus</i>	Breeds Apr 10 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird

species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Marine mammals

Marine mammals are protected under the [Marine Mammal Protection Act](#). Some are also protected under the Endangered Species Act¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora².

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walrus, polar bears, manatees, and dugongs] and NOAA Fisheries³ [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the [Marine Mammals](#) page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

-
1. The [Endangered Species Act](#) (ESA) of 1973.
 2. The [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
 3. [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.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

West Indian Manatee *Trichechus manatus*

<https://ecos.fws.gov/ecp/species/4469>

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sarasota County, Florida



Local office

Florida Ecological Services Field Office

☎ (352) 448-9151

📅 (772) 562-4288

✉ fw4flesregs@fws.gov

777 37th St
Suite D-101
Vero Beach, FL 32960-3559

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Florida Bonneted Bat <i>Eumops floridanus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8630	Endangered
Florida Panther <i>Puma (=Felis) concolor coryi</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1763	Endangered
Puma (=mountain Lion) <i>Puma (=Felis) concolor</i> (all subsp. except <i>coryi</i>) No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6049	SAT

Birds

NAME	STATUS
Eastern Black Rail <i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Threatened
Everglade Snail Kite <i>Rostrhamus sociabilis plumbeus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7713	Endangered
Wood Stork <i>Mycteria americana</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8477	Threatened

Reptiles

NAME	STATUS
------	--------

American Alligator *Alligator mississippiensis*

SAT

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/776>

Eastern Indigo Snake *Drymarchon couperi*

Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/646>

Green Sea Turtle *Chelonia mydas*

Threatened

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/6199>

Fishes

NAME

STATUS

Gulf Sturgeon *Acipenser oxyrinchus (=oxyrhynchus) desotoi*

Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/651>

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus*

Proposed Threatened

Wherever found

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME

STATUS

Aboriginal Prickly-apple *Harrisia (=Cereus) aboriginum*
(=gracilis)

Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/2833>

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1084>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability

of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases [birds of concern](#), including [Birds of Conservation Concern \(BCC\)](#), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the [Nationwide avoidance and minimization measures for birds](#) document, and any other project-specific avoidance and minimization measures suggested at the link [Measures for avoiding and minimizing impacts to birds](#) for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles document](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
American Kestrel <i>Falco sparverius paulus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Bachman's Sparrow <i>Peucaea aestivalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6177	Breeds May 1 to Sep 30
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

Black Skimmer <i>Rynchops niger</i>	Breeds May 20 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	
Chimney Swift <i>Chaetura pelagica</i>	Breeds Mar 15 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Great Blue Heron <i>Ardea herodias occidentalis</i>	Breeds Jan 1 to Dec 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Gull-billed Tern <i>Gelochelidon nilotica</i>	Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	
King Rail <i>Rallus elegans</i>	Breeds May 1 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	
Least Tern <i>Sternula antillarum antillarum</i>	Breeds Apr 25 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Lesser Yellowlegs <i>Tringa flavipes</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	
Magnificent Frigatebird <i>Fregata magnificens</i>	Breeds Oct 1 to Apr 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Mangrove Cuckoo <i>Coccyzus minor</i>	Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	

Painted Bunting <i>Passerina ciris</i>	Breeds Apr 25 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Pectoral Sandpiper <i>Calidris melanotos</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Prairie Warbler <i>Setophaga discolor</i>	Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>	Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Reddish Egret <i>Egretta rufescens</i>	Breeds Mar 1 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
https://ecos.fws.gov/ecp/species/7617	
Ruddy Turnstone <i>Arenaria interpres morinella</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Semipalmated Sandpiper <i>Calidris pusilla</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	
Short-billed Dowitcher <i>Limnodromus griseus</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
https://ecos.fws.gov/ecp/species/9480	
Swallow-tailed Kite <i>Elanoides forficatus</i>	Breeds Mar 10 to Jun 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
https://ecos.fws.gov/ecp/species/8938	
Whimbrel <i>Numenius phaeopus hudsonicus</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	

Willet *Tringa semipalmata*

Breeds Apr 20 to Aug 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wilson's Plover *Charadrius wilsonia*

Breeds Apr 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Worthington's Marsh Wren *Cistothorus palustris griseus*

Breeds Apr 10 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

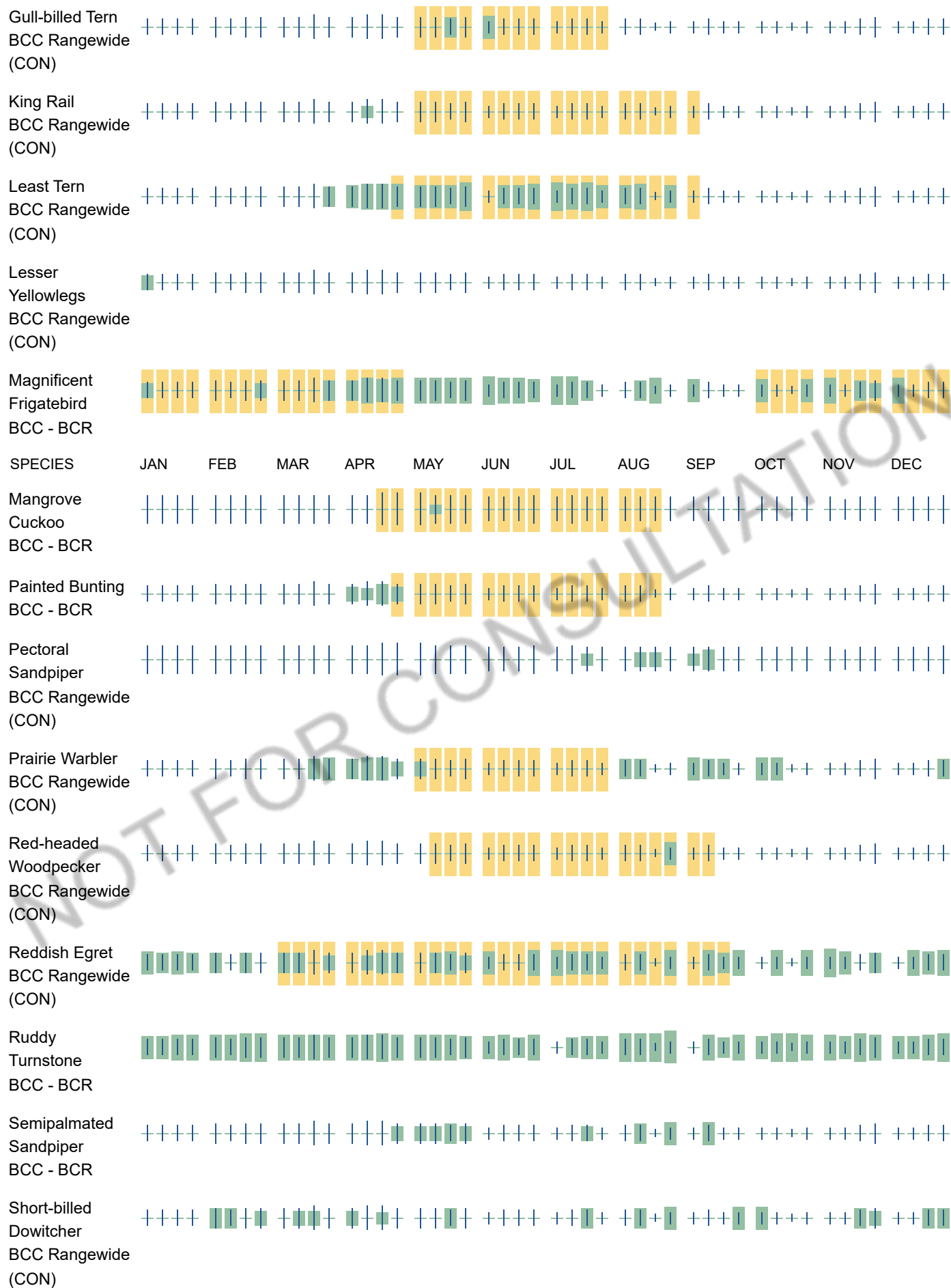
Probability of Presence (■)

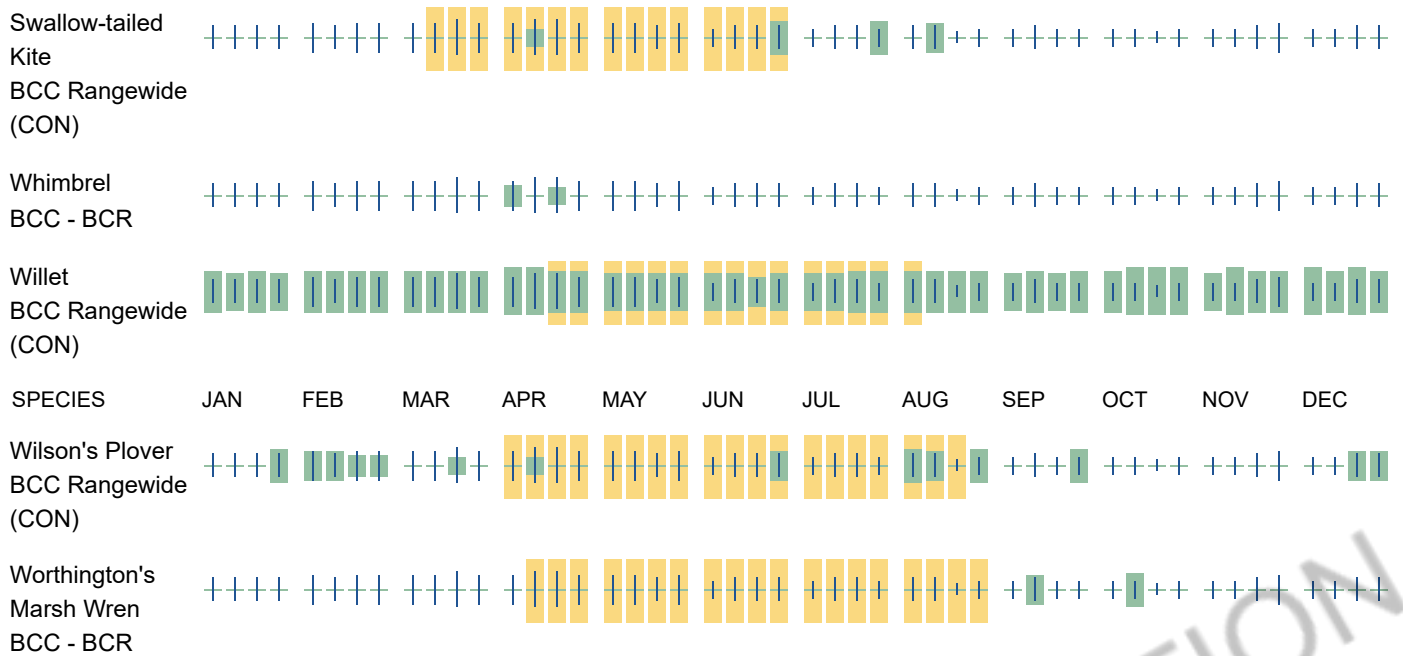
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

[illegible]





Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND

[PUBHx](#)

RIVERINE

[R5UBFx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX D

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

U.S. Fish and Wildlife Service

May 2024

The Standard Protection Measures for the Eastern Indigo Snake (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida and Georgia for use by project proponents and their construction personnel help minimize adverse impacts to eastern indigo snakes. However, implementation of this Plan does not replace any state or federal consultation or regulatory requirements. At least 30 days prior to any land disturbance activities, the project proponent shall notify the appropriate USFWS Field Office (see Field Office contact information) via e-mail that the Plan will be implemented as described below.

As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the approved poster and pamphlet ([USFWS Eastern Indigo Snake Conservation webpage](#))), no further written confirmation or approval from the USFWS is needed regarding use of this Plan as a component of the project.

If the project proponent decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or approval from the USFWS that the plan is adequate must be obtained. The project proponent shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

STANDARD PROTECTION MEASURES

BEFORE AND DURING CONSTRUCTION ACTIVITIES:

- All Project personnel shall be notified about the potential presence and appearance of the federally protected eastern indigo snake (*Drymarchon couperi*).
- All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting the species, in knowing violation of the Endangered Species Act of 1973.
- The project proponent or designated agent will post educational posters in the construction office and throughout the construction site. The posters must be clearly visible to all construction staff and shall be posted in a conspicuous location in the

Project field office until such time that Project construction has been completed and time charges have stopped.

- Prior to the onset of construction activities, the project proponent or designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational pamphlet including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office. Photos of eastern indigo snakes may be accessed on USFWS, Florida Fish and Wildlife Conservation Commission and/or Georgia Department of Natural Resources websites.
- Each day, prior to the commencement of maintenance or construction activities, the Contractor shall perform a thorough inspection for the species of all worksite equipment.
- If an eastern indigo snake (alive, dead or skin shed) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Office. The contact information for the USFWS is provided below and on the referenced posters and pamphlets.
- During initial site clearing activities, an onsite observer is recommended to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).
- Periodically during construction activities, the project area should be visited to observe the condition of the posters and Plan materials and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.
- For erosion control use biodegradable, 100% natural fiber, net-free rolled erosion control blankets to avoid wildlife entanglement.

POST CONSTRUCTION ACTIVITIES:

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion (See USFWS Field Office Contact Information).

USFWS FIELD OFFICE CONTACT INFORMATION

Georgia Field Office: Phone: (706) 613-9493, email: gaes_assistance@fws.gov
Florida Field Office: Phone: (352) 448-9151, email: fw4flesregs@fws.gov

POSTER & PAMPHLET INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (final posters for Plan compliance are available on our website in English and Spanish and should be printed on 11 x 17in or larger paper and laminated ([USFWS Eastern Indigo Snake Conservation webpage](#))). Pamphlets are also available on our webpage and should be printed on 8.5 x 11in paper and folded, and available and distributed to staff working on the site.

POSTER CONTENT (ENGLISH):

ATTENTION

Federally-Threatened Eastern Indigo Snakes may be present on this site!

Killing, harming, or harassing eastern indigo snakes is strictly prohibited and punishable under State and Federal Law.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Stop land disturbing activities and allow the snake time to move away from the site without interference. Do NOT attempt to touch or handle the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor/agent, and a U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with the location information and condition of the snake.
- If the snake is located near clearing or construction activities that will cause harm to the snake, the activities must pause until a representative of the USFWS returns the call (within one day) with further guidance.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Stop land disturbing activities and immediately notify supervisor/applicant, and a USFWS Ecological Services Field Office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. Named for the glossy, blue-black scales above and slate blue below, they often have orange to reddish color (cream color in some cases)

in the throat area. They are not typically aggressive.

SIMILAR SPECIES: The black racer resembles the eastern indigo snake. However, black racers have a white or cream chin, and thinner bodies.

LIFE HISTORY: Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTED STATUS: The eastern indigo snake is protected by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses. Only authorized individuals with a permit (or an Incidental Take Statement associated with a USFWS Biological Opinion) may handle an eastern indigo snake.

Please contact your nearest USFWS Ecological Services Field Office if a live or dead eastern indigo snake is encountered:

Florida Office: (352) 448-9151

Georgia Office: (706) 613-9493

POSTER CONTENT (SPANISH):

ATENCIÓN

¡Especie amenazada, la culebra Índigo del Este, puede ocupar el área!

Matar, herir o hostigar culebras Índigo del Este es estrictamente prohibido bajo la Ley Federal.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE O UNA CULEBRA NEGRA VIVA EN EL ÁREA:

- Pare excavación y permite el movimiento de la culebra fuera del área sin interferir. NO atentes tocar o recoger la culebra.
- Fotografié la culebra si es posible para identificación y documentación.
- Notifique supervisor/agente, y la Oficina de Campo de Servicios Ecológicos del Servicio Federal de Pesca y Vida Silvestre (USFWS) apropiada con información acerca del sitio y condición de la culebra.

- Si la culebra está cerca de un área de construcción que le pueda causar daño, las actividades deben parar hasta un representante del USFWS regrese la llamada (dentro de un día) con más orientación.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE MUERTA EN EL ÁREA:

- Pare excavación. Notifique supervisor/aplicante, y la Oficina de Campo de Servicios Ecológicos apropiada con información acerca del sitio y condición de la culebra.
- Fotografié la culebra si es posible para identificación y documentación.
- EmERGE completamente la culebra en agua y congele la especie hasta que personal apropiado de la agencia de vida silvestre la recoja.

DESCRIPCIÓN. La culebra Índigo del Este es una de las serpientes sin veneno más grande en Norte América, alcanzando hasta 8 pies de largo. Su nombre proviene del color azul-negro brillante de sus escamas, pero pueden tener un color anaranjado-rojizo (color crema en algunos casos) en su mandíbula inferior. No tienden a ser agresivas.

SERPIENTES PARECIDAS. La corredora negra, que es de color negro sólido, es la única otra serpiente que se asemeja a la Índigo del Este. La corredora negra se diferencia por una mandíbula inferior color blanca o crema y un cuerpo más delgado.

HÁBITATS Y ECOLOGÍA. La culebra Índigo del Este vive en una variedad de hábitats, incluyendo tierras secas, humedales, y áreas de agricultura. Ellas buscan refugio en agujeros o huecos de tierra, en especial madrigueras de tortugas de tierra. Las hembras ponen 4 hasta 12 huevos blancos entre abril y junio, y la cría emergen entre julio y octubre.

PROTECCIÓN LEGAL. La culebra Índigo del Este es clasificada como especie amenazada por el USFWS, la Comisión de Conservación de Pesca y Vida Silvestre de Florida y el Departamento de Recursos Naturales de Georgia. Intento de matar, hostigar, herir, lastimar, perseguir, cazar, disparar, capturar, coleccionar o conducta parecida hacia las culebras Índigo del Este es prohibido por la Ley Federal de Especies en Peligro de Extinción. Penalidades incluyen un máximo de \$25,000 por violaciones civiles y \$50,000 y/o encarcelamiento por actos criminales. Solos individuales autorizados con un permiso o Determinación de toma incidental (Incidental Take Statement) asociado con una Opinión Biológico del USFWS pueden recoger una Índigo del Este.

Por favor de contactar tu Oficina de Campo de Servicios Ecológicos más cercana si encuentras una culebra Índigo del Este viva o muerta:

Oficina de Florida: (352) 448-9151

Oficina de Georgia: (706) 613-9493



ATTENTION

Federally-Threatened Eastern Indigo Snakes may be present on this site!

Killing, harming, or harassing eastern indigo snakes is strictly prohibited and punishable under State and Federal Law.

If you see a **LIVE** eastern indigo snake on the site:

- Stop land disturbing activities and allow the snake time to move away from the site without interference. Do NOT attempt to touch or handle the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor/agent, and a U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with the location information and condition of the snake.
- If the snake is located near clearing or construction activities that will cause harm to the snake, the activities must pause until a representative of the USFWS returns the call (within one day) with further guidance.

If you see a **DEAD** eastern indigo snake on the site:

- Stop land disturbing activities and immediately notify supervisor/applicant, and a USFWS Ecological Services Field Office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

DESCRIPTION. The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. Named for the glossy, blue-black scales above and slate blue below, they often have orange to reddish color (cream color in some cases) in the throat area. They are not typically aggressive.

Eastern indigo snake. Credit: Dirk Stevenson



SIMILAR SPECIES. The black racer resembles the eastern indigo snake. However, black racers have a white or cream chin, and thinner bodies.

LIFE HISTORY. Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

Gopher tortoise and burrow. Credit: James Hunt



PROTECTED STATUS. The eastern indigo snake is protected by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses. Only authorized individuals with a permit (or an Incidental Take Statement associated with a USFWS Biological Opinion) may handle an eastern indigo snake.

Please contact your nearest USFWS Ecological Services Field Office if a live or dead eastern indigo snake is encountered:

Florida Office: (352) 448-9151
Georgia Office: (706) 613-9493



If you see a LIVE eastern indigo snake on the site:

- Please do NOT attempt to touch or handle the snake. Stop land disturbing activities and allow the snake time to move away from the site without interference.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, and the nearest U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with location information and condition of the snake.
- If the snake is located near land disturbance or construction activities that will cause harm to the snake, pause these activities until a representative of the USFWS returns the call (within one day) with further guidance.

If you see a DEAD eastern indigo snake on the site:

- Stop land disturbing activities and immediately notify the supervisor or designated agent, and the nearest USFWS Ecological Services Field Office, with location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Contact your nearest USFWS Ecological Services Field Office if you encounter a live or dead eastern indigo snake:

Florida Office (352) 448-9151
Georgia Office (706) 613-9493

Description. The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. They often have orange to reddish colors in the throat area; some have cream colors on the throat. They are not typically aggressive and will attempt to crawl away when disturbed.

Similar Species. The black racer is a solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin and thinner bodies.

Life History. Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will often seek shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.

Protected Status. The eastern indigo snake is classified as a Threatened species by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses. Only individuals authorized to handle an eastern indigo snake through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10 permit issued by the USFWS, are allowed to do so.



ATTENTION:

**THREATENED EASTERN
INDIGO SNAKES MAY BE
PRESENT ON THIS SITE!**



Photo: Dirk Stevenson

*Please read the following
information provided by the U.S.
Fish and Wildlife Service on
standard protection measures for
the eastern indigo snake.*



APPENDIX E



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



August 1, 2017

Donnie Kinard
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Subject: Consultation Key for the Eastern Indigo Snake – Revised

Dear Mr. Kinard:

This letter revises and replaces the January 25, 2010, and August 13, 2013, letters to the U.S. Army Corps of Engineers (Corps) regarding the use of the eastern indigo snake programmatic effect determination key (Key) for projects occurring within the South Florida Ecological Service's Office (SFESO) jurisdiction. This revision supersedes all prior versions of the Key in the SFESO area. The purpose of this revision is to clarify portions of the previous keys based on questions we have been asked, specifically related to habitat and refugia used by eastern indigo snakes (*Drymarchon corais couperi*), in the southern portion of their range and within the jurisdiction of the SFESO. This Key is provided pursuant to the Service's authorities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*). This Key revision has been assigned Service Consultation Code: 41420-2009-I-0467-R001.

The purpose of this Key is to assist the Corps (or other Federal action agency) in making appropriate effects determinations for the eastern indigo snake under section 7 of the Act, and streamline informal consultation with the SFESO for the eastern indigo snake when the proposed action can be walked through the Key. The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

This Key uses project size and home ranges of eastern indigo snakes as the basis for making determinations of "may affect, but is not likely to adversely affect" (NLAA) and "may affect, and is likely to adversely affect" (may affect). Suitable habitat for the eastern indigo snake consists of a mosaic of habitats types, most of which occur throughout South Florida. Information on home ranges for individuals is not available in specific habitats in South Florida. Therefore, the SFESO uses the information from a 26-year study conducted by Layne and Steiner (1996) at Archbold Biological Station, Lake Placid, Florida, as the best available

information. Layne and Steiner (1996) determined the average home range size for a female eastern indigo snake was 46 acres and 184 acres for a male.

Projects that would remove/destroy less than 25 acres of eastern indigo snake habitat are expected to result in the loss of a portion of an eastern indigo snakes home range that would not impair the ability of the individual to feed, breed, and shelter. Therefore, the Service finds that take would not be reasonably certain to occur due to habitat loss. However, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take. Consequently, projects less than 25 acres that include the Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and a commitment to excavate underground refugia as part of the proposed action would be expected to avoid take and thus, may affect, but are not likely to adversely affect the species.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

Projects that would remove 25 acres or more of eastern indigo snake habitat could remove more than half of a female eastern indigo snakes home range. This loss of habitat within a home range would be expected to significantly impair the ability of that individual to feed, breed, and shelter. Therefore, the Service finds take through habitat loss would be reasonably certain to occur and formal consultation is appropriate. Furthermore, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take.

Eastern indigo snakes use a variety of habitat and are difficult to detect. Therefore, site specific information on the land use, observations of eastern indigo snakes within the vicinity, as well as other factors, as appropriate, will all be considered by the Service when making a final recommendation on the appropriate effects determination and whether it is appropriate to conclude consultation with the Corps (or other Federal action agency) formally or informally for projects that will impact 25 acres or more of habitat. Accordingly, when the use of the Key results in a determination of "may affect," the Corps (or other Federal action agency) is advised that consultation may be concluded informally or formally, depending on the project specific effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps (or other Federal action agency) desires to proceed with a consultation request prior to receiving

additional technical assistance from the Service, we recommend the agency documents the biological rationale for their determination and proceed with a request accordingly.

If the use of the Key results in a determination of “no effect,” no further consultation is necessary with the SFESO. If the use of the Key results in a determination of “NLAA,” the SFESO concurs with this determination based on the rationale provide above, and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake. For “no effect” or “NLAA” determinations, the Service recommends that the Corps (or other Federal action agency) documents the pathway used to reach your no effect or NLAA determination in the project record and proceed with other species analysis as warranted.

Eastern Indigo Snake Programmatic Effect Determination Key
Revised July 2017
South Florida Ecological Service Office

Scope of the Key

This Key should be used only in the review of permit applications for effects determinations for the eastern indigo snake (*Drymarchon corais couperi*) within the South Florida Ecological Service’s Office (SFESO) area (Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, and St. Lucie Counties). There is no designated critical habitat for the eastern indigo snake.

This Key is subject to revision as the Corps (or other Federal action agency) and Service deem necessary and in particular whenever there is new information on eastern indigo snake biology and effects of proposed projects.

The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

Habitat

Habitat use varies seasonally between upland and wetland areas, especially in the more northern parts of the species’ range. In southern parts of their range eastern indigo snakes are habitat generalists which use most available habitat types. Movements between habitat types in northern areas of their range may relate to the need for thermal refugia (protection from cold and/or heat).

In northern areas of their range eastern indigo snakes prefer an interspersed of tortoise-inhabited sandhills and wetlands (Landers and Speake 1980). In these northern regions eastern indigo

snakes most often use forested areas rich with gopher tortoise burrows, hollowed root channels, hollow logs, or the burrows of rodents, armadillos, or land crabs as thermal refugia during cooler seasons (Lawler 1977; Moler 1985a; Layne and Steiner 1996). The eastern indigo snake in the northern region is typically classified as a longleaf pine savanna specialist because here, in the northern four-fifths of its range, the eastern indigo snake is typically only found in vicinity of xeric longleaf pine–turkey oak sandhills inhabited by the gopher tortoise (Means 2006).

In the milder climates of central and southern Florida, comprising the remaining one fifth of its range, thermal refugia such as those provided by gopher tortoise burrows may not be as critical to survival of indigo snakes. Consequently, eastern indigo snakes in these regions use a more diverse assemblage of habitats such as pine flatwoods, scrubby flatwoods, floodplain edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, and xeric sandhill communities; with highest population concentrations of eastern indigo snakes occurring in the sandhill and pineland regions of northern and central Florida (Service 1999). Eastern indigo snakes have also been found on agricultural lands with close proximity to wetlands (Zeigler 2006).

In south Florida, agricultural sites (*e.g.*, sugar cane fields and citrus groves) are occupied by eastern indigo snakes. The use of sugarcane fields by eastern indigo snakes was first documented by Layne and Steiner in 1996. In these areas there is typically an abundance of wetland and upland ecotones (due to the presence of many ditches and canals), which support a diverse prey base for foraging. In fact, some speculate agricultural areas may actually have a higher density of eastern indigo snakes than natural communities due to the increased availability of prey. Gopher tortoise burrows are absent at these locations but there is an abundance of both natural and artificial refugia. Enge and Endries (2009) reporting on the status of the eastern indigo snake included sugarcane fields and citrus groves in a Global Information Systems (GIS)-base map of potential eastern indigo snake habitat. Numerous sightings of eastern indigo snakes within sugarcane fields have been reported within south Florida (Florida Fish and Wildlife Conservation Commission Indigo Snake Database [Enge 2017]). A recent study associated with the Comprehensive Everglades Restoration Plan (CERP) (A-1 FEB Project formerly A-1 Reservoir; Service code: 41420-2006-F-0477) documented eastern indigo snakes within sugarcane fields. The snakes used artificial habitats such as piles of limerock, construction debris, and pump stations. Recent studies also associated with the CERP at the C-44 Project (Service code: 41420-2009-FA-0314), and C-43 Project (Service code: 41420-2007-F-0589) documented eastern indigo snakes within citrus groves. The snakes used artificial habitats such as boards, sheets of tin, construction debris, pipes, drain pipes in abandoned buildings and septic tanks.

In extreme south Florida (*i.e.*, the Everglades and Florida Keys), eastern indigo snakes also utilize tropical hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats. Though eastern indigo snakes have been found in all available habitats of south Florida it is thought they prefer hammocks and pine forests since most observations occur there and use of these areas is disproportionate compared to the relatively small total area of these habitats (Steiner *et al.* 1983).

Even though thermal stress may not be a limiting factor throughout the year in south Florida, eastern indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigo snakes use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma gualanhum*) burrows in coastal areas (Layne and Steiner 1996; Wilson and Porras 1983). Natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and crevices of rock-lined ditch walls are also used (Layne and Steiner 1996). These refugia are used most frequently where tortoise burrows are not available, principally in low-lying areas off the central and coastal ridges.

Minimization Measures

The Service developed protection measures for the eastern indigo snake “Standard Protection Measures for the Eastern Indigo Snake” (Service 2013) located at:

https://www.fws.gov/verobeach/ReptilesPDFs/20130812_EIS%20Standard%20Protection%20Measures_final.pdf. These protection measures (or the most updated version) are considered a minimization measure for projects proposed within eastern indigo snake habitat.

Determinations

If the use of this Key results in a determination of “**no effect**,” no further consultation is necessary with the SFESO.

If the use of this Key results in a determination of “**NLAA**,” the SFESO concurs with this determination and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake.

For no effect or NLAA determinations, the Corps (or other Federal action agency) should make a note in the project file indicating the pathway used to reach your no effect or NLAA determination.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the subsequent Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual’s home range.

If the use of this Key results in a determination of “**may affect**,” consultation may be concluded informally or formally depending on project effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps desires to proceed with a consultation request prior to receiving additional technical assistance from the Service, we recommend the Corps document the biological rationale for their determination and proceed with a request accordingly.

A. Project is not located in open water or salt marsh.....go to B

Project is located solely in open water or salt marsh.....no effect

B. Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site preparation and project construction.....go to C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested.....may affect

C. The project will impact less than 25 acres of eastern indigo snake habitat (e.g., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....go to D

The project will impact 25 acres or more of eastern indigo snake habitat (e.g., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....may affect

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured during project activities.....NLAA

The project has known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and /or injured.....go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of the burrow¹. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.....NLAA*

Permit will not be conditioned as outlined above.....may affect

End Key

¹ If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>.

² Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range

Working with the Fish and Wildlife Foundation of Florida, the Service has established a fund to support conservation and recovery for the eastern indigo snake. Any project that has the potential to affect the eastern indigo snake and/or its habitat is encouraged to make a voluntary contribution to this fund. If you would like additional information about how to make a contribution and how these monies are used to support eastern indigo snake recovery please contact Ashleigh Blackford, Connie Cassler, or José Rivera at 772-562-3559.

This revised Key is effective immediately upon receipt by the Corps. Should circumstances change or new information become available regarding the eastern indigo snake and/or implementation of the Key, the determinations herein may be reconsidered and this Key further revised or amended.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. If you have any questions or comments regarding this Key, please contact the SFESO at 772-562-3909.

Sincerely,


Roxanna Hinzman
Field Supervisor
South Florida Ecological Services

Cc:

Corps, Jacksonville, Florida (Dale Beter, Muriel Blaisdell, Ingrid Gilbert, Angela Ryan,
Irene Sadowski, Victoria White, Alisa Zarbo)
Service, Athens, Georgia (Michelle Elmore)
Service, Jacksonville, Florida (Annie Dziergowski)
Service, Panama City, Florida (Sean Blomquist)

LITERATURE CITED

- Enge K. M. 2017. Personal communication. Email from Kevin Enge, Florida Fish and Wildlife Conservation Commission, Gainesville, Florida to Steve Mortellaro, U.S. Fish and Wildlife Service, Vero Beach, Florida, July 5, 2017. Locations of Eastern Indigo Snake (*Drymarchon couperi*).
- Enge K. M. and M. J. Endries. 2009. Status of the Eastern Indigo Snake (*Drymarchon couperi*) in Florida. Southeast Partners in Amphibian and Reptile Conservation Meeting.
- Landers, J. L. and D.W. Speake. 1980. Management Needs of Sandhill Reptiles in Southern Georgia. Proceedings Annual Conference of Southeastern Association of Fish and Wildlife Agencies. 34: 515-529.
- Layne, J.N., and T.M. Steiner. 1996. Eastern indigo snake (*Drymarchon corais couperi*): summary of research conducted on Archbold Biological Station. Report prepared under Order 43910-6-0134 to the U.S. Fish and Wildlife Service; Jackson, Mississippi.
- Lawler, H.E. 1977. The status of *Drymarchon corais couperi* (Holbrook), the eastern indigo snake, in the southeastern U.S.A. *Herpetological Review* 8(3):76-79.
- Means, D. B. 2006. Vertebrate faunal diversity of longleaf pine ecosystems. In *The Longleaf Pine Ecosystem* pp. 157-213. Springer New York.
- Molar, P.E. 1985a. Distribution of the eastern indigo snake, *Drymarchon corais couperi*, in Florida. *Herpetological Review* 16(2):37-38.
- Moler, P.E. 1985b. Home range and seasonal activity of the eastern indigo snake, *Drymarchon corais couperi*, in northern Florida. Final performance report, Study E-1-06, III-A-5. Florida Game and Fresh Water Fish Commission; Tallahassee, Florida.
- Steiner, T.M., O.L. Bass, Jr., and J.A. Kushlan. 1983. Status of the eastern indigo snake in Southern Florida National Parks and vicinity. South Florida Research Center Report SFRC-83-01, Everglades National Park; Homestead, Florida.
- U.S. Fish and Wildlife Service (Service). 1999. South Florida multi-species recovery plan. 23 pp.
- U.S. Fish and Wildlife Service (Service). 2013. Standard Protection Measures for the Eastern Indigo Snake. August 12, 2013. U.S. Fish and Wildlife Service, South Florida Ecological Services Office; Vero Beach, Florida.
- Wilson, L.D. and L. Porras. 1983. The ecological impact of man on the south Florida herpetofauna. *University of Kansas Museum of Natural History Special Publication* 9:1-89.
- Zeigler, M. 2006. Personal communication. Citrus grove operations manager. Meeting with the U.S. Fish and Wildlife Service on August 1, 2006. Agricultural Resource Management; Vero Beach, Florida.

APPENDIX F



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



May 18, 2010

Donnie Kinard
Chief, Regulatory Division
Jacksonville District Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2007-FA-1494
Service Consultation Code: 41420-2007-I-0964
Subject: South Florida Programmatic
Concurrence
Species: Wood Stork

Dear Mr. Kinard:

This letter addresses minor errors identified in our January 25, 2010, wood stork key and as such, supplants the previous key. The key criteria and wood stork biomass foraging assessment methodology have not been affected by these minor revisions.

The Fish and Wildlife Service's (Service) South Florida Ecological Services Office (SFESO) and the U.S. Army Corps of Engineers Jacksonville District (Corps) have been working together to streamline the consultation process for federally listed species associated with the Corps' wetland permitting program. The Service provided letters to the Corps dated March 23, 2007, and October 18, 2007, in response to a request for a multi-county programmatic concurrence with a criteria-based determination of "may affect, not likely to adversely affect" (NLAA) for the threatened eastern indigo snake (*Drymarchon corais couperi*) and the endangered wood stork (*Mycteria americana*) for projects involving freshwater wetland impacts within specified Florida counties. In our letters, we provided effect determination keys for these two federally listed species, with specific criteria for the Service to concur with a determination of NLAA.

The Service has revisited these keys recently and believes new information provides cause to revise these keys. Specifically, the new information relates to foraging efficiencies and prey base assessments for the wood stork and permitting requirements for the eastern indigo snake. This letter addresses the wood stork key and is submitted in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). The eastern indigo snake key will be provided in a separate letter.

Wood stork

Habitat

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically construct their nests in medium to tall



trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991, 1996; Rodgers et al. 1996). Successful colonies are those that have limited human disturbance and low exposure to land-based predators. Nesting colonies protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

Successful nesting generally involves combinations of average or above-average rainfall during the summer rainy season and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes, which maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging sites, a variety of wetland types should be present, with both short and long hydroperiods. The Service (1999) describes a short hydroperiod as a 1 to 5-month wet/dry cycle, and a long hydroperiod as greater than 5 months. During the wet season, wood storks generally feed in the shallow water of the short-hydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry-down (though usually retaining some surface water throughout the dry season).

Wood storks occur in a wide variety of wetland habitats. Typical foraging sites for the wood stork include freshwater marshes and stock ponds, shallow, seasonally flooded roadside and agricultural ditches, narrow tidal creeks and shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Through tactolocation, or grope feeding, wood storks in south Florida feed almost exclusively on fish between 2 and 25 centimeters [cm] (1 and 10 inches) in length (Ogden et al. 1976). Good foraging conditions are characterized by water that is relatively calm, uncluttered by dense thickets of aquatic vegetation, and having a water depth between 5 and 38 cm (5 and 15 inches) deep, although wood storks may forage in other wetlands. Ideally, preferred foraging wetlands would include a mosaic of emergent and shallow open-water areas. The emergent component provides nursery habitat for small fish, frogs, and other aquatic prey and the shallow, open-water areas provide sites for concentration of the prey during seasonal dry-down of the wetland.

Conservation Measures

The Service routinely concurs with the Corps' "may affect, not likely to adversely affect" determination for individual project effects to the wood stork when project effects are insignificant due to scope or location, or if assurances are given that wetland impacts have been avoided, minimized, and adequately compensated such that there is no net loss in foraging potential. We utilize our *Habitat Management Guidelines for the Wood Stork in the Southeast Region* (Service 1990) (Enclosure 1) (HMG) in project evaluation. The HMG is currently under review and once final will replace the enclosed HMG. There is no designated critical habitat for the wood stork.

The SFESO recognizes a 29.9 kilometer [km] (18.6-mile) core foraging area (CFA) around all known wood stork colonies in south Florida. Enclosure 2 (to be updated as necessary) provides locations of colonies and their CFAs in south Florida that have been documented as active within the last 10 years. The Service believes loss of suitable wetlands within these CFAs may reduce foraging opportunities for the wood stork. To minimize adverse effects to the wood stork, we recommend compensation be provided for impacts to foraging habitat. The compensation should consider wetland type, location, function, and value (hydrology, vegetation, prey utilization) to ensure that wetland functions lost due to the project are adequately offset. Wetlands offered as compensation should be of the same hydroperiod and located within the CFAs of the affected wood stork colonies. The Service may accept, under special circumstances, wetland compensation located outside the CFAs of the affected wood stork nesting colonies. On occasion, wetland credits purchased from a "Service Approved" mitigation bank located outside the CFAs could be acceptable to the Service, depending on location of impacted wetlands relative to the permitted service area of the bank, and whether or not the bank has wetlands having the same hydroperiod as the impacted wetland.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing the Wood Stork Effect Determination Key below. If the use of this key results in a Corps determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination¹. This Key is subject to revisitation as the Corps and Service deem necessary.

The Key is as follows:

- A. Project within 0.76 km (0.47 mile)² of an active colony site³ "may ~~affect~~⁴"
- Project impacts Suitable Foraging Habitat (SFH)⁵ at a location greater than 0.76 km (0.47 mile) from a colony site..... "go to B"

¹ With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

² Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

³ An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

⁴ Consultation may be concluded informally or formally depending on project impacts.

⁵ Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

Project does not affect SFH.....“no effect”.

B. Project impact to SFH is less than 0.20 hectare (one-half acre)⁶.....*NLAA*¹”

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre).....go to C

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony sitego to D

Project impacts to SFH within the CFA of a colony sitego to E

D. Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod⁷ of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance⁸..... *NLAA*¹”

Project not as above..... “may affect”⁴”

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod⁷ of the wetlands affected, and provides foraging value similar

⁶ On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

⁷ Several researchers (Flemming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.

⁸ For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance⁸ “NLAA¹”

Project does not satisfy these elements “may affect⁴”

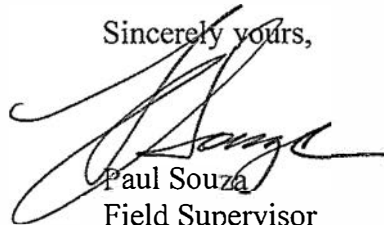
This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued where the effect determination was: “may affect, not likely to adversely affect.” We request that the Corps send us an annual summary consisting of: project dates, Corps identification numbers, project acreages, project wetland acreages, and project locations in latitude and longitude in decimal degrees.

Thank you for your cooperation and effort in protecting federally listed species. If you have any questions, please contact Allen Webb at extension 246.

Sincerely yours,



Paul Souza
Field Supervisor
South Florida Ecological Services Office

Enclosures

cc: w/enclosures (electronic only)
Corps, Jacksonville, Florida (Stu Santos)
EPA, West Palm Beach, Florida (Richard Harvey)
FWC, Vero Beach, Florida (Joe Walsh)
Service, Jacksonville, Florida (Billy Brooks)

LITERATURE CITED

- Ceilley, D.W. and S.A. Bortone. 2000. A survey of freshwater fishes in the hydric flatwoods of flint pen strand, Lee County, Florida. Proceedings of the 27th Annual Conference on Ecosystems Restoration and Creation, 70-91. Hillsborough Community College; Hillsborough County, Florida.
- Flemming, D.M., W.F. Wolff, and D.L. DeAngelis. 1994. Importance of landscape heterogeneity to wood storks. Florida Everglades Management 18: 743-757.
- Kahl, M.P., Jr. 1964. Food ecology of the wood stork (*Mycteria americana*) in Florida. Ecological Monographs 34:97-117.
- Ogden, J.C. 1991. Nesting by wood storks in natural, altered, and artificial wetlands in central and northern Florida. Colonial Waterbirds 14:39-45.
- Ogden, J.C., J.A. Kushlan, and J.T. Tilmant. 1976. Prey selectivity by the wood stork. Condor 78(3):324-330.
- Ogden, J.C. 1996. Wood Stork in J.A. Rodgers, H. Kale II, and H.T. Smith, eds. Rare and endangered biota of Florida. University Press of Florida; Gainesville, Florida.
- Rodgers, J.A. Jr., A.S. Wenner, and S.T. Schwikert. 1987. Population dynamics of wood storks in northern and central Florida, USA. Colonial Waterbirds 10:151-156.
- Rodgers, J.A., Jr., S.T. Schwikert, and A. Shapiro-Wenner. 1996. Nesting habitat of wood storks in north and central Florida, USA. Colonial Waterbirds 19:1-21.
- U.S. Fish and Wildlife Service. 1990. Habitat management guidelines for the wood stork in the southeast region. Prepared by John C. Ogden for the Southeast Region U.S. Fish and Wildlife Service; Atlanta, Georgia.
- U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Fish and Wildlife Service; Atlanta, Georgia. Available from: <http://verobeach.fws.gov/Programs/Recovery/vbms5.html>.

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

**APPENDIX E – NOISE TECHNICAL REPORT AND MODELED NOISE
LEVELS AT NOISE SENSITIVE SITES**

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

This page left intentionally blank.

**ENVIRONMENTAL ASSESSMENT FOR
CONCOURSE AND TERMINAL PARKING
EXPANSIONS AT
SARASOTA BRADENTON
INTERNATIONAL AIRPORT
(SRQ)**

Noise Technical Report

Prepared for:

**Sarasota Manatee Airport Authority
and
Federal Aviation Administration**

Prepared by:

AECOM

March 2026

TABLE OF CONTENTS

1.	Introduction	1
2.	Aircraft Noise Descriptors	1
3.	Effects of Aircraft Noise on People	4
4.	Noise Analysis	7
4.1.	Noise Modeling Assumptions.....	7
4.2.	Flight Operations	7
4.2.1.	Temporal Distribution of Operations.....	17
4.3.	Runway Use.....	17
4.4.	Flight Tracks.....	17
4.5.	Flight Profiles	18
5.	References	19

LIST OF TABLES

Table 1: Annual Aircraft Operations	8
Table 2: Average Daily Aircraft Operations by Project Scenario.....	9
Table 3: Temporal Distribution Summary	17
Table 4: Runway Utilization Summary	17

LIST OF FIGURES

Figure 1: Common Outdoor and Indoor Sound Levels.....	3
Figure 2: Typical Range of Outdoor Community Day-Night Average Sound Levels.....	4
Figure 3: Relationship between Annoyance and DNL	5
Figure 4: Percent Sentence Intelligibility for Indoor Speech.....	6

LIST OF ATTACHMENTS

Attachment A: Flight Track Figures

Attachment B: Noise Contour Figures

ACRONYMS AND ABBREVIATIONS

AEDT	Aviation Environmental Design Tool
CFR	Code of Federal Regulation
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
FAA	Federal Aviation Administration
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
GA	General Aviation
HUD	Department of Housing and Urban Development
Hz	Hertz
L _{eq}	Equivalent Sound Level
SEL	Sound Exposure Level
SMAA	Sarasota Manatee Airport Authority
SPL	Sound Pressure Level
SRQ	Sarasota Bradenton International Airport
TAF	Terminal Area Forecast
USEPA	U.S. Environmental Protection Agency

1. INTRODUCTION

This *Noise Technical Report* details the assessment scope, calculation methodology, input data, and other technical information used in the analysis of noise impacts associated with the proposed Concourse and Parking Garage Expansions at the Sarasota Bradenton International Airport (i.e., SRQ, or the Airport), hereinafter referred to as the Proposed Project.

2. AIRCRAFT NOISE DESCRIPTORS

A variety of noise metrics are used to assess airport noise impacts in different ways. Noise metrics are used to describe individual noise events (such as a single operation of an aircraft taking off overhead) or groups of events (such as the cumulative effect of numerous aircraft operations, the collection of which creates a general noise environment or overall exposure level). Both types of descriptors are helpful in explaining how people tend to respond to a given noise condition. Descriptions of these metrics are provided below.

Decibel, dB – Sound is a complex physical phenomenon consisting of complex minute vibrations traveling through a medium, such as air. These vibrations are sensed by the human ear as sound pressure. Because of the vast range of sound pressure or intensity detectable by the human ear, sound pressure level (SPL) is represented on a logarithmic scale known as decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet (laboratory-type) listening conditions. A SPL of 120 dB begins to be felt inside the ear as discomfort and pain at approximately 140 dB. Most environmental sounds have SPLs ranging from 30 to 100 dB.

Because dB are logarithmic, they cannot be added or subtracted directly like other (linear) numbers. For example, if two sound sources each produce 100 dB, when they are operated together they will produce 103 dB, not 200 dB. Four 100 dB sources operating together again double the sound energy, resulting in a total SPL of 106 dB, and so on. In addition, if one source is much louder than another, the two sources operating together will produce the same SPL as if the louder source were operating alone. For example, a 100 dB source plus an 80 dB source produce 100 dB when operating together. The louder source masks the quieter one.

Two useful rules to remember when comparing SPLs are: (1) most people perceive a 6 to 10 dB increase in SPL between two noise events to be about a doubling of loudness, and (2) changes in SPL of less than about 3 dB between two events are not easily detected outside of a laboratory.

A-Weighted Decibel, dBA – Frequency, or pitch, is a basic physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 15,000 Hz. Because the human ear is more sensitive to middle and high frequencies (i.e., 1000 to 4000 Hz), a frequency weighting called “A” weighting is applied to the measurement of sound. The internationally standardized “A” filter approximates the sensitivity of the human ear and helps in assessing the perceived loudness of various sounds. In this document all sound levels are A-weighted sound levels and the adjective “A-weighted” has been omitted.

Figure 1 charts common indoor and outdoor sound levels. A quiet rural area at nighttime may be 30 A-weighted decibels (dBA) or lower while the operator of a typical gas lawn mower may experience a level of 90 dBA. Similarly, the level in a library may be 30 dBA or lower while the listener at a rock band concert may experience levels near 110 dBA.

Day-Night Average Sound Level, DNL – Time-averaged sound levels are measurements of sound levels averaged over a specified length of time. These levels provide a measure of the average sound energy during the measurement period. For the evaluation of community noise effects, and particularly aircraft noise effects, the Day-Night Average Sound Level (DNL) is used. This metric compensates for the widely assumed increase in people’s sensitivity to noise during nighttime hours. Each aircraft operation occurring between 10:00 p.m. and 7:00 a.m. is treated as if it were 10 operations. Logarithmically, this multiplier is the equivalent of adding 10 dB to the noise level of each nighttime operation. These noise level penalties are intended to correspond to the drop in background noise level which studies have found takes place from daytime to nighttime in a typical community. The nighttime decrease in ambient sound levels—from both outdoor and indoor sources—is commonly considered to be the principal explanation for people’s heightened sensitivity to noises during these periods.

DNL is the primary noise descriptor of this study. DNL is a 24-hour time-weighted-average noise metric expressed in dBA which accounts for the noise levels of all individual aircraft events, the number of times those events occur, and the time of day at which they occur. Values of DNL can be measured with standard monitoring equipment or predicted with computer models. This document utilizes estimates of DNL with a Federal Aviation Administration (FAA)-approved computer-based noise model.

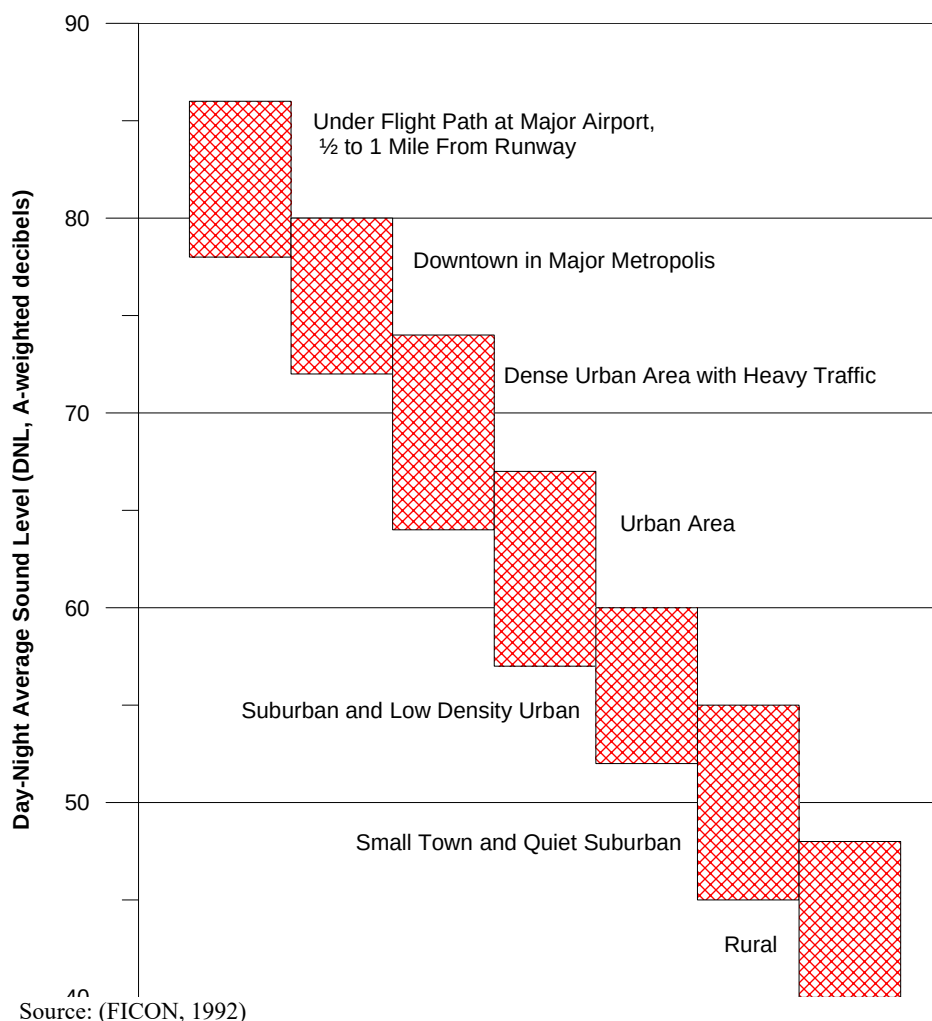
Typical DNL values for a variety of noise environments are shown in **Figure 2**. DNL values can be approximately 85 dBA outdoors under a flight path within a mile of a major airport and 40 dBA or less outdoors in a rural residential area.

Due to the DNL descriptor’s close correlation with the degree of community annoyance from aircraft noise, DNL has been formally adopted by most federal agencies for measuring and evaluating aircraft noise for land use planning and noise impact assessment. Federal committees such as the Federal Interagency Committee on Urban Noise (FICUN) and the Federal Interagency Committee on Noise (FICON) which include the Environmental Protection Agency (USEPA), FAA, Department of Defense, Department of Housing and Urban Development (HUD), and Veterans Administration, found DNL to be the best metric for land use planning. They also found no new cumulative sound descriptors or metrics of sufficient scientific standing to substitute for DNL. Other cumulative metrics could be used only to supplement, not replace DNL. Furthermore, FAA Order 1050.1G for environmental impact studies requires DNL be used in describing cumulative noise exposure and in identifying aircraft noise/land use compatibility issues, pursuant to 14 Code of Federal Regulations (CFR) Part 150 (USEPA, 1974; FICUN, 1980; FICON, 1992; FAA, 2025a).

Figure 1: Common Outdoor and Indoor Sound Levels



Source: URS Corporation, 2008

Figure 2: Typical Range of Outdoor Community Day-Night Average Sound Levels

3. EFFECTS OF AIRCRAFT NOISE ON PEOPLE

This section addresses three ways humans can be affected by aircraft noise: annoyance, speech interference, and sleep disturbance.

Annoyance – The primary potential effect of aircraft noise on exposed communities is annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction on the part of an individual or group (USEPA, 1974). Scientific studies and a large number of social/attitudinal surveys have been conducted to appraise people’s annoyance to all types of environmental noise, especially aircraft events. These studies and surveys have found the DNL to be the best measure of this annoyance (USEPA, 1974; FICUN, 1980; FICON, 1992; ANSI, 2007; ANSI, 2003; Schultz, 1978; Fidell, Barger, & Schultz, 1991).

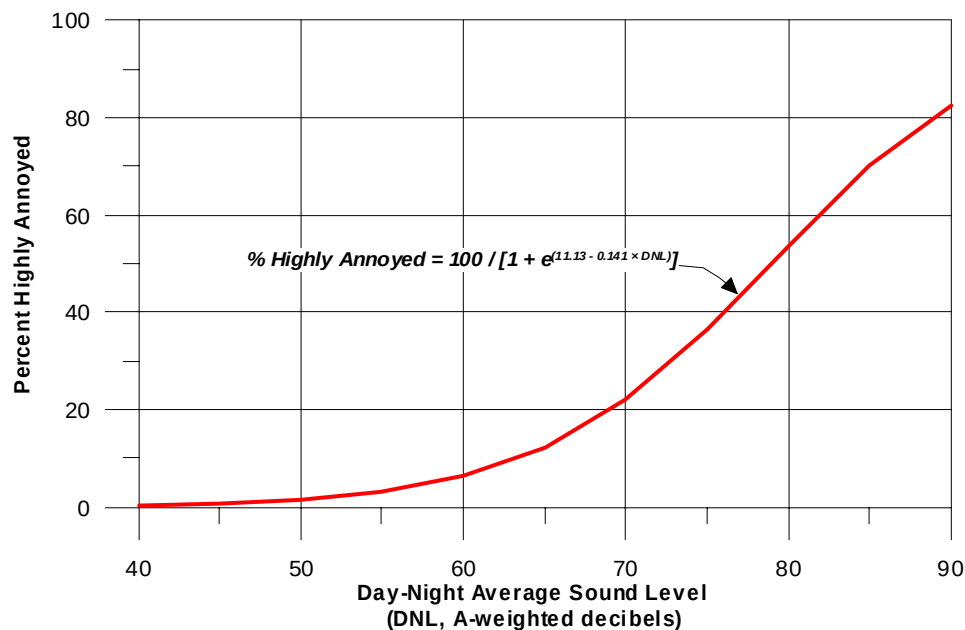
The relationship between annoyance and DNL determined by the scientific community and endorsed by many federal agencies, including the FAA, is shown in **Figure 3**. For a DNL of 65 dBA, approximately 13 percent of the exposed population would be highly annoyed. The figure also shows at very low values of

DNL, such as 45 dB or less, one percent or less of the exposed population would be highly annoyed. At very high values of DNL, such as 90 dBA, more than 80 percent of the exposed population would be highly annoyed.

It is often suggested a lower DNL, such as 60 or 55 dB, be adopted as the threshold of community noise annoyance for FAA environmental analysis documents. While there is no technical reason why a lower level cannot be measured or calculated for comparison purposes, a DNL of 65 dB:

- Provides a valid basis for comparing and assessing community noise effects.
- Represents a noise exposure level normally dominated by aircraft noise and not other community or nearby highway noise sources.
- Reflects the FAA's threshold for grant-in-aid funding of airport noise mitigation projects.
- Matches the HUD-established DNL standard of 65 dBA for eligibility for federally guaranteed home loans.

Figure 3: Relationship between Annoyance and DNL



Source: (FICON, 1992)

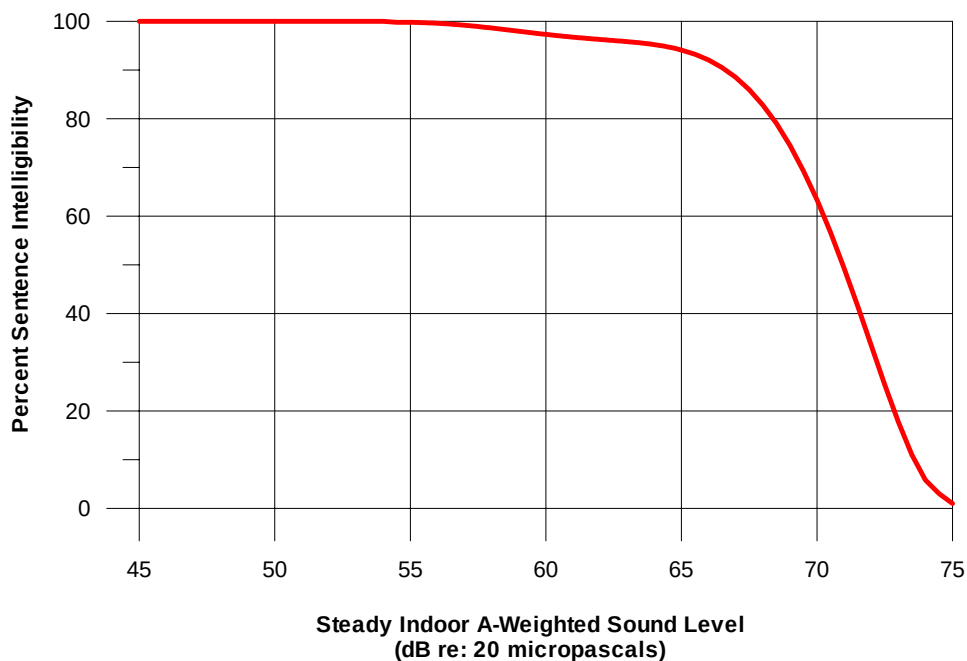
Speech Interference – A primary effect of aircraft noise is its tendency to drown out or "mask" speech, making it difficult to carry on a normal conversation. As an aircraft approaches and its sound level increases, speech becomes harder to hear. As the ambient level increases, the speaker must raise his/her voice, or the individuals must get closer together to continue talking.

For typical communication distances of three or four feet (1.0 to 1.5 meters), acceptable outdoor conversations can be carried on in a normal voice as long as the ambient noise outdoors is less than about

65 dBA (FICON, 1992). If the noise exceeds this level, intelligibility would be lost unless vocal effort was increased or communication distance was decreased.

Indoor speech interference can be expressed as a percentage of sentence intelligibility between two average adults with normal hearing speaking fluently in relaxed conversation approximately one meter apart in a typical living room or bedroom (USEPA, 1974). As shown in **Figure 4**, the percentage of sentence intelligibility is a non-linear function of the (steady) indoor ambient or background sound level (24-hour energy-average equivalent sound level ($L_{eq(24)}$)). Steady ambient indoor sound levels of up to 45 dBA $L_{eq(24)}$ are expected to allow 100 percent intelligibility of sentences. The curve shows 99 percent sentence intelligibility for $L_{eq(24)}$ at or below 54 dBA and less than 10 percent intelligibility for $L_{eq(24)}$ greater than 73 dBA. In the same document from which **Figure 4** was taken, the USEPA established an indoor criterion of 45 dBA DNL as requisite to protect against speech interference indoors (USEPA, 1974).

Figure 4: Percent Sentence Intelligibility for Indoor Speech



Source: (USEPA, 1974)

4. NOISE ANALYSIS

4.1. NOISE MODELING ASSUMPTIONS

The FAA has required the use of the Aviation Environmental Design Tool (AEDT) since May 29, 2015, for determining the predicted noise impact in the vicinity of airports. Statutory requirements for AEDT use are defined in FAA Order 1050.1G, Environmental Impacts: Policies and Procedures; Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and Title 14 CFR Part 150, Airport Noise Compatibility Planning. AEDT Version 3g, released August 28, 2024, was used for this document (https://aedt.faa.gov/3g_information.aspx).

The AEDT incorporates the number of annual average daily daytime and nighttime flight and run-up operations, flight paths, and flight profiles of the aircraft along with its extensive internal database of aircraft noise and performance information, to calculate the DNL at many points on the ground around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL to be superimposed onto land use maps. DNL contours are a graphical representation of how the noise from the airport's average annual daily aircraft operations is distributed over the surrounding area. The AEDT can calculate sound levels at any specified point so that noise exposure at representative locations around an airport can be obtained.

For this Environmental Assessment (EA), DNL contours of 60 dBA and above were developed, although FAA only requires analysis of impacts within the DNL 65 dB contour (and DNL 60 dB contour if there are impacts within the DNL 65 dB contour).

The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. When the calculations are made in a consistent manner, the AEDT is most accurate for comparing before and after noise effects resulting from forecast changes or alternative noise control actions. It allows noise levels to be predicted for such proposed projects without the actual implementation and noise monitoring of those actions.

4.2. FLIGHT OPERATIONS

Annual aircraft operations are shown in **Table 1** and the fleet mix and aircraft operations developed for AEDT noise modeling are shown in **Table 2**. The basis of the noise modeling fleet mix for this EA was a noise study performed by the Sarasota Manatee Airport Authority (SMAA) in 2019. To update the 2019 noise study for use in this EA, air carrier and commuter operations contained in the 2019 study were adjusted to match the SMAA forecast for annual air carrier and commuter operations, ensuring that only aircraft in the current fleet mix were included, and that total operations in these categories match the SMAA forecast levels for 2024 (existing), 2029, and 2034. To convert annual operations to average daily operations, an annualization factor of 0.0027397 was applied, which approximates the ratio of peak month average day operations to annual operations.

Aircraft originally included in the 2019 study's local and itinerant general aviation fleet mix (which also includes military operations) were reviewed for accuracy and applicability using a sample of updated flight

data provided by SMAA and FAA's Traffic Flow Management System Counts, and updated where necessary. The fleet mix was scaled to total local and itinerant general aviation (including military) operations reported for years 2024, 2029, and 2034 in the FAA's 2025 Terminal Area Forecast (TAF).

To reflect the Proposed Project scenario in analysis years 2029 and 2034, it was assumed that the net three new gates that would occur with the Proposed Project would service a maximum of 7,560 annual commercial aircraft operations. So, for the No-Action Alternative in years 2029 and 2034, total air carrier/commuter aircraft operations were reduced by 7,560 and distributed across the air carrier/commuter fleet mix for that year. Local and itinerant general aviation and military operations were assumed to be unchanged with the Project and were held constant between the No-Action and Proposed Project scenarios.

Table 1: Annual Aircraft Operations

Category	2024	2029	2034
Air Carrier/Commuter	33,023	38,098	40,920
GA	129,473	135,368	136,660
Military	1,744	1,634	1,634
Total Aircraft Operations	164,240	175,100	179,214

Sources: (SMAA, 2024; SMAA and AECOM, 2025; FAA, 2025b).

Table 2: Average Daily Aircraft Operations by Project Scenario

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
Air Carrier/ Commuter	Airbus A319-100 Series	9.87991	10.96576	8.789761	9.636575	7.856211
	Airbus A319-100 X/LR	0.465198	0.516325	0.413868	0.45374	0.369911
	Airbus A320-200 Series	20.6135	20.87651	16.73387	16.81628	13.70946
	Airbus A320-NEO	4.030099	16.17793	12.96765	30.49286	24.85928
	Airbus A321-100 Series	1.249303	5.528715	4.431621	7.635544	6.224872
	Airbus A321-200 Series	0.399996	1.778065	1.425234	2.454771	2.00125
	Boeing 717-200 Series	0.18356	0	0	0	0
	Boeing 737-700 Series	10.16429	4.175303	3.346774	3.364352	2.742785
	Boeing 737-800 Series	24.6299	23.48471	18.82451	23.42991	19.10122
	Boeing 737-900-ER	9.062928	13.88206	11.12736	12.33139	10.05316
	Boeing 757-200 Series	4.301329	2.087651	1.673387	0	0
	Bombardier CRJ-900	1.923269	2.087651	1.673387	2.241075	1.827034
	Embraer ERJ170	0.36164	0.410955	0.329407	0.443831	0.361833
	Embraer ERJ170-LR	0.005479	0.005479	0.004392	0.005479	0.004467
	Embraer ERJ175	0.5452	0.619172	0.496306	0.665747	0.54275
	Embraer ERJ175-LR	0.827389	0.945197	0.757636	1.016429	0.828643
	Embraer ERJ190-LR	1.83012	0.835609	0.669794	1.120537	0.913517
	Subtotal, Air Carrier/Commuter	90.47311	104.3771	83.66496	112.1085	91.39639
General Aviation/ Military/ - Itinerant ¹	Aerospatiale SA-350D Astar (AS-350)	0.025838	0.027538	0.027538	0.027909	0.027909
	Aerostar PA-60	0.103354	0.110152	0.110152	0.111634	0.111634
	Agusta A-109	0.008613	0.009179	0.009179	0.009303	0.009303
	Aviat Husky A1B	0.043064	0.045897	0.045897	0.046514	0.046514
	AVRO 683 Lancaster (FAS)	0.017226	0.018359	0.018359	0.018606	0.018606
	Beech 23 Musketeer Sundowner (FAS)	0.025838	0.027538	0.027538	0.027909	0.027909
	Beech 24 Musketeer Super Sierra (FAS)	0.034451	0.036717	0.036717	0.037211	0.037211
	Beech 77 Skipper (FAS)	0.172256	0.183587	0.183587	0.186057	0.186057
	Beech 95 (FAS)	0.223933	0.238663	0.238663	0.241875	0.241875
	Beechcraft 76 Duchess	0.068902	0.073435	0.073435	0.074423	0.074423
	Bell 206 JetRanger	0.981859	1.046444	1.046444	1.060527	1.060527
	Bell 407 / Rolls-Royce 250-C47B	2.583839	2.753799	2.753799	2.790862	2.790862
	Bell 427	0.034451	0.036717	0.036717	0.037211	0.037211
	Bellanca Viking (FAS)	0.025838	0.027538	0.027538	0.027909	0.027909

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Boeing Stearman PT-17 / A75N1	0.103354	0.110152	0.110152	0.111634	0.111634
	Bombardier (Canadair) CRJ200 ExecLiner	0.017226	0.018359	0.018359	0.018606	0.018606
	Bombardier Challenger 300	0.973246	1.037264	1.037264	1.051225	1.051225
	Bombardier Challenger 350	0.43064	0.458967	0.458967	0.465144	0.465144
	Bombardier Challenger 600	0.689024	0.734346	0.734346	0.74423	0.74423
	Bombardier Challenger 601	0.017226	0.018359	0.018359	0.018606	0.018606
	Bombardier Challenger 604	0.017226	0.018359	0.018359	0.018606	0.018606
	Bombardier Challenger 605	0.068902	0.073435	0.073435	0.074423	0.074423
	Bombardier CRJ-200	0.008613	0.009179	0.009179	0.009303	0.009303
	Bombardier Global 5000	0.129192	0.13769	0.13769	0.139543	0.139543
	Bombardier Global 6000	0.008613	0.009179	0.009179	0.009303	0.009303
	Bombardier Global Express	0.266997	0.284559	0.284559	0.288389	0.288389
	Bombardier Learjet 24-XR	0.008613	0.009179	0.009179	0.009303	0.009303
	Bombardier Learjet 31	0.671798	0.715988	0.715988	0.725624	0.725624
	Bombardier Learjet 35	0.620121	0.660912	0.660912	0.669807	0.669807
	Bombardier Learjet 36	0.008613	0.009179	0.009179	0.009303	0.009303
	Bombardier Learjet 40	0.422027	0.449787	0.449787	0.455841	0.455841
	Bombardier Learjet 45	1.024923	1.09234	1.09234	1.107042	1.107042
	Bombardier Learjet 45-XR	0.017226	0.018359	0.018359	0.018606	0.018606
	Bombardier Learjet 55	0.137805	0.146869	0.146869	0.148846	0.148846
	Bombardier Learjet 60	1.645044	1.753252	1.753252	1.776849	1.776849
	Bombardier Learjet 70	0.068902	0.073435	0.073435	0.074423	0.074423
	Bombardier Learjet 75	0.258384	0.27538	0.27538	0.279086	0.279086
	Britten-Norman BN-2 Islander	0.008613	0.009179	0.009179	0.009303	0.009303
	Cessna 140 (FAS)	0.06029	0.064255	0.064255	0.06512	0.06512
	Cessna 150 Series	0.318673	0.339635	0.339635	0.344206	0.344206
	Cessna 162 (FAS)	0.792377	0.844498	0.844498	0.855864	0.855864
	Cessna 172 Skyhawk	67.36068	71.79155	71.79155	72.75776	72.75776
	Cessna 177 (FAS)	0.887118	0.945471	0.945471	0.958196	0.958196
	Cessna 182	5.512189	5.874772	5.874772	5.953838	5.953838
	Cessna 182 R (FAS)	0.180869	0.192766	0.192766	0.19536	0.19536
	Cessna 182 Turbo (FAS)	0.043064	0.045897	0.045897	0.046514	0.046514
	Cessna 185 Skywagon	0.086128	0.091793	0.091793	0.093029	0.093029

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Cessna 206	0.551219	0.587477	0.587477	0.595384	0.595384
	Cessna 207 (Turbo) Stationair (FAS)	0.017226	0.018359	0.018359	0.018606	0.018606
	Cessna 208 Caravan	0.249771	0.266201	0.266201	0.269783	0.269783
	Cessna 210 Centurion	0.981859	1.046444	1.046444	1.060527	1.060527
	Cessna 210 Turbo (FAS)	0.025838	0.027538	0.027538	0.027909	0.027909
	Cessna 310	0.396189	0.422249	0.422249	0.427932	0.427932
	Cessna 335/340 (FAS)	0.008613	0.009179	0.009179	0.009303	0.009303
	Cessna 337 Skymaster	0.06029	0.064255	0.064255	0.06512	0.06512
	Cessna 340	0.344512	0.367173	0.367173	0.372115	0.372115
	Cessna 400 (FAS)	0.533993	0.569119	0.569119	0.576778	0.576778
	Cessna 402	0.068902	0.073435	0.073435	0.074423	0.074423
	Cessna 414	0.602896	0.642553	0.642553	0.651201	0.651201
	Cessna 421 Piston	0.447865	0.477325	0.477325	0.483749	0.483749
	Cessna 425 Conquest I	0.111966	0.119331	0.119331	0.120937	0.120937
	Cessna 441 Conquest II	0.137805	0.146869	0.146869	0.148846	0.148846
	Cessna 500 Citation I	0.15503	0.165228	0.165228	0.167452	0.167452
	Cessna 501 Citation ISP	0.637347	0.67927	0.67927	0.688413	0.688413
	Cessna 560 Citation Excel	1.800074	1.91848	1.91848	1.9443	1.9443
	Cessna 560 Citation V	0.008613	0.009179	0.009179	0.009303	0.009303
	Cessna 560 Citation XLS	2.368519	2.524316	2.524316	2.55829	2.55829
	Cessna 650 Citation III	1.205791	1.285106	1.285106	1.302402	1.302402
	Cessna 680 Citation Sovereign	0.757926	0.807781	0.807781	0.818653	0.818653
	Cessna 680-A Citation Latitude	0.413414	0.440608	0.440608	0.446538	0.446538
	Cessna 750 Citation X	0.499542	0.532401	0.532401	0.539567	0.539567
	Cessna Aircraft Company 180F	0.043064	0.045897	0.045897	0.046514	0.046514
	CESSNA CITATION 510	1.214404	1.294286	1.294286	1.311705	1.311705
	Cessna CitationJet CJ/CJ1 (Cessna 525)	4.228883	4.507052	4.507052	4.56771	4.56771
	Cessna CitationJet CJ4 (Cessna 525C)	0.999084	1.064802	1.064802	1.079133	1.079133
	Cessna S550 Citation S/II	3.229798	3.442249	3.442249	3.488577	3.488577
	Cessna T303 Crusader (FAS)	0.051677	0.055076	0.055076	0.055817	0.055817
	CIRRUS SF-50 Vision	0.663185	0.706808	0.706808	0.716321	0.716321
	Cirrus SR20	4.22027	4.497872	4.497872	4.558407	4.558407
	Cirrus SR22 Turbo (FAS)	29.59357	31.54018	31.54018	31.96467	31.96467

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Columbia Aircraft Lancair (COL3/4 All Types) (FAS)	0.232545	0.247842	0.247842	0.251178	0.251178
	Commander 114/115 (FAS)	0.327286	0.348815	0.348815	0.353509	0.353509
	Daher TBM 900 Series	0.413414	0.440608	0.440608	0.446538	0.446538
	Dassault Falcon 100	0.198094	0.211125	0.211125	0.213966	0.213966
	Dassault Falcon 200	0.137805	0.146869	0.146869	0.148846	0.148846
	Dassault Falcon 2000	1.980943	2.111246	2.111246	2.139661	2.139661
	Dassault Falcon 20-C	0.008613	0.009179	0.009179	0.009303	0.009303
	Dassault Falcon 20-F	0.025838	0.027538	0.027538	0.027909	0.027909
	Dassault Falcon 50-EX	0.482317	0.514043	0.514043	0.520961	0.520961
	Dassault Falcon 900-EX	0.930182	0.991368	0.991368	1.00471	1.00471
	Diamond DA40	0.869892	0.927112	0.927112	0.93959	0.93959
	Diamond DA42 Twin Star L360	0.396189	0.422249	0.422249	0.427932	0.427932
	Diamond DA62	0.086128	0.091793	0.091793	0.093029	0.093029
	Diamond DV-20 Katana (FAS)	0.051677	0.055076	0.055076	0.055817	0.055817
	EADS Socata TB-10 Tobago	0.017226	0.018359	0.018359	0.018606	0.018606
	EADS Socata TB-9 Tampico	0.025838	0.027538	0.027538	0.027909	0.027909
	EADS Socata TBM-700	0.697636	0.743526	0.743526	0.753533	0.753533
	Eclipse 500 / PW610F	1.670882	1.78079	1.78079	1.804757	1.804757
	Embraer EMB110 Bandeirante	0.198094	0.211125	0.211125	0.213966	0.213966
	Embraer ERJ135 Legacy Business	0.103354	0.110152	0.110152	0.111634	0.111634
	Embraer ERJ135-LR	0.120579	0.128511	0.128511	0.13024	0.13024
	Embraer ERJ190	0.008613	0.009179	0.009179	0.009303	0.009303
	Embraer Legacy 450 (EMB-545)	0.163643	0.174407	0.174407	0.176755	0.176755
	Embraer Legacy 500 (EMB-550)	0.223933	0.238663	0.238663	0.241875	0.241875
	Embraer Phenom 100 (EMB-500)	2.394357	2.551854	2.551854	2.586199	2.586199
	Embraer Phenom 300 (EMB-505)	1.645044	1.753252	1.753252	1.776849	1.776849
	EPIC LT/Dynasty	0.327286	0.348815	0.348815	0.353509	0.353509
	Eurocopter EC-130	0.017226	0.018359	0.018359	0.018606	0.018606
	Eurocopter EC-T2 (CPDS)	0.180869	0.192766	0.192766	0.19536	0.19536
	EXTRA EA-300 (FAS)	0.025838	0.027538	0.027538	0.027909	0.027909
	Falcon 7X	0.15503	0.165228	0.165228	0.167452	0.167452
	GippsAero GA8 Airvan (FAS)	0.008613	0.009179	0.009179	0.009303	0.009303

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Glasair (FAS)	0.129192	0.13769	0.13769	0.139543	0.139543
	Grumman AA-5A/B (FAS)	0.301448	0.321277	0.321277	0.325601	0.325601
	Gulfstream Aerospace Gulfstream G500 (G-7)	0.008613	0.009179	0.009179	0.009303	0.009303
	Gulfstream American GA-7 Cougar (FAS)	0.025838	0.027538	0.027538	0.027909	0.027909
	Gulfstream G100	0.146418	0.156049	0.156049	0.158149	0.158149
	Gulfstream G150	0.206707	0.220304	0.220304	0.223269	0.223269
	Gulfstream G200	0.387576	0.41307	0.41307	0.418629	0.418629
	Gulfstream G280	0.620121	0.660912	0.660912	0.669807	0.669807
	Gulfstream G350	1.179953	1.257568	1.257568	1.274494	1.274494
	Gulfstream G450	0.068902	0.073435	0.073435	0.074423	0.074423
	Gulfstream G-5 Gulfstream 5 / G-5SP Gulfstream G500	0.878505	0.936292	0.936292	0.948893	0.948893
	Gulfstream G550	0.129192	0.13769	0.13769	0.139543	0.139543
	Gulfstream G600	0.008613	0.009179	0.009179	0.009303	0.009303
	Gulfstream G650	0.163643	0.174407	0.174407	0.176755	0.176755
	Gulfstream III (FAS)	0.180869	0.192766	0.192766	0.19536	0.19536
	Gulfstream IV-SP	0.051677	0.055076	0.055076	0.055817	0.055817
	Honda HA-420 Hondajet	0.542606	0.578298	0.578298	0.586081	0.586081
	Hughes 500D	0.284222	0.302918	0.302918	0.306995	0.306995
	Israel IAI-1124-A Westwind II	0.017226	0.018359	0.018359	0.018606	0.018606
	Kaman SH-2 Seasprite	0.146418	0.156049	0.156049	0.158149	0.158149
	Lancair 360	0.086128	0.091793	0.091793	0.093029	0.093029
	Lancair Evolution (FAS)	0.094741	0.100973	0.100973	0.102332	0.102332
	Lancair Legacy 2000 (FAS)	0.051677	0.055076	0.055076	0.055817	0.055817
	LTV A-7 Corsair II	0.516768	0.55076	0.55076	0.558172	0.558172
	Maule MT-7-235	0.017226	0.018359	0.018359	0.018606	0.018606
	Mitsubishi MU-2	0.21532	0.229483	0.229483	0.232572	0.232572
	Mooney M20-K	2.704418	2.88231	2.88231	2.921102	2.921102
	North American T-6 Texan (FAS)	0.077515	0.082614	0.082614	0.083726	0.083726
	Piaggio P.180 Avanti	0.051677	0.055076	0.055076	0.055817	0.055817
	Pilatus PC-12	2.135973	2.276474	2.276474	2.307112	2.307112
	Pilatus Turbo Trainer PC-9	0.335899	0.357994	0.357994	0.362812	0.362812
	Piper PA-18-150 (FAS)	0.06029	0.064255	0.064255	0.06512	0.06512

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Piper PA-23 Apache/Aztec	0.327286	0.348815	0.348815	0.353509	0.353509
	Piper PA-24 Comanche	0.663185	0.706808	0.706808	0.716321	0.716321
	Piper PA-27 Aztec	0.465091	0.495684	0.495684	0.502355	0.502355
	Piper PA-28 Cherokee Series	15.38245	16.39429	16.39429	16.61493	16.61493
	Piper PA-30 Twin Comanche	0.111966	0.119331	0.119331	0.120937	0.120937
	Piper PA-31 Navajo	6.339018	6.755988	6.755988	6.846914	6.846914
	Piper PA-31T Cheyenne	0.21532	0.229483	0.229483	0.232572	0.232572
	Piper PA-32 Cherokee Six	2.721643	2.900669	2.900669	2.939708	2.939708
	Piper PA-34 Seneca	0.594283	0.633374	0.633374	0.641898	0.641898
	Piper PA-42 Cheyenne Series	0.146418	0.156049	0.156049	0.158149	0.158149
	Piper PA-44-180 (FAS)	0.568445	0.605836	0.605836	0.61399	0.61399
	Piper PA46 (Piston)	1.059374	1.129058	1.129058	1.144253	1.144253
	Piper PA46-TP Meridian	2.566613	2.735441	2.735441	2.772256	2.772256
	Quest Kodiak 100	0.051677	0.055076	0.055076	0.055817	0.055817
	Raytheon Beech 55 Baron	0.482317	0.514043	0.514043	0.520961	0.520961
	Raytheon Beech 60 Duke	0.025838	0.027538	0.027538	0.027909	0.027909
	Raytheon Beech 99	2.799159	2.983283	2.983283	3.023434	3.023434
	Raytheon Beech Baron 58	0.964633	1.028085	1.028085	1.041922	1.041922
	Raytheon Beech Bonanza 36	20.44678	21.79173	21.79173	22.08502	22.08502
	Raytheon Beechjet 400	1.162727	1.23921	1.23921	1.255888	1.255888
	Raytheon Hawker 1000	0.103354	0.110152	0.110152	0.111634	0.111634
	Raytheon Hawker 4000 Horizon	0.025838	0.027538	0.027538	0.027909	0.027909
	Raytheon Hawker 800	2.058458	2.19386	2.19386	2.223386	2.223386
	Raytheon King Air 100	0.103354	0.110152	0.110152	0.111634	0.111634
	Raytheon King Air 90	0.025838	0.027538	0.027538	0.027909	0.027909
	Raytheon Premier I	0.706249	0.752705	0.752705	0.762836	0.762836
	Raytheon Super King Air 200	2.83361	3.02	3.02	3.060645	3.060645
	Raytheon Super King Air 300	1.111051	1.184134	1.184134	1.200071	1.200071
	Robinson R22 Mariner	0.043064	0.045897	0.045897	0.046514	0.046514
	Robinson R44 Raven / Lycoming O-540-F1B5	0.508155	0.541581	0.541581	0.548869	0.548869
	Rockwell Sabreliner 65	0.043064	0.045897	0.045897	0.046514	0.046514
	Rockwell Twin Commander 500	0.025838	0.027538	0.027538	0.027909	0.027909
	Rockwell Twin Commander 690	0.06029	0.064255	0.064255	0.06512	0.06512

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Ryan Navion F	0.422027	0.449787	0.449787	0.455841	0.455841
	Sikorsky S-76 Spirit	0.111966	0.119331	0.119331	0.120937	0.120937
	Sikorsky UH-60 Black Hawk	0.017226	0.018359	0.018359	0.018606	0.018606
	SOCATA TBM 850	0.499542	0.532401	0.532401	0.539567	0.539567
	Tecnam P2006T (FAS)	0.266997	0.284559	0.284559	0.288389	0.288389
	Vans RV10 (FAS)	0.241158	0.257021	0.257021	0.26048	0.26048
	Vans RV12 (FAS)	2.24794	2.395805	2.395805	2.42805	2.42805
	Vans RV4 (FAS)	0.008613	0.009179	0.009179	0.009303	0.009303
	Vans RV6 (FAS)	0.482317	0.514043	0.514043	0.520961	0.520961
	Vans RV-7	0.189482	0.201945	0.201945	0.204663	0.204663
	Vans RV8 (FAS)	0.189482	0.201945	0.201945	0.204663	0.204663
	Vans RV9 (FAS)	0.034451	0.036717	0.036717	0.037211	0.037211
	Velocity (FAS)	0.017226	0.018359	0.018359	0.018606	0.018606
	Vulcanair P.68	0.06029	0.064255	0.064255	0.06512	0.06512
	Subtotal, General Aviation/Military Itinerant	239.3238	255.0661	255.0661	258.4989	258.4989
General Aviation/ Military Local	Aerostar PA-60	0.054524	0.054573	0.054573	0.054621	0.054621
	Beech 23 Musketeer Sundowner (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Beech 95 (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Beechcraft 76 Duchess	0.109049	0.109145	0.109145	0.109242	0.109242
	Cessna 140 (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Cessna 150 Series	0.218097	0.218291	0.218291	0.218485	0.218485
	Cessna 172 Skyhawk	53.59734	53.645	53.645	53.69265	53.69265
	Cessna 177 (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Cessna 182	0.599767	0.6003	0.6003	0.600833	0.600833
	Cessna 182 R (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Cessna 206	0.436194	0.436582	0.436582	0.43697	0.43697
	Cessna 208 Caravan	0.054524	0.054573	0.054573	0.054621	0.054621
	Cessna 210 Centurion	0.163573	0.163718	0.163718	0.163864	0.163864
	Cessna 310	0.109049	0.109145	0.109145	0.109242	0.109242
	Cessna 400 (FAS)	0.163573	0.163718	0.163718	0.163864	0.163864
	Cessna 414	0.218097	0.218291	0.218291	0.218485	0.218485
	Cessna 425 Conquest I	0.054524	0.054573	0.054573	0.054621	0.054621
	Cirrus SR20	2.94431	2.946928	2.946928	2.949546	2.949546

Category	Aircraft	2024	2029 Proposed Project	2029 No-Action	2034 Proposed Project	2034 No-Action
	Cirrus SR22 Turbo (FAS)	25.51735	25.54004	25.54004	25.56273	25.56273
	Columbia Aircraft Lancair (COL3/4 All Types) (FAS)	0.054524	0.054573	0.054573	0.054621	0.054621
	Diamond DA40	0.218097	0.218291	0.218291	0.218485	0.218485
	Diamond DV-20 Katana (FAS)	0.272621	0.272864	0.272864	0.273106	0.273106
	EADS Socata TBM-700	0.054524	0.054573	0.054573	0.054621	0.054621
	Mooney M20-K	0.218097	0.218291	0.218291	0.218485	0.218485
	Piaggio P.180 Avanti	0.054524	0.054573	0.054573	0.054621	0.054621
	Pilatus PC-12	0.872388	0.873164	0.873164	0.873939	0.873939
	Piper PA-24 Comanche	0.054524	0.054573	0.054573	0.054621	0.054621
	Piper PA-27 Aztec	0.054524	0.054573	0.054573	0.054621	0.054621
	Piper PA-28 Cherokee Series	0.436194	0.436582	0.436582	0.43697	0.43697
	Piper PA-31 Navajo	8.941978	8.949929	8.949929	8.957879	8.957879
	Piper PA-31T Cheyenne	0.218097	0.218291	0.218291	0.218485	0.218485
	Piper PA-32 Cherokee Six	0.218097	0.218291	0.218291	0.218485	0.218485
	Piper PA-34 Seneca	0.218097	0.218291	0.218291	0.218485	0.218485
	Piper PA-42 Cheyenne Series	0.054524	0.054573	0.054573	0.054621	0.054621
	Piper PA46-TP Meridian	0.218097	0.218291	0.218291	0.218485	0.218485
	Raytheon Beech 99	0.76334	0.764018	0.764018	0.764697	0.764697
	Raytheon Beech Baron 58	0.218097	0.218291	0.218291	0.218485	0.218485
	Raytheon Beech Bonanza 36	22.0278	22.04739	22.04739	22.06697	22.06697
	Raytheon Super King Air 200	0.163573	0.163718	0.163718	0.163864	0.163864
	Raytheon Super King Air 300	0.218097	0.218291	0.218291	0.218485	0.218485
	SOCATA TBM 850	0.109049	0.109145	0.109145	0.109242	0.109242
	Subtotal, General Aviation/Military Local	120.1715	120.2783	120.2783	120.3852	120.3852
Grand Total		449.9683	479.7215	459.0093	490.9926	470.2805

Notes: To convert annual operations to average daily operations, an annualization factor of 0.0027397 was applied.

Sources: (SMAA, 2024; SMAA, 2025; SMAA and AECOM, 2025; FAA, 2025b; FAA, 2025c)

4.2.1. TEMPORAL DISTRIBUTION OF OPERATIONS

Table 3 depicts the day/night operations split applied to the fleet operations. The day/night operations split was developed from the 2019 noise study described in **Section 4.2**, which was confirmed using current radar data provided by SMAA. Aircraft operations occurring between 10:00 p.m. and 7:00 a.m. were considered nighttime operations consistent with FAA’s definition of the DNL metric. All other operations were allocated to daytime.

Table 3: Temporal Distribution Summary

Category	Day	Night
Air Carrier/Commuter	90.4%	9.6%
General Aviation - Itinerant	96.9%	3.1%
General Aviation - Local	96.5%	3.5%

Source: (SMAA, 2019; SMAA, 2025)

4.3. RUNWAY USE

A summary of the modeled annual average daily utilization of SRQ’s runways is presented in **Table 4** for arrivals and departures. Runway use was developed based on the 2019 noise study described in **Section 4.2**, which was then updated using a sample from 2024 peak month radar tracks provided by SMAA.

Table 4: Runway Utilization Summary

Operation Type	Runway	Air Carrier/Commuter	General Aviation/Military
Itinerant Departures	4	0.00%	15.73%
	14	52.61%	40.67%
	22	0.00%	15.49%
	32	47.40%	26.03%
	H1	0.00%	1.08%
	H2	0.00%	0.99%
Itinerant Arrivals	4	0.00%	8.18%
	14	52.74%	41.47%
	22	0.00%	12.18%
	32	47.25%	36.10%
	H1	0.00%	1.08%
	H2	0.00%	0.99%
Local Operations	4	N/A	36.34%
	14	N/A	40.29%
	22	N/A	10.71%
	32	N/A	12.66%

Source: (SMAA, 2019; SMAA, 2025)

4.4. FLIGHT TRACKS

Flight tracks are the aircrafts’ actual paths through the air projected vertically onto the ground. Modeled flight tracks for this report were developed using a similar approach and methodology used for developing runway utilization. Modeled flight tracks reflect a reasonable representation of the actual flight track recognizing that pilot technique and weather conditions will affect the actual track of individual flights.

Figures 5 through 17 (Attachment A) depict modeled commercial aircraft, air taxi/commuter aircraft, and general aviation/military tracks, respectively.

4.5. FLIGHT PROFILES

Flight profiles model the vertical paths of aircraft during departure and arrival to determine the altitude, speed, and engine thrust or power of an aircraft at any point along a flight track. AEDT uses this information to calculate noise exposure on the ground. Profiles are unique to each aircraft type and vary with temperature, barometric pressure, headwind, and aircraft weight. Standard AEDT default profiles were used for all aircraft operations.

4.6. NOISE CONTOURS

DNL contours are a graphical representation of how the noise from the airport's average annual daily aircraft operations is distributed over the surrounding area. The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. **Figures 18 through 20 (Attachment B)** depict modeled DNL 65 dB contours for years 2024, 2029 (No Action and Proposed Project), and 2034 (No Action and Proposed Project).

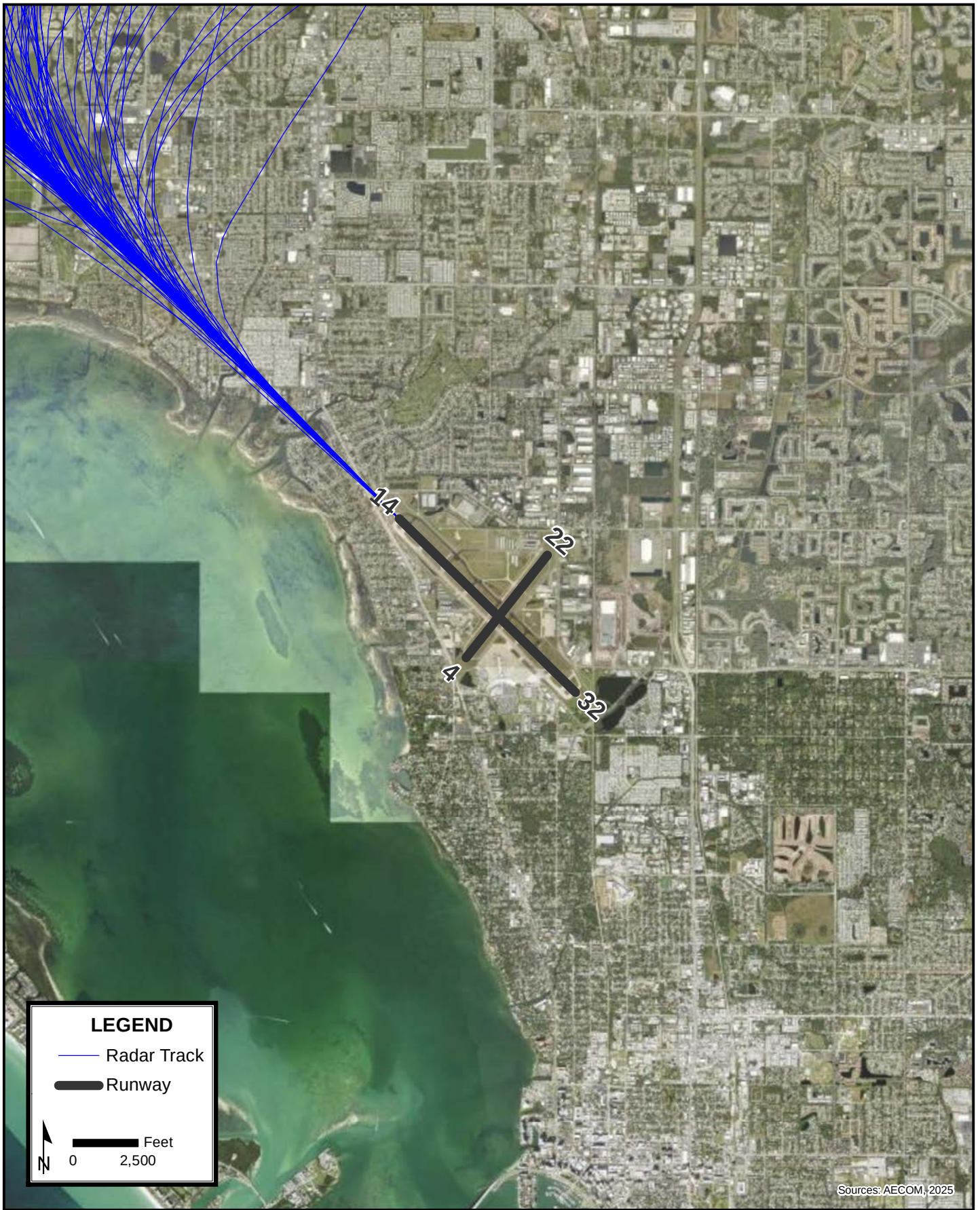
5. REFERENCES

- ANSI. (2003). *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 1, ANSI S12.9-1988 (R 2003)*.
- ANSI. (2007). *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound - Part 5: Sound Level Descriptors for Determination of Compatible Land Use, ANSI/ASA S12.9-2007/Part 5*.
- FAA. (2025a). *FAA Order 1050.1G - FAA National Environmental Policy Act Implementing Procedures*.
- FAA. (2025b). *FAA Terminal Area Forecast Detail Report - Forecast Issued January 2025*.
- FAA. (2025c). *Traffic Flow Management System Counts (TFMSC) Aviation System Performance Metrics (ASPM)*.
- FICON. (1992). *Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992*.
- FICUN. (1980). *Guidelines for Considering Noise in Land Use Planning and Control, June 1980*.
- Fidell, S., Barger, D., & Schultz, T. (1991). *Updating a Dosage-Effect Relationship for the Prevalence of Annoyance Due to General Transportation Noise, Journal of the Acoustical Society of America, 89*.
- Schultz, T. (1978). *Synthesis of Social Surveys on Noise Annoyance, Journal of the Acoustical Society of America, 64*.
- SMAA. (2019). *SRQ 2019 Noise Contour Modeling Memorandum*.
- SMAA. (2024). *Activity Report - Sarasota Bradenton International Airport - December 2024*. Retrieved from <https://flysrq.com/sites/default/files/2025-02/Monthly%20Activity%20Report%2012-2024.pdf>
- SMAA. (2025). *Radar Data Capture and Operational Data Summary for the Period 01 March 2024 - 31 March 2024*. Provided by L. Guilbert, SMAA, 15 April 2025.
- SMAA and AECOM. (2025). *Final Memorandum: SMAA Forecast of Passenger Enplanements, H. Klein, AECOM, to M. Elliott, FAA*.
- USEPA. (1974). *Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety, Report 550/9-74-004*.

ATTACHMENT A: FLIGHT TRACK FIGURES

LIST OF FIGURES

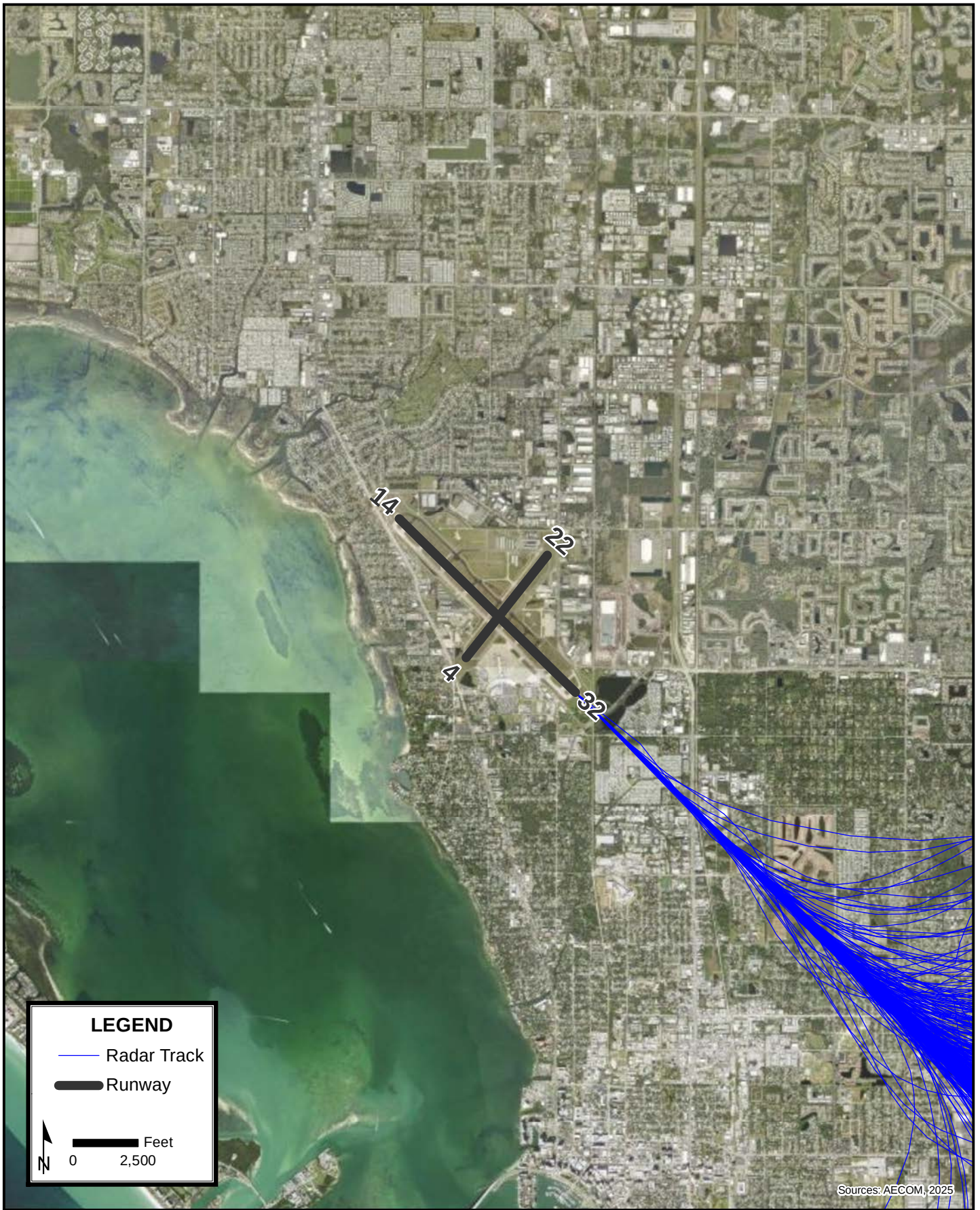
- Figure 5: Air Carrier/Commuter Arrivals on RW 14
- Figure 6: Air Carrier/Commuter Arrivals on RW 32
- Figure 7: Air Carrier/Commuter Departures on RW 14
- Figure 8: Air Carrier/Commuter Departures on RW 32
- Figure 9: General Aviation/Military Arrivals on RW 14
- Figure 10: General Aviation/Military Arrivals on RW 32
- Figure 11: General Aviation/Military Departures on RW 14
- Figure 12: General Aviation/Military Departures on RW 32
- Figure 13: General Aviation/Military Arrivals on RW 4
- Figure 14: General Aviation/Military Arrivals on RW 22
- Figure 15: General Aviation/Military Departures on RW 4
- Figure 16: General Aviation/Military Departures on RW 22
- Figure 17: General Aviation/Military Touch and Go Operations RW 14-32 and RW 4-22



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**AIR CARRIER/COMMUTER
ARRIVALS ON RW 14**

**FIGURE
5**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**AIR CARRIER/COMMUTER
ARRIVALS ON RW 32**

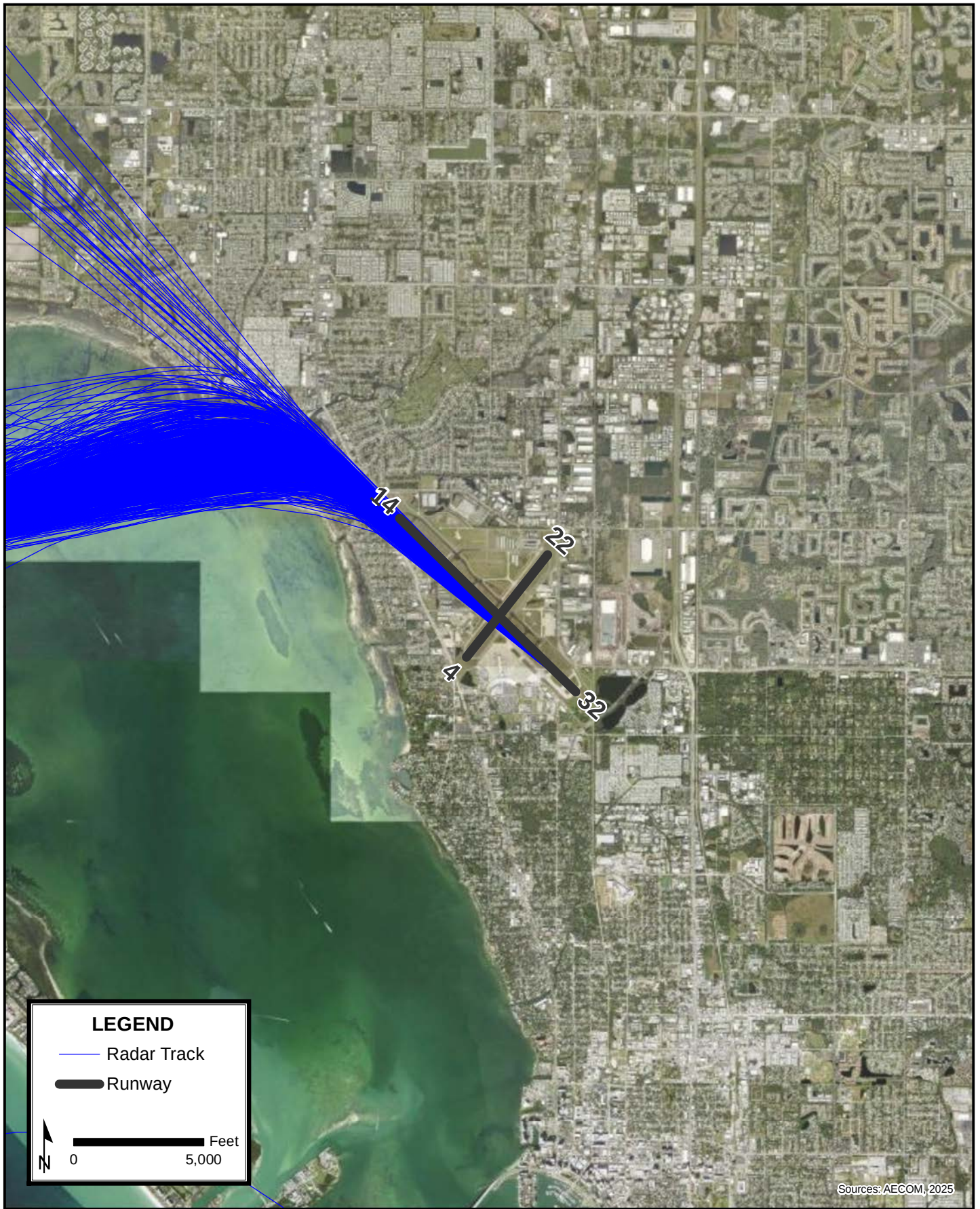
**FIGURE
6**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**AIR CARRIER/COMMUTER
DEPARTURES ON RW 14**

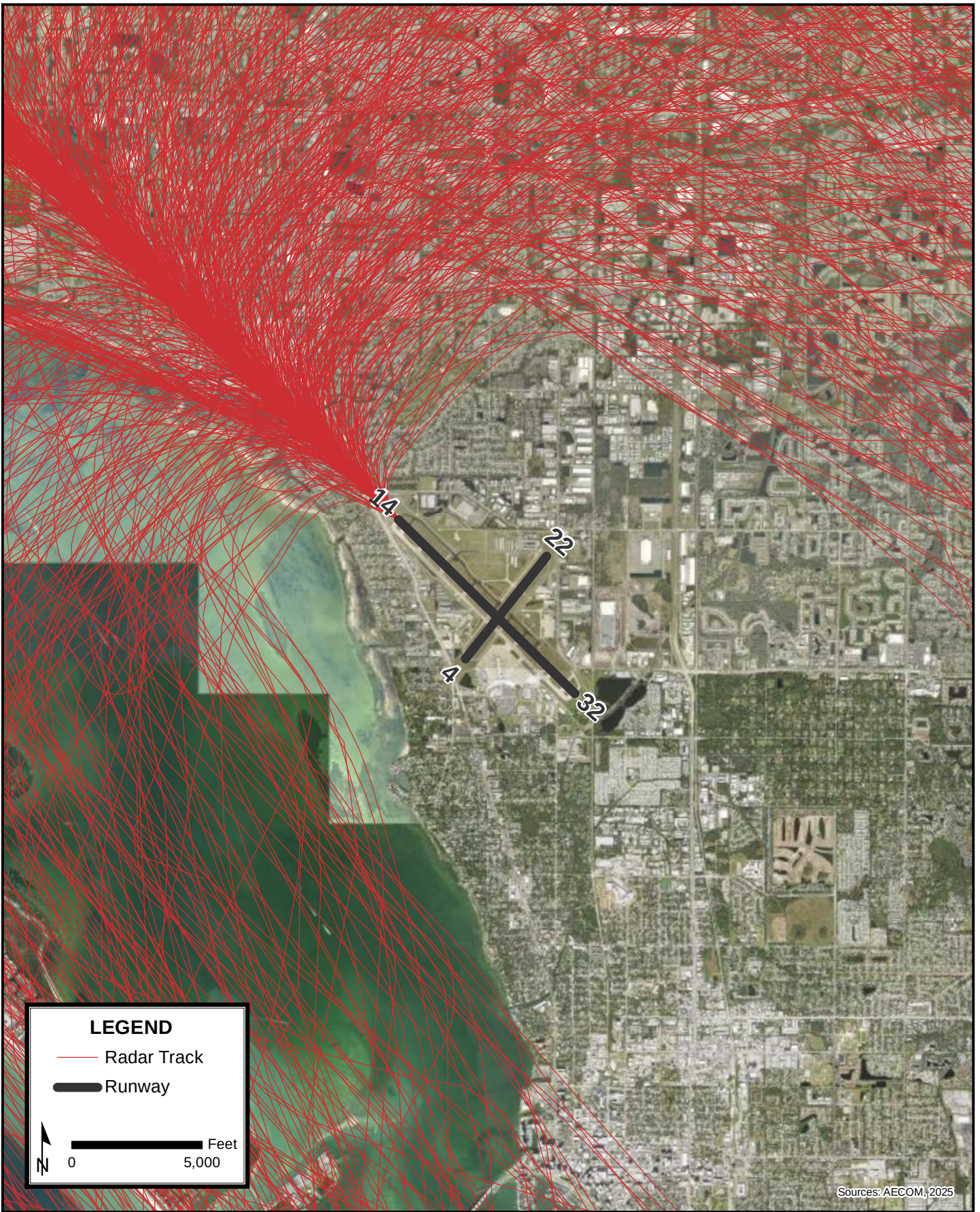
**FIGURE
7**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

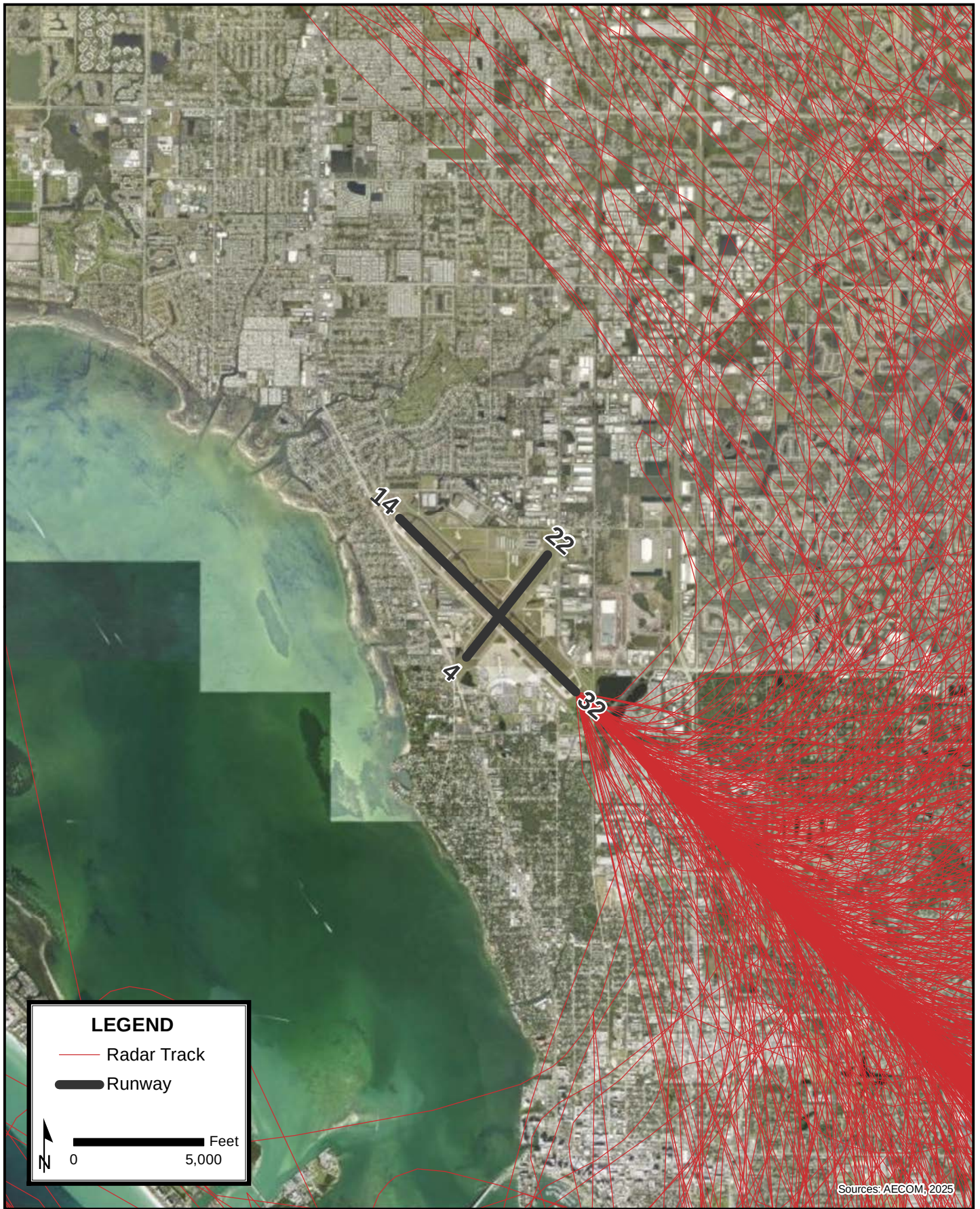
**AIR CARRIER/COMMUTER
DEPARTURES ON RW 32**

**FIGURE
8**



GENERAL AVIATION/MILITARY
ARRIVALS ON RW 14

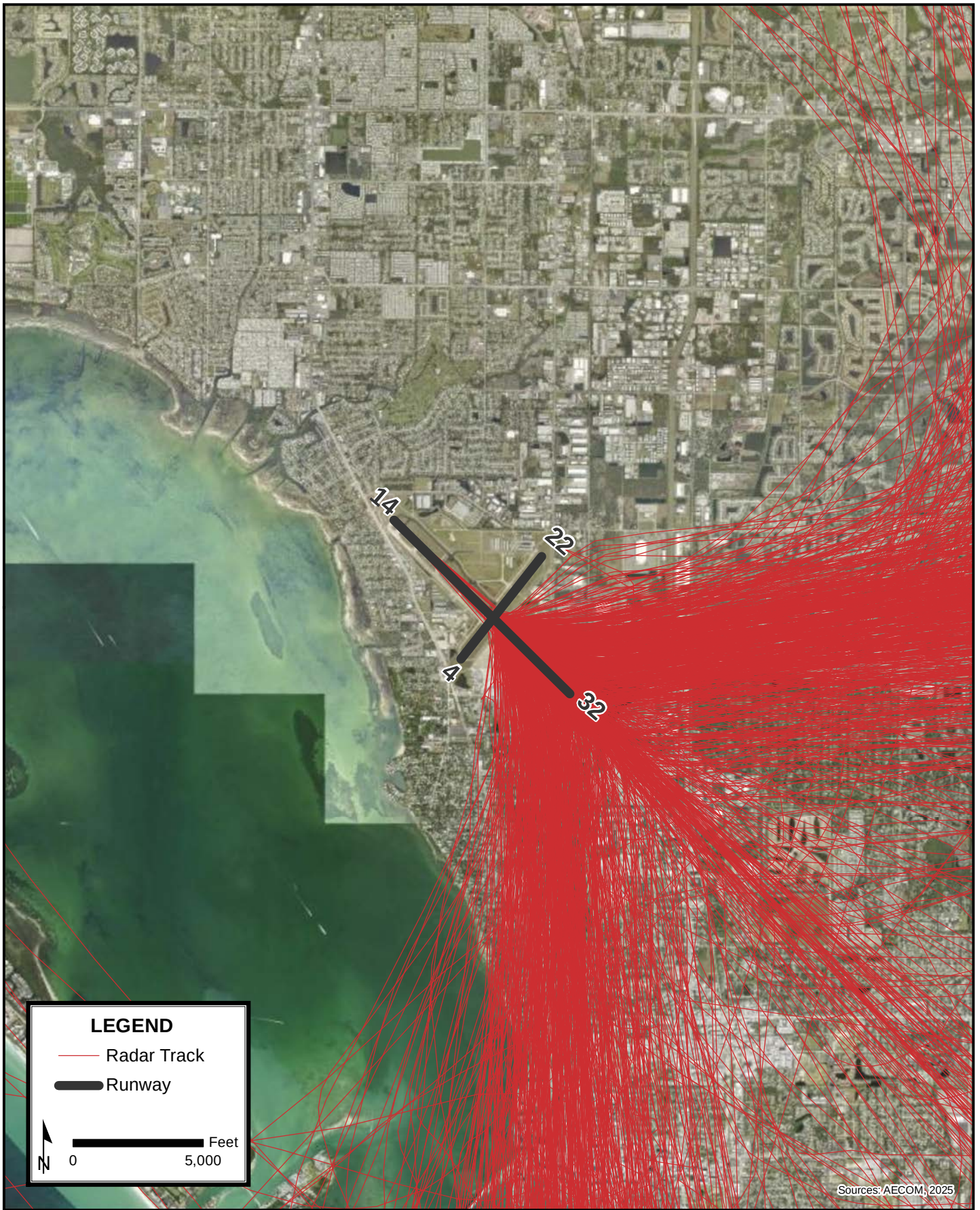
FIGURE
9



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
ARRIVALS ON RW 32**

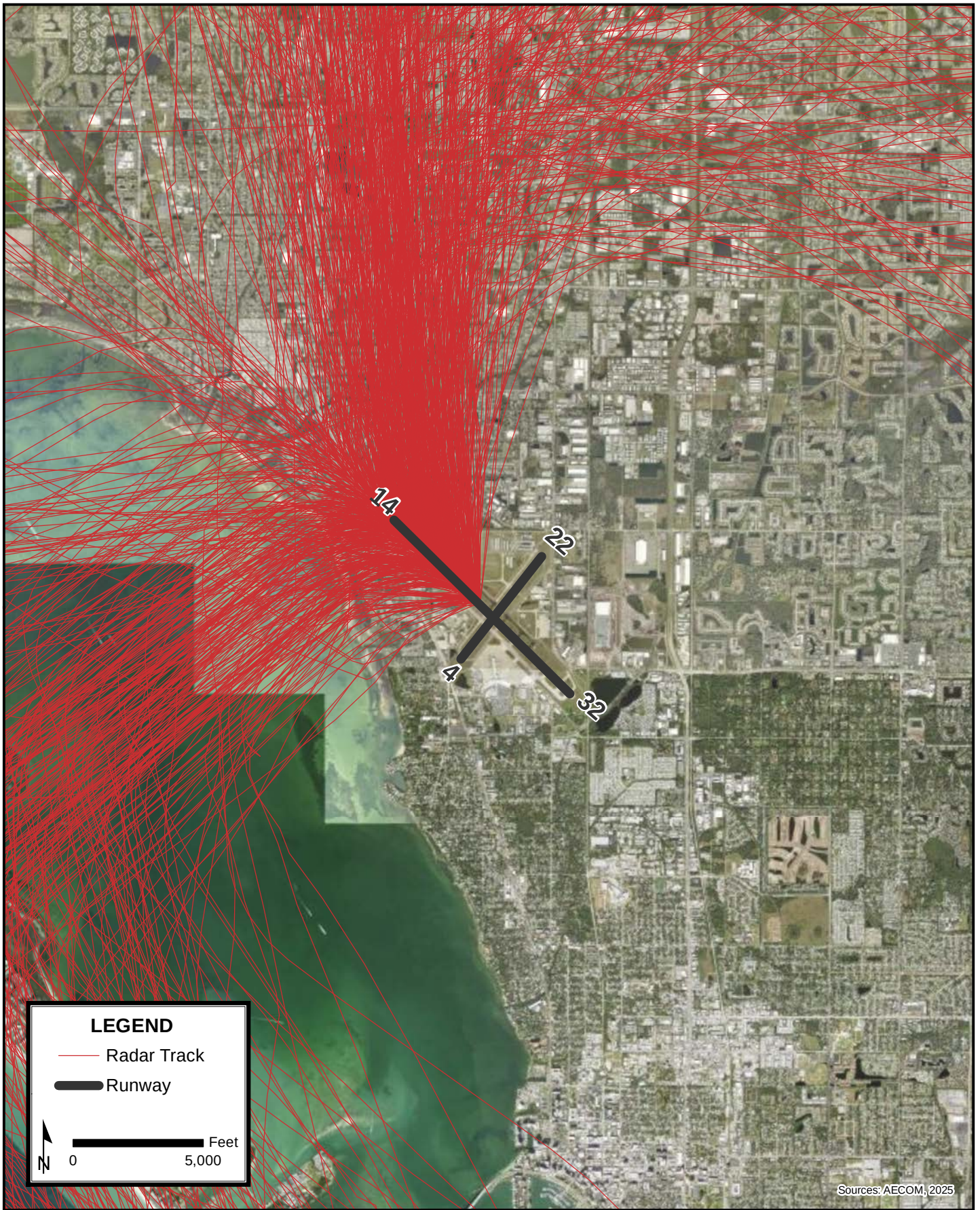
**FIGURE
10**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
DEPARTURES ON RW 14**

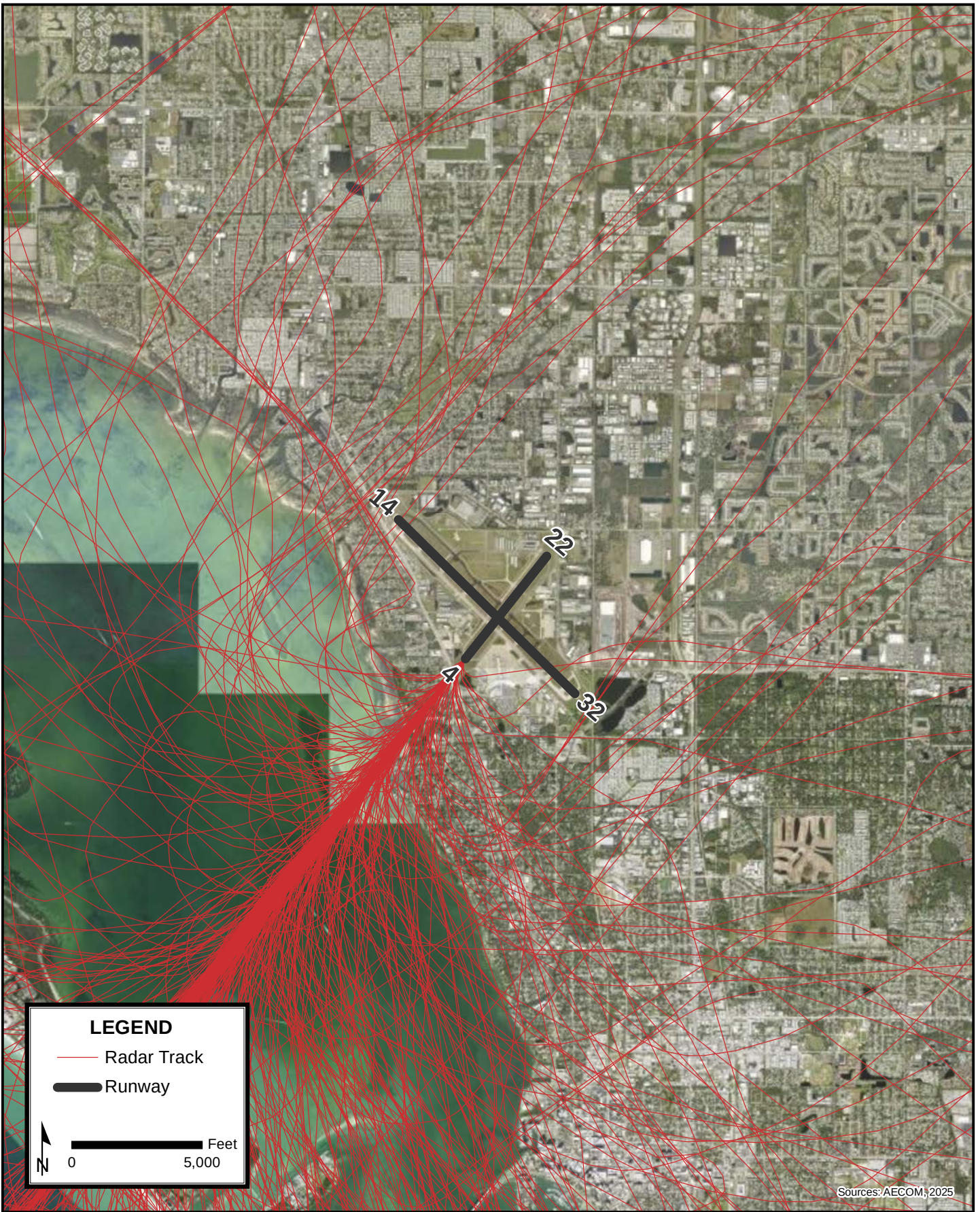
**FIGURE
11**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
DEPARTURES ON RW 32**

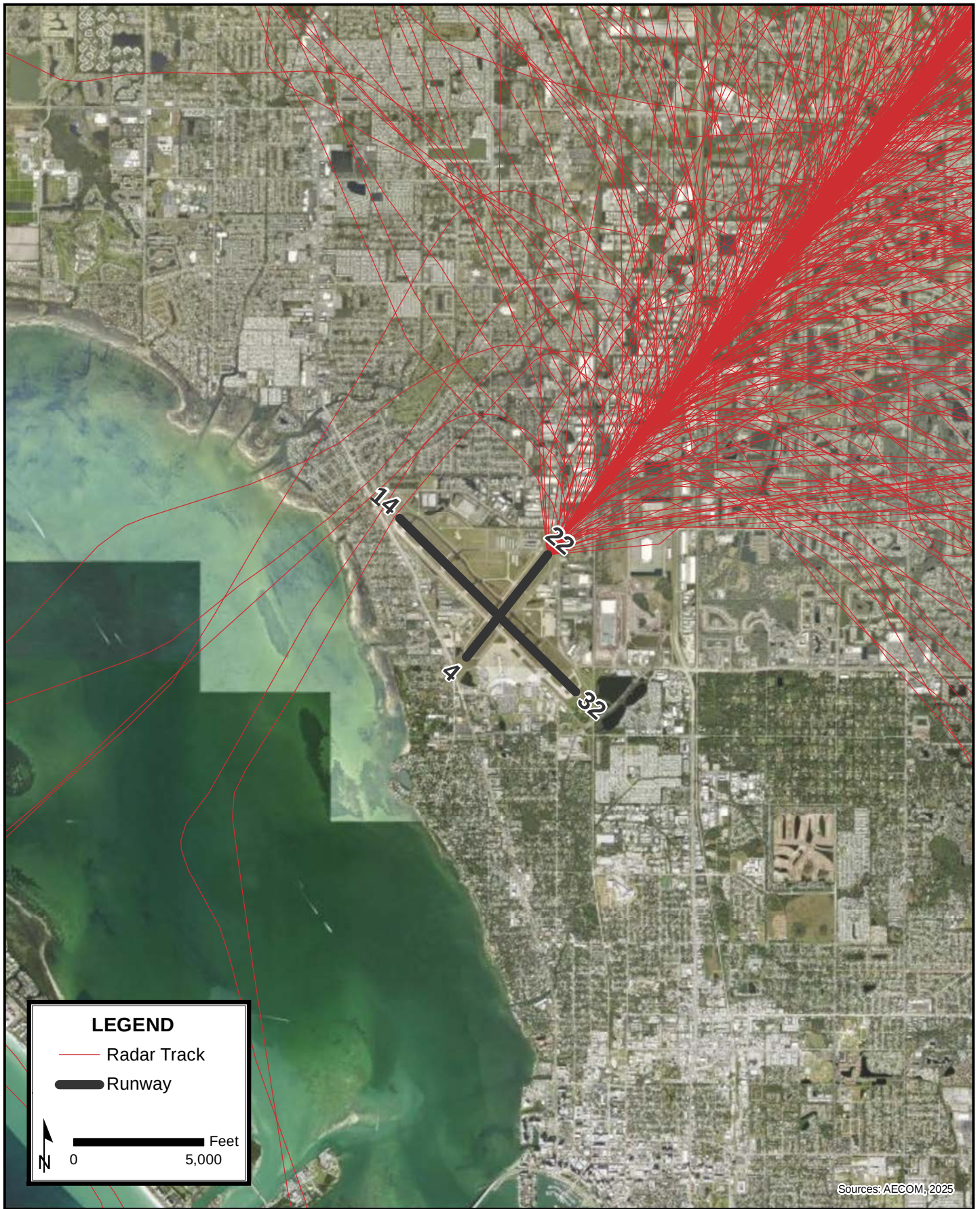
**FIGURE
12**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
ARRIVALS ON RW 4**

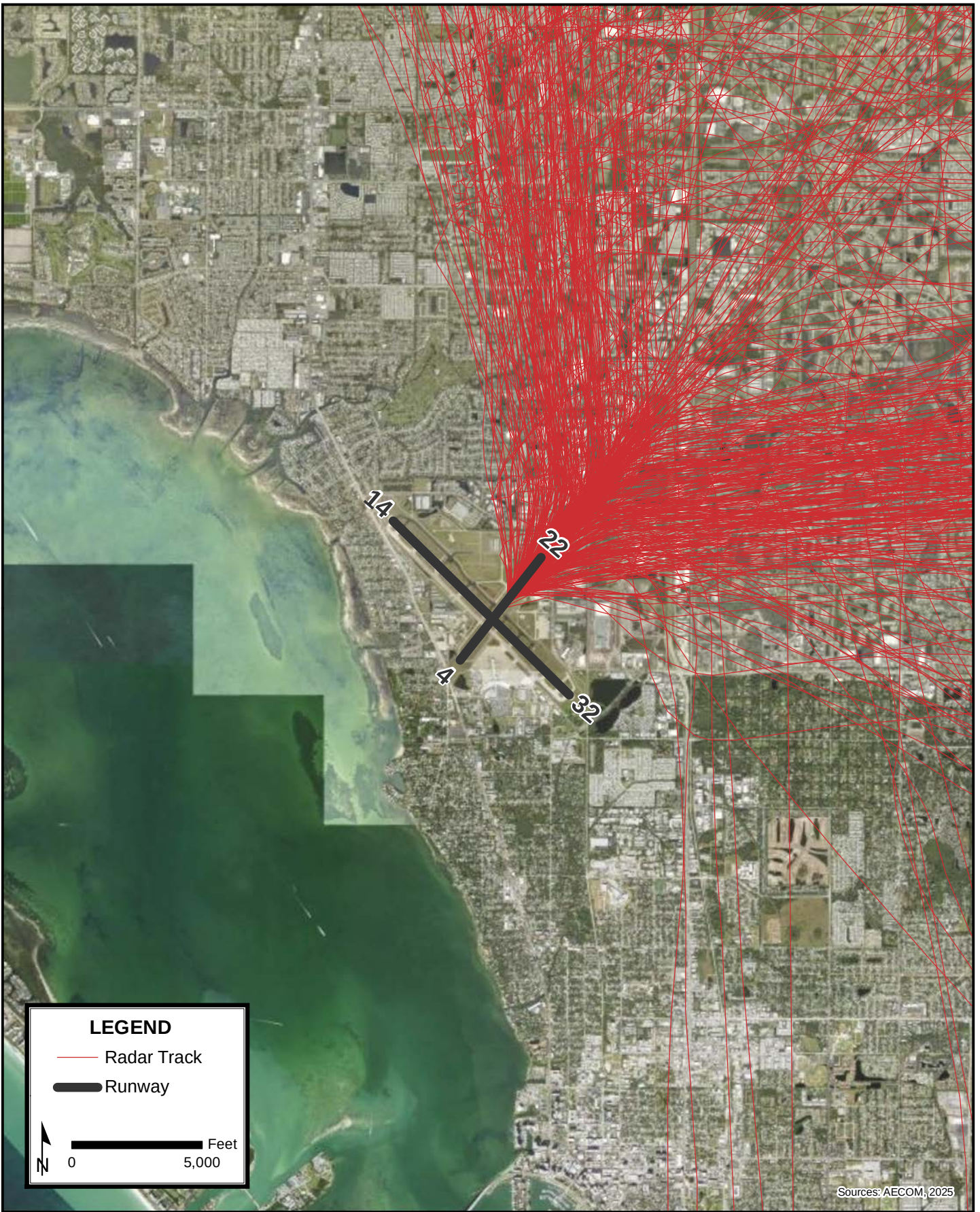
**FIGURE
13**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
ARRIVALS ON RW 22**

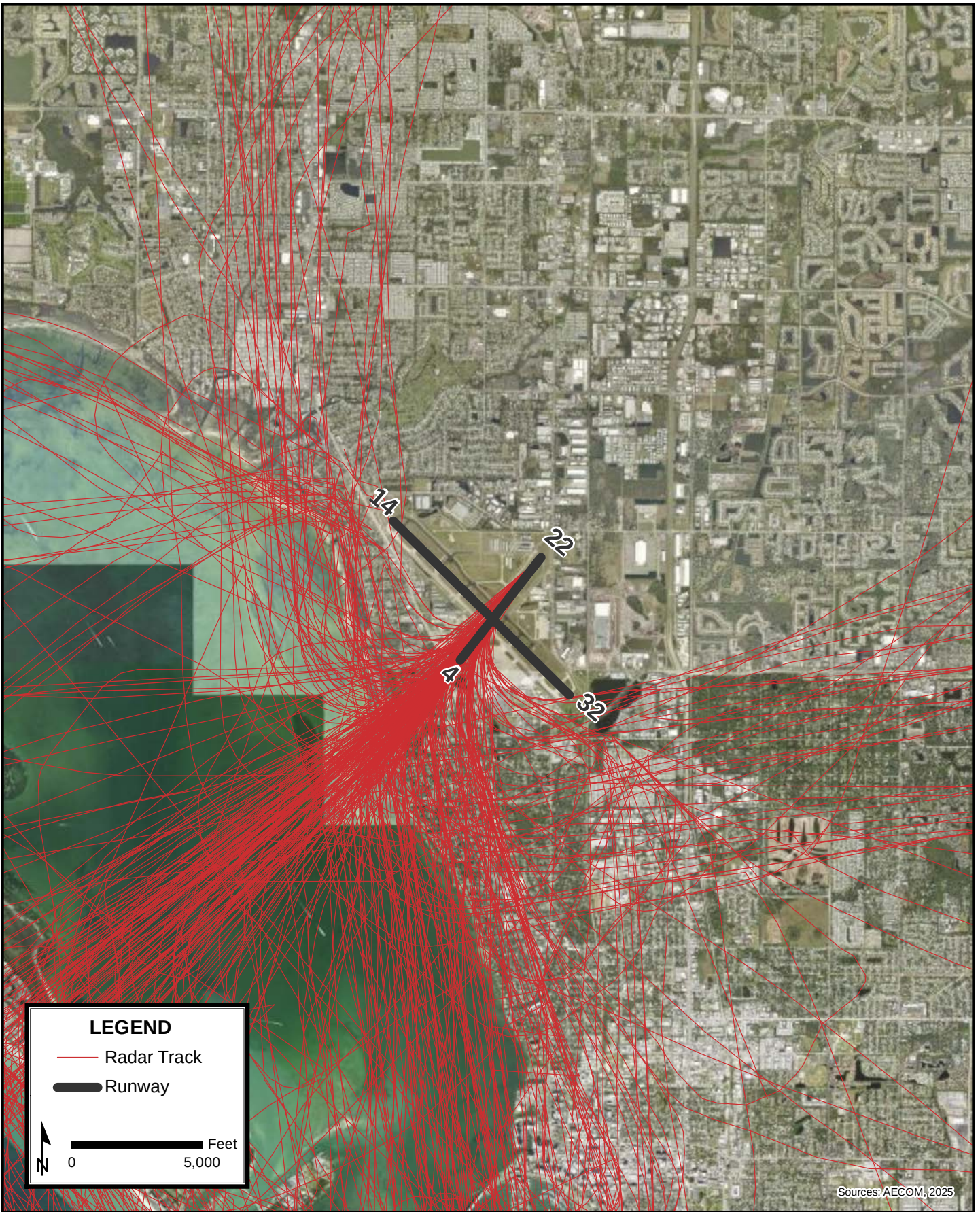
**FIGURE
14**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
DEPARTURES ON RW 4**

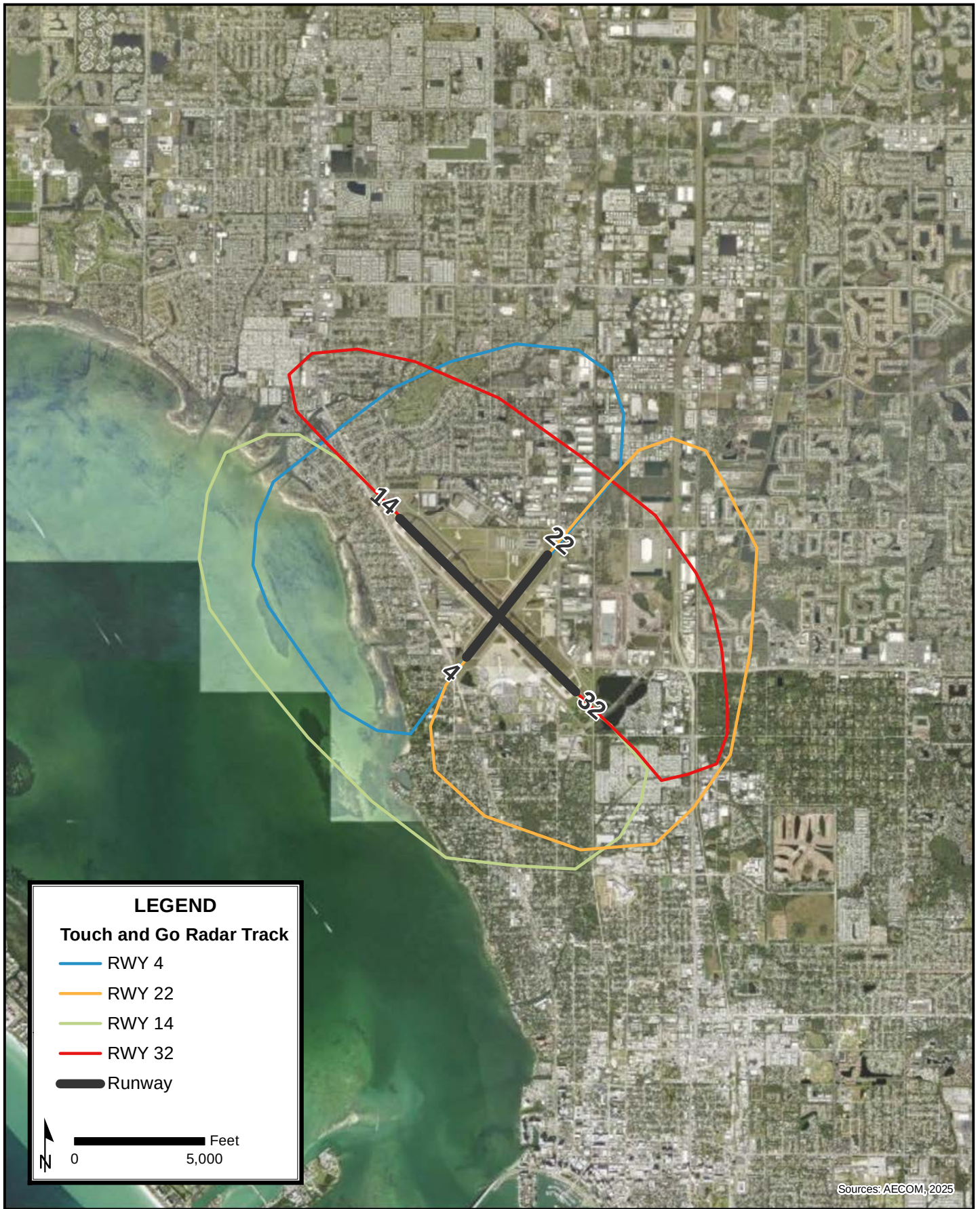
**FIGURE
15**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
DEPARTURES ON RW 22**

**FIGURE
16**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**GENERAL AVIATION/MILITARY
TOUCH AND GO OPERATIONS
RW 14-32 AND RW 4-22**

**FIGURE
17**

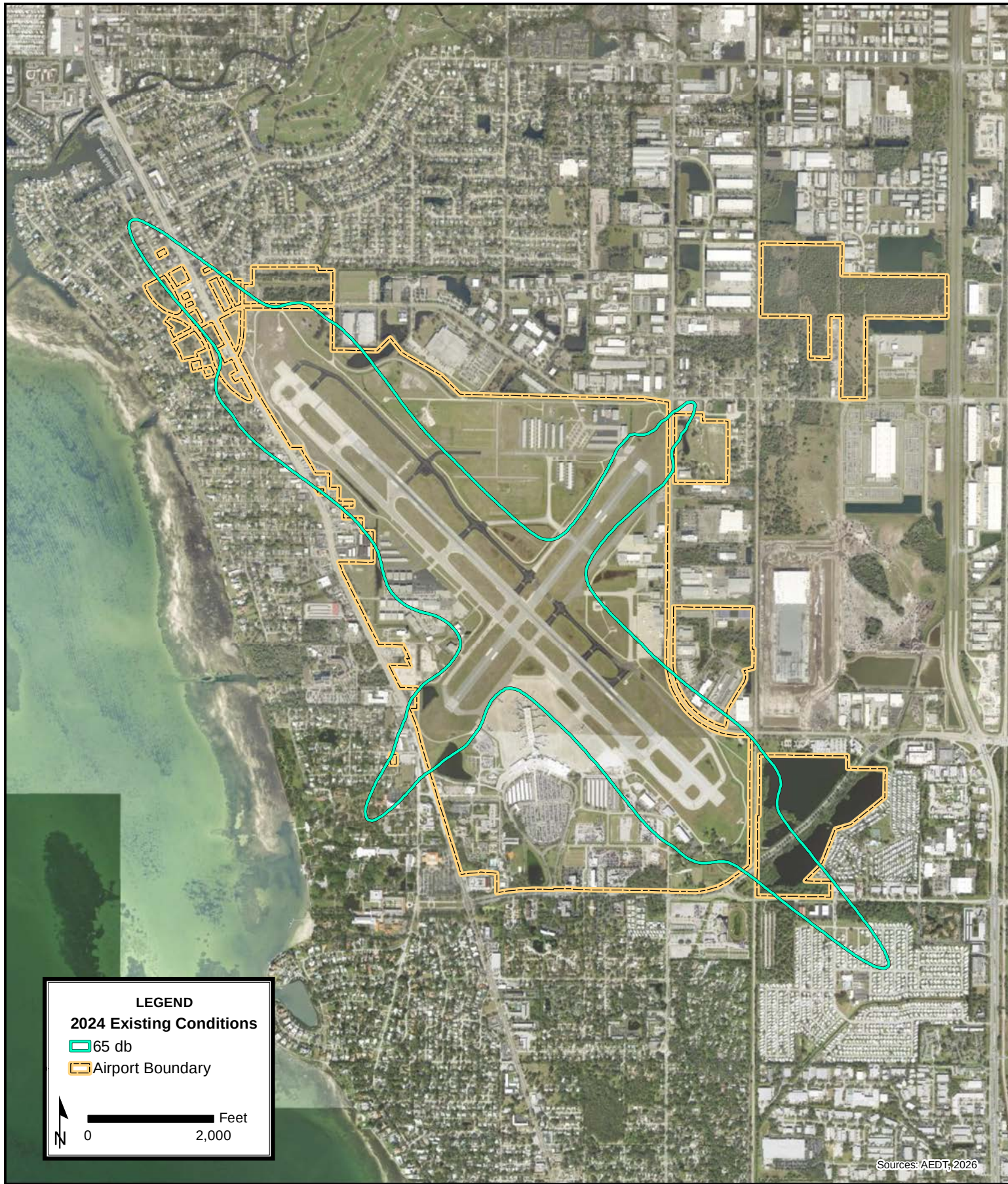
ATTACHMENT B: NOISE CONTOUR FIGURES

LIST OF FIGURES

Figure 18: 2024 Existing Noise Contours

Figure 19: 2029 No Action and Proposed Project Noise Contours

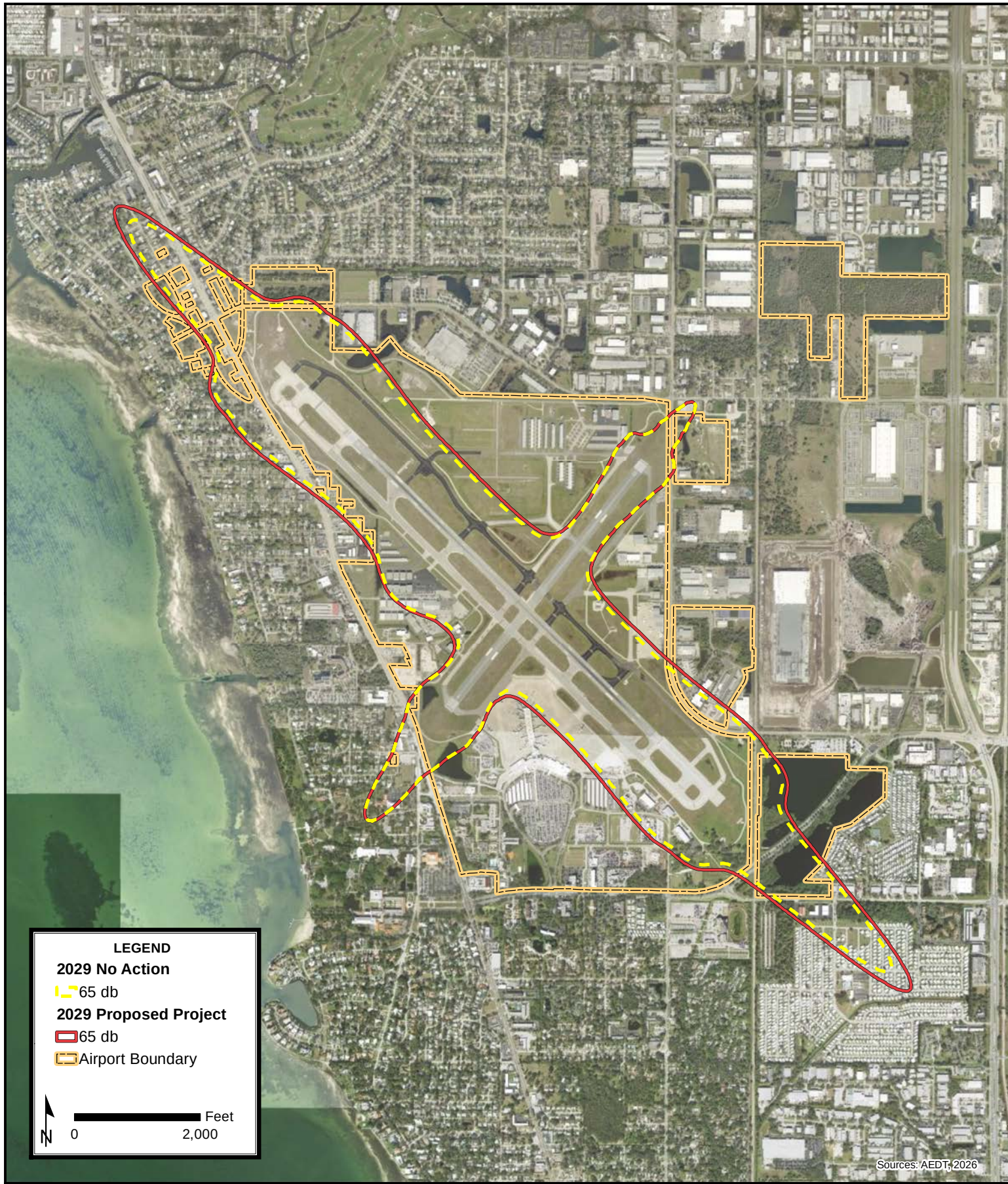
Figure 20: 2034 No Action and Proposed Project Noise Contours



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**2024 EXISTING
NOISE CONTOURS**

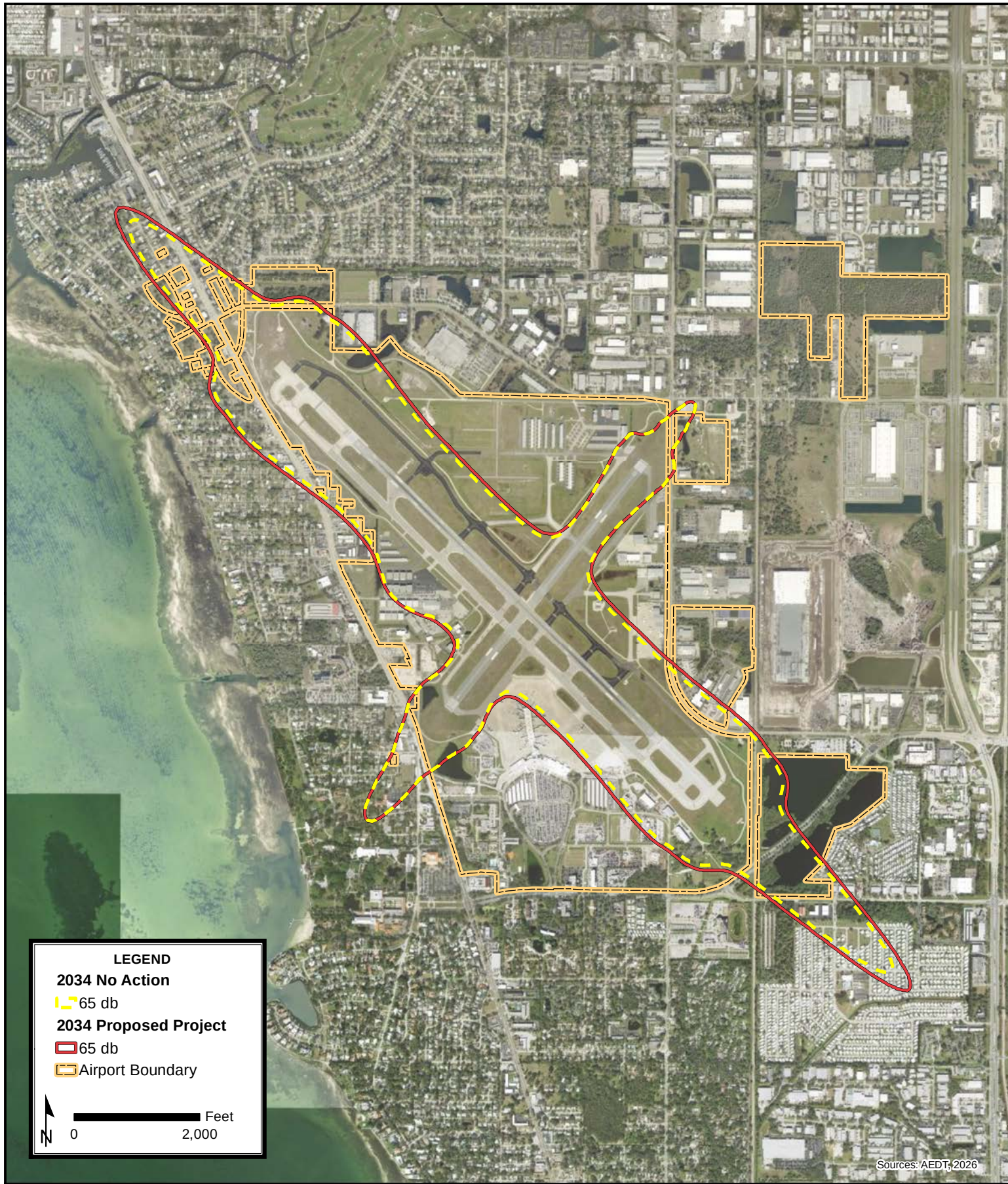
**FIGURE
18**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**2029 NO ACTION
AND PROPOSED PROJECT
NOISE CONTOURS**

**FIGURE
19**



**SARASOTA BRADENTON
INTERNATIONAL AIRPORT**
CONCOURSE A/TERMINAL PARKING
ENVIRONMENTAL ASSESSMENT

**2034 NO ACTION
AND PROPOSED PROJECT
NOISE CONTOURS**

**FIGURE
20**

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NOISE SENSITIVE SITE (NSS) RESULTS

NSS ID	Category	Name	Longitude	Latitude	2024 DNL	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
HIST-01	Historic/Cultural Resource	SO12501	-82.55602	27.38241	54.41	55.02	54.56	0.46	55.05	54.62	0.43
HIST-02	Historic/Cultural Resource	SO12387	-82.55547	27.38297	54.85	55.52	55.01	0.51	55.55	55.08	0.47
HIST-03	Historic/Cultural Resource	SO07444	-82.56302	27.38353	62.67	62.74	62.71	0.03	62.74	62.72	0.02
HIST-04	Historic/Cultural Resource	SO12440	-82.55622	27.38356	55.17	55.77	55.32	0.45	55.8	55.38	0.42
HIST-05	Historic/Cultural Resource	SO03720	-82.56158	27.38374	62.23	62.3	62.26	0.04	62.3	62.27	0.03
HIST-06	Historic/Cultural Resource	SO06926	-82.56361	27.38390	62	62.08	62.05	0.03	62.08	62.06	0.02
HIST-07	Historic/Cultural Resource	SO07079	-82.55628	27.38396	55.47	56.06	55.62	0.44	56.09	55.68	0.41
HIST-08	Historic/Cultural Resource	SO12442	-82.55588	27.38407	55.58	56.21	55.74	0.47	56.24	55.8	0.44
HIST-09	Historic/Cultural Resource	SO03724	-82.56437	27.38410	60.69	60.77	60.73	0.04	60.77	60.74	0.03
HIST-10	Historic/Cultural Resource	SO07438	-82.55937	27.38414	58.78	58.97	58.85	0.12	58.98	58.87	0.11
HIST-11	Historic/Cultural Resource	SO07439	-82.55969	27.38415	59.41	59.56	59.46	0.1	59.57	59.48	0.09
HIST-12	Historic/Cultural Resource	SO12441	-82.55669	27.38416	55.69	56.22	55.82	0.4	56.25	55.88	0.37
HIST-13	Historic/Cultural Resource	SO07441	-82.56057	27.38417	61.29	61.39	61.34	0.05	61.4	61.35	0.05
HIST-14	Historic/Cultural Resource	SO07440	-82.56029	27.38419	60.73	60.85	60.78	0.07	60.85	60.79	0.06

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Category	Name	Longitude	Latitude	2024 DNL	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
HIST-15	Historic/Cultural Resource	SO07442	-82.56213	27.38428	63.71	63.77	63.75	0.02	63.78	63.76	0.02
HIST-16	Historic/Cultural Resource	SO00370	-82.56451	27.38480	59.7	59.79	59.74	0.05	59.8	59.76	0.04
HIST-17	Historic/Cultural Resource	SO12388	-82.55585	27.38491	56.33	56.95	56.49	0.46	56.98	56.56	0.42
HIST-18	Historic/Cultural Resource	SO12389	-82.55612	27.38531	56.74	57.32	56.9	0.42	57.35	56.96	0.39
HIST-19	Historic/Cultural Resource	SO03723	-82.56335	27.38533	61.06	61.14	61.1	0.04	61.16	61.12	0.04
HIST-20	Historic/Cultural Resource	SO07437	-82.56408	27.38540	59.61	59.71	59.66	0.05	59.73	59.68	0.05
HIST-21	Historic/Cultural Resource	SO03722	-82.56255	27.38546	62.73	62.8	62.77	0.03	62.81	62.78	0.03
HIST-22	Historic/Cultural Resource	SO07436	-82.56448	27.38634	57.78	57.93	57.84	0.09	57.95	57.87	0.08
HIST-23	Historic/Cultural Resource	SO07435	-82.56053	27.38681	68.03	68.06	68.05	0.01	68.07	68.05	0.02
HIST-24	Historic/Cultural Resource	SO01895	-82.56369	27.38737	57.37	57.57	57.45	0.12	57.58	57.47	0.11
HIST-25	Historic/Cultural Resource	SO01898	-82.55825	27.38750	65.32	65.41	65.35	0.06	65.42	65.37	0.05
HIST-26	Historic/Cultural Resource	SO01896	-82.56362	27.38826	56.21	56.49	56.31	0.18	56.5	56.34	0.16
HIST-27	Historic/Cultural Resource	SO01897	-82.56288	27.38835	57.06	57.33	57.16	0.17	57.34	57.19	0.15
HIST-28	Historic/Cultural Resource	MA00303	-82.56632	27.39085	53.14	53.7	53.29	0.41	53.71	53.33	0.38
HIST-29	Historic/Cultural Resource	MA00984	-82.56521	27.40125	67.73	68.46	67.9	0.56	68.49	67.97	0.52

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Category	Name	Longitude	Latitude	2024 DNL	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
HIST-30	Historic/Cultural Resource	MA00882	-82.56698	27.40281	68.97	69.72	69.15	0.57	69.77	69.23	0.54
HIST-31	Historic/Cultural Resource	MA00896	-82.56798	27.40320	66.73	67.48	66.9	0.58	67.52	66.98	0.54
HIST-32	Historic/Cultural Resource	MA01908	-82.54635	27.40343	62.9	63	62.96	0.04	63.02	62.98	0.04
HIST-33	Historic/Cultural Resource	MA00075	-82.56407	27.38885	55.12	55.47	55.23	0.24	55.49	55.27	0.22
HIST-34	Historic/Cultural Resource	MA00811	-82.56329	27.39039	55.43	55.89	55.57	0.32	55.91	55.62	0.29
HIST-35	Historic/Cultural Resource	MA00812	-82.56505	27.39377	55.36	56.09	55.53	0.56	56.1	55.58	0.52
HIST-36	Historic/Cultural Resource	MA00813	-82.56249	27.39179	56.46	57.01	56.62	0.39	57.03	56.67	0.36
HIST-37	Historic/Cultural Resource	MA01037	-82.56409	27.39182	54.9	55.49	55.06	0.43	55.51	55.11	0.4
HIST-38	Historic/Cultural Resource	MA01464	-82.56728	27.39245	53.15	53.81	53.3	0.51	53.82	53.35	0.47
HIST-39	Historic/Cultural Resource	MA01907	-82.54688	27.40298	63.82	63.91	63.88	0.03	63.92	63.89	0.03
HIST-40	Historic/Cultural Resource	SO00394	-82.56093	27.38413	61.91	62	61.96	0.04	62.01	61.96	0.05
EDU-01	Educational/ Childcare	Easter Seals	-82.56617	27.39603	56.84	57.66	57.01	0.65	57.67	57.07	0.6
EDU-02	Educational/ Childcare	Bryant Chapel	-82.54232	27.40387	55.21	55.45	55.33	0.12	55.47	55.36	0.11
EDU-03	Educational/ Childcare	New College Child Center	-82.56026	27.38440	61.13	61.23	61.16	0.07	61.23	61.18	0.05
EDU-04	Educational/ Childcare	Bright Water School	-82.56527	27.39647	58.23	59.06	58.4	0.66	59.07	58.46	0.61

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Category	Name	Longitude	Latitude	2024 DNL	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
EDU-05	Educational/ Childcare	New College of Florida	-82.56753	27.40246	66.35	67.13	66.53	0.6	67.17	66.61	0.56
EDU-06	Educational/ Childcare	University of South Florida Sarasota - Manatee	-82.56264	27.39156	56.27	56.81	56.43	0.38	56.82	56.48	0.34
REL-01	Religious	Bryant Chapel	-82.54232	27.40387	55.21	55.45	55.33	0.12	55.47	55.36	0.11
REL-02	Religious	New College Child Center	-82.56026	27.38440	61.13	61.23	61.16	0.07	61.23	61.18	0.05
REL-03	Religious	Bright Water School	-82.56527	27.39647	58.23	59.06	58.4	0.66	59.07	58.46	0.61
REL-04	Religious	Mt Tabor Missionary Baptist	-82.56753	27.40246	66.35	67.13	66.53	0.6	67.17	66.61	0.56
REC-01	Recreational Area/Preserve	McArthur Park	-82.56468	27.41209	56.93	57.67	57.08	0.59	57.66	57.12	0.54
REC-02	Recreational Area/Preserve	Sara Bay Country Club	-82.56738	27.41559	54.43	55.11	54.56	0.55	55.1	54.59	0.51
REC-03	Recreational Area/Preserve	North Water Tower Park	-82.54922	27.37438	51.84	52.57	52.01	0.56	52.59	52.07	0.52
REC-04	Recreational Area/Preserve	Sapphire Shores Park	-82.56420	27.37730	52.17	52.4	52.26	0.14	52.41	52.28	0.13
REC-05	Recreational Area/Preserve	Sarasota Lakes RV Resort	-82.53664	27.38467	59.45	60.26	59.62	0.64	60.31	59.72	0.59

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS RESULTS (RESIDENTIAL)

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-001	-82.5723	27.41069	66.11	65.55	0.56	66.06	65.55	0.51
RES-002	-82.5735	27.41104	65.5	64.92	0.58	65.45	64.92	0.53
RES-003	-82.5729	27.41041	65.97	65.42	0.55	65.92	65.42	0.5
RES-004	-82.573	27.41073	65.93	65.37	0.56	65.88	65.37	0.51
RES-005	-82.5734	27.41045	65.27	64.72	0.55	65.23	64.74	0.49
RES-006	-82.5693	27.40376	65.11	64.52	0.59	65.13	64.59	0.54
RES-007	-82.5728	27.40963	65.3	64.79	0.51	65.28	64.81	0.47
RES-008	-82.5724	27.40974	66.01	65.49	0.52	65.98	65.5	0.48
RES-009	-82.5728	27.41146	65.32	64.74	0.58	65.26	64.73	0.53
RES-010	-82.5738	27.41181	65.11	64.5	0.61	65.05	64.49	0.56
RES-011	-82.5723	27.40952	65.99	65.47	0.52	65.96	65.48	0.48
RES-012	-82.5719	27.41011	66.59	66.04	0.55	66.54	66.04	0.5
RES-013	-82.5703	27.40742	66.31	65.84	0.47	66.29	65.87	0.42
RES-014	-82.5692	27.40413	65.55	64.96	0.59	65.57	65.03	0.54
RES-015	-82.5686	27.40365	66.97	66.39	0.58	67	66.47	0.53
RES-016	-82.5681	27.40228	65.3	64.68	0.62	65.33	64.76	0.57
RES-017	-82.5683	27.40875	65.13	64.68	0.45	65.12	64.71	0.41
RES-018	-82.5671	27.40178	66.31	65.7	0.61	66.34	65.78	0.56
RES-019	-82.5722	27.40932	65.95	65.45	0.5	65.93	65.46	0.47
RES-020	-82.5675	27.40291	68.49	67.91	0.58	68.53	67.99	0.54
RES-021	-82.5739	27.41123	65.11	64.52	0.59	65.06	64.52	0.54
RES-022	-82.574	27.4117	65.08	64.47	0.61	65.03	64.47	0.56
RES-023	-82.5723	27.40897	65.22	64.73	0.49	65.2	64.76	0.44
RES-024	-82.573	27.40988	65.33	64.81	0.52	65.3	64.83	0.47
RES-025	-82.5667	27.40184	67.42	66.82	0.6	67.45	66.9	0.55
RES-026	-82.5737	27.41092	65.2	64.62	0.58	65.15	64.63	0.52
RES-027	-82.5725	27.41101	65.8	65.23	0.57	65.74	65.23	0.51

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-028	-82.5727	27.41017	66.01	65.47	0.54	65.97	65.47	0.5
RES-029	-82.5741	27.41154	65.02	64.41	0.61	64.97	64.41	0.56
RES-030	-82.5725	27.40919	65.25	64.76	0.49	65.23	64.78	0.45
RES-031	-82.5683	27.4024	65.03	64.41	0.62	65.06	64.48	0.58
RES-032	-82.5679	27.402	65.08	64.46	0.62	65.12	64.54	0.58
RES-033	-82.5726	27.40995	66.02	65.49	0.53	65.98	65.49	0.49
RES-034	-82.5735	27.41148	65.4	64.81	0.59	65.35	64.81	0.54
RES-035	-82.5738	27.41134	65.3	64.71	0.59	65.25	64.71	0.54
RES-036	-82.5684	27.40312	66.16	65.56	0.6	66.19	65.64	0.55
RES-037	-82.5689	27.40392	66.38	65.8	0.58	66.41	65.88	0.53
RES-038	-82.5674	27.40179	65.69	65.07	0.62	65.72	65.15	0.57
RES-039	-82.5677	27.4019	65.32	64.7	0.62	65.35	64.78	0.57
RES-040	-82.5692	27.40934	65.09	64.62	0.47	65.07	64.64	0.43
RES-041	-82.5715	27.4094	66.97	66.45	0.52	66.93	66.45	0.48
RES-042	-82.5733	27.41118	65.65	65.08	0.57	65.6	65.07	0.53
RES-043	-82.5732	27.41017	65.35	64.82	0.53	65.31	64.83	0.48
RES-044	-82.568	27.40312	67.31	66.72	0.59	67.35	66.8	0.55
RES-045	-82.5686	27.40286	65.11	64.49	0.62	65.13	64.57	0.56
RES-046	-82.5679	27.40274	66.81	66.2	0.61	66.84	66.28	0.56
RES-047	-82.5682	27.40274	65.87	65.26	0.61	65.9	65.34	0.56
RES-048	-82.5688	27.40901	65.35	64.89	0.46	65.33	64.91	0.42
RES-049	-82.5662	27.4007	65.26	64.63	0.63	65.29	64.71	0.58
RES-050	-82.5727	27.40941	65.27	64.78	0.49	65.25	64.8	0.45
RES-051	-82.5732	27.41059	65.67	65.12	0.55	65.63	65.12	0.51
RES-052	-82.5707	27.40821	66.98	66.49	0.49	66.95	66.51	0.44
RES-053	-82.5717	27.40965	66.87	66.34	0.53	66.82	66.34	0.48
RES-054	-82.5678	27.40223	65.93	65.32	0.61	65.97	65.4	0.57
RES-055	-82.5684	27.40276	65.34	64.72	0.62	65.37	64.8	0.57

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-056	-82.5689	27.40319	65.23	64.63	0.6	65.26	64.7	0.56
RES-057	-82.5687	27.40312	65.59	64.99	0.6	65.62	65.07	0.55
RES-058	-82.5664	27.40077	65.07	64.45	0.62	65.1	64.52	0.58
RES-059	-82.5685	27.40895	65.01	64.55	0.46	65	64.58	0.42
RES-060	-82.5721	27.41036	66.4	65.85	0.55	66.35	65.85	0.5
RES-061	-82.5661	27.40105	66.17	65.56	0.61	66.2	65.63	0.57
RES-062	-82.572	27.4091	65.89	65.4	0.49	65.87	65.42	0.45
RES-063	-82.5691	27.40365	65.62	65.03	0.59	65.65	65.11	0.54
RES-064	-82.5671	27.40127	65.16	64.54	0.62	65.19	64.62	0.57
RES-065	-82.5608	27.38723	65.33	65.3	0.03	65.34	65.32	0.02
RES-066	-82.5606	27.38734	66.1	66.07	0.03	66.11	66.09	0.02
RES-067	-82.5362	27.37899	65.7	65.17	0.53	65.69	65.2	0.49
RES-068	-82.5394	27.38013	65.05	64.56	0.49	65.06	64.61	0.45
RES-069	-82.5362	27.37963	65.43	64.9	0.53	65.42	64.93	0.49
RES-070	-82.5362	27.37915	65.7	65.17	0.53	65.68	65.2	0.48
RES-071	-82.5362	27.37931	65.65	65.12	0.53	65.64	65.15	0.49
RES-072	-82.5611	27.38676	65.52	65.49	0.03	65.53	65.51	0.02
RES-073	-82.5354	27.37879	65.13	64.58	0.55	65.11	64.62	0.49
RES-074	-82.5359	27.37947	65.29	64.76	0.53	65.28	64.79	0.49
RES-075	-82.5356	27.379	65.22	64.68	0.54	65.21	64.71	0.5
RES-076	-82.5605	27.3868	68.08	68.06	0.02	68.08	68.07	0.01
RES-077	-82.536	27.37974	65.1	64.57	0.53	65.09	64.61	0.48
RES-078	-82.5367	27.37949	66.05	65.53	0.52	66.03	65.56	0.47
RES-079	-82.5367	27.37902	65.81	65.28	0.53	65.79	65.31	0.48
RES-080	-82.5389	27.37985	65.17	64.67	0.5	65.17	64.72	0.45
RES-081	-82.5362	27.37947	65.56	65.03	0.53	65.55	65.06	0.49
RES-082	-82.5356	27.37926	65.08	64.55	0.53	65.07	64.58	0.49
RES-083	-82.5351	27.37839	65.04	64.49	0.55	65.02	64.52	0.5

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-084	-82.5355	27.37787	65.06	64.51	0.55	65.04	64.54	0.5
RES-085	-82.5359	27.37931	65.43	64.89	0.54	65.41	64.92	0.49
RES-086	-82.5612	27.38662	65.07	65.04	0.03	65.07	65.05	0.02
RES-087	-82.5364	27.37823	65.02	64.48	0.54	65.01	64.52	0.49
RES-088	-82.5365	27.37832	65.1	64.56	0.54	65.09	64.6	0.49
RES-089	-82.5367	27.37848	65.14	64.61	0.53	65.13	64.64	0.49
RES-090	-82.5367	27.37837	65.04	64.51	0.53	65.03	64.54	0.49
RES-091	-82.5359	27.37827	65.31	64.77	0.54	65.29	64.8	0.49
RES-092	-82.535	27.3781	65.06	64.51	0.55	65.05	64.54	0.51
RES-093	-82.5605	27.38767	65.34	65.31	0.03	65.35	65.32	0.03
RES-094	-82.5385	27.37967	65.31	64.81	0.5	65.31	64.85	0.46
RES-095	-82.5385	27.37955	65.13	64.63	0.5	65.13	64.67	0.46
RES-096	-82.5379	27.37935	65.4	64.88	0.52	65.39	64.92	0.47
RES-097	-82.5379	27.3795	65.68	65.17	0.51	65.68	65.21	0.47
RES-098	-82.5385	27.37999	65.92	65.42	0.5	65.91	65.45	0.46
RES-099	-82.5371	27.37918	65.86	65.34	0.52	65.84	65.36	0.48
RES-100	-82.5367	27.37933	66.01	65.49	0.52	65.99	65.52	0.47
RES-101	-82.5384	27.37983	65.73	65.23	0.5	65.73	65.26	0.47
RES-102	-82.5384	27.38026	66.46	65.96	0.5	66.45	65.99	0.46
RES-103	-82.5362	27.38004	65.08	64.55	0.53	65.07	64.59	0.48
RES-104	-82.5359	27.37915	65.52	64.99	0.53	65.5	65.02	0.48
RES-105	-82.5367	27.37981	65.99	65.47	0.52	65.98	65.5	0.48
RES-106	-82.5356	27.37846	65.37	64.83	0.54	65.35	64.86	0.49
RES-107	-82.5361	27.37814	65.11	64.57	0.54	65.09	64.6	0.49
RES-108	-82.5362	27.37827	65.24	64.7	0.54	65.22	64.73	0.49
RES-109	-82.537	27.37858	65.01	64.48	0.53	65	64.52	0.48
RES-110	-82.5374	27.37934	65.93	65.41	0.52	65.91	65.44	0.47
RES-111	-82.5376	27.37896	65.04	64.53	0.51	65.04	64.57	0.47

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-112	-82.536	27.37983	65.02	64.5	0.52	65.02	64.54	0.48
RES-113	-82.5365	27.37932	65.92	65.4	0.52	65.91	65.43	0.48
RES-114	-82.5354	27.37894	65.09	64.55	0.54	65.08	64.58	0.5
RES-115	-82.5359	27.37882	65.58	65.04	0.54	65.56	65.07	0.49
RES-116	-82.5378	27.38003	66.49	65.98	0.51	66.47	66.01	0.46
RES-117	-82.5365	27.37964	65.86	65.34	0.52	65.85	65.37	0.48
RES-118	-82.5374	27.37902	65.46	64.94	0.52	65.45	64.97	0.48
RES-119	-82.5367	27.37965	66.04	65.53	0.51	66.03	65.55	0.48
RES-120	-82.535	27.37794	65.04	64.49	0.55	65.02	64.52	0.5
RES-121	-82.5361	27.37882	65.66	65.13	0.53	65.64	65.15	0.49
RES-122	-82.5377	27.37934	65.63	65.12	0.51	65.62	65.15	0.47
RES-123	-82.5379	27.37966	65.95	65.44	0.51	65.94	65.47	0.47
RES-124	-82.5377	27.38079	66.46	65.95	0.51	66.44	65.98	0.46
RES-125	-82.5371	27.3795	66.15	65.64	0.51	66.13	65.66	0.47
RES-126	-82.5367	27.37917	65.93	65.41	0.52	65.91	65.43	0.48
RES-127	-82.5382	27.37939	65.1	64.59	0.51	65.1	64.64	0.46
RES-128	-82.5365	27.37916	65.89	65.36	0.53	65.87	65.39	0.48
RES-129	-82.5367	27.3803	65.55	65.04	0.51	65.55	65.07	0.48
RES-130	-82.5383	27.37951	65.27	64.76	0.51	65.26	64.8	0.46
RES-131	-82.5379	27.37911	65.06	64.54	0.52	65.05	64.58	0.47
RES-132	-82.5365	27.379	65.81	65.28	0.53	65.79	65.31	0.48
RES-133	-82.5382	27.37931	65	64.49	0.51	65	64.53	0.47
RES-134	-82.5383	27.37966	65.56	65.05	0.51	65.55	65.09	0.46
RES-135	-82.5371	27.37885	65.4	64.88	0.52	65.39	64.91	0.48
RES-136	-82.5362	27.37992	65.17	64.64	0.53	65.16	64.68	0.48
RES-137	-82.5371	27.38014	66.2	65.69	0.51	66.18	65.71	0.47
RES-138	-82.5357	27.37935	65.03	64.49	0.54	65.02	64.53	0.49
RES-139	-82.5365	27.37996	65.61	65.09	0.52	65.6	65.13	0.47

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-140	-82.5373	27.37995	66.34	65.83	0.51	66.33	65.86	0.47
RES-141	-82.5367	27.37997	65.89	65.37	0.52	65.87	65.4	0.47
RES-142	-82.5374	27.38031	66.35	65.84	0.51	66.34	65.87	0.47
RES-143	-82.5374	27.37966	66.25	65.74	0.51	66.23	65.76	0.47
RES-144	-82.5377	27.37919	65.35	64.84	0.51	65.35	64.88	0.47
RES-145	-82.536	27.37961	65.19	64.66	0.53	65.18	64.69	0.49
RES-146	-82.5356	27.37913	65.16	64.62	0.54	65.14	64.65	0.49
RES-147	-82.5367	27.38013	65.74	65.22	0.52	65.73	65.25	0.48
RES-148	-82.5359	27.37811	65.16	64.62	0.54	65.15	64.65	0.5
RES-149	-82.5377	27.3795	65.89	65.37	0.52	65.88	65.41	0.47
RES-150	-82.5365	27.38012	65.43	64.91	0.52	65.43	64.95	0.48
RES-151	-82.5354	27.37824	65.24	64.69	0.55	65.22	64.72	0.5
RES-152	-82.5362	27.37979	65.27	64.74	0.53	65.26	64.78	0.48
RES-153	-82.5365	27.37882	65.68	65.15	0.53	65.66	65.18	0.48
RES-154	-82.5365	27.38029	65.24	64.72	0.52	65.23	64.76	0.47
RES-155	-82.5356	27.37798	65.14	64.59	0.55	65.12	64.62	0.5
RES-156	-82.5354	27.37808	65.19	64.65	0.54	65.17	64.67	0.5
RES-157	-82.5371	27.37967	66.23	65.72	0.51	66.22	65.75	0.47
RES-158	-82.5359	27.37899	65.57	65.04	0.53	65.55	65.07	0.48
RES-159	-82.5383	27.38014	66.39	65.89	0.5	66.38	65.92	0.46
RES-160	-82.5373	27.37886	65.2	64.68	0.52	65.19	64.71	0.48
RES-161	-82.5383	27.37998	66.14	65.63	0.51	66.12	65.66	0.46
RES-162	-82.5365	27.3798	65.76	65.24	0.52	65.75	65.27	0.48
RES-163	-82.5388	27.37974	65.02	64.52	0.5	65.03	64.57	0.46
RES-164	-82.5356	27.37882	65.31	64.76	0.55	65.29	64.79	0.5
RES-165	-82.5367	27.37883	65.62	65.09	0.53	65.61	65.12	0.49
RES-166	-82.536	27.37844	65.44	64.91	0.53	65.43	64.93	0.5
RES-167	-82.5356	27.37814	65.25	64.71	0.54	65.23	64.73	0.5

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-168	-82.5365	27.37845	65.25	64.72	0.53	65.24	64.75	0.49
RES-169	-82.5355	27.37904	65.04	64.5	0.54	65.03	64.53	0.5
RES-170	-82.5365	27.37948	65.92	65.39	0.53	65.9	65.42	0.48
RES-171	-82.5354	27.37843	65.26	64.71	0.55	65.24	64.74	0.5
RES-172	-82.5371	27.37934	66.02	65.51	0.51	66.01	65.53	0.48
RES-173	-82.5384	27.37946	65.02	64.52	0.5	65.03	64.56	0.47
RES-174	-82.5377	27.37906	65.15	64.64	0.51	65.15	64.68	0.47
RES-175	-82.5374	27.37918	65.71	65.19	0.52	65.69	65.22	0.47
RES-176	-82.5353	27.37791	65.1	64.55	0.55	65.08	64.58	0.5
RES-177	-82.5356	27.3783	65.32	64.78	0.54	65.31	64.81	0.5
RES-178	-82.5362	27.37845	65.42	64.88	0.54	65.4	64.91	0.49
RES-179	-82.5361	27.37805	65.03	64.48	0.55	65.01	64.51	0.5
RES-180	-82.5374	27.3795	66.11	65.59	0.52	66.09	65.62	0.47
RES-181	-82.539	27.37988	65.03	64.53	0.5	65.04	64.58	0.46
RES-182	-82.5371	27.37903	65.65	65.13	0.52	65.64	65.16	0.48
RES-183	-82.5359	27.37801	65.07	64.52	0.55	65.05	64.55	0.5
RES-184	-82.5371	27.38031	66.1	65.59	0.51	66.09	65.62	0.47
RES-185	-82.535	27.37824	65.06	64.51	0.55	65.04	64.54	0.5
RES-186	-82.5379	27.37921	65.17	64.66	0.51	65.17	64.7	0.47
RES-187	-82.5369	27.38064	65.3	64.78	0.52	65.3	64.83	0.47
RES-188	-82.5379	27.38117	66.26	65.76	0.5	66.25	65.79	0.46
RES-189	-82.5371	27.38064	65.61	65.1	0.51	65.6	65.14	0.46
RES-190	-82.541	27.38142	65.4	64.93	0.47	65.42	64.99	0.43
RES-191	-82.5394	27.38022	65.16	64.67	0.49	65.17	64.72	0.45
RES-192	-82.5396	27.38073	66.03	65.54	0.49	66.03	65.58	0.45
RES-193	-82.5379	27.38065	66.7	66.2	0.5	66.68	66.22	0.46
RES-194	-82.5395	27.38038	65.31	64.82	0.49	65.32	64.87	0.45
RES-195	-82.5368	27.38064	65.07	64.55	0.52	65.07	64.6	0.47

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

NSS ID	Longitude	Latitude	2029 Proposed Action DNL	2029 No Action DNL	2029 Change	2034 Proposed Action DNL	2034 No Action DNL	2034 Change
RES-196	-82.5393	27.38283	66.09	65.62	0.47	66.1	65.67	0.43
RES-197	-82.5399	27.38046	65	64.51	0.49	65.02	64.56	0.46
RES-198	-82.539	27.38019	65.69	65.2	0.49	65.69	65.24	0.45
RES-199	-82.5407	27.38131	65.62	65.15	0.47	65.64	65.2	0.44
RES-200	-82.5396	27.38027	65.04	64.55	0.49	65.05	64.6	0.45
RES-201	-82.5608	27.3868	66.69	66.67	0.02	66.7	66.68	0.02
RES-202	-82.5602	27.38827	65.37	65.33	0.04	65.38	65.34	0.04
RES-203	-82.5603	27.38736	67.72	67.7	0.02	67.74	67.72	0.02

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

APPENDIX F – TRAFFIC IMPACT ANALYSIS

**Environmental Assessment for Concourse and Terminal Parking Expansions
at Sarasota Bradenton International Airport (SRQ)**

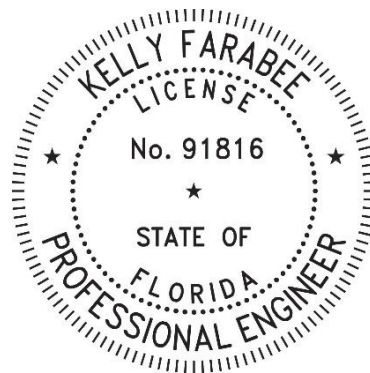
This page left intentionally blank.

SARASOTA BRADENTON INTERNATIONAL AIRPORT CONCOURSE A EXPANSION TRAFFIC IMPACT ANALYSIS

PREPARED FOR: AECOM

Sarasota, Florida | June 2025

Revised February 2026



PREPARED BY:



PATEL, GREENE AND ASSOCIATES

12570 Telecom Drive
Temple Terrace, FL 33637

This item has been digitally signed and sealed by Kelly Farabee on the date adjacent to the seal. The signature must be verified on any electronic copies.

TABLE OF CONTENTS

- 1. INTRODUCTION 1
 - Proposed Project.....1
 - Ground Transportation Center (GTC).....1
 - Study Area3
 - Field Visit5
- 2. EXISTING TRAFFIC 5
 - Non-Airport Traffic Adjustments5
 - Airport Traffic Adjustments7
- 3. FUTURE TRAFFIC 10
 - Growth Rate10
 - Future Background Traffic10
- 4. AIRPORT TRAFFIC 12
 - Airport Trip Generation12
 - Airport Trip Distribution and Assignment13
 - Transportation Network Companies Traffic Adjustments.....13
 - Future Airport Traffic14
- 5. INTERSECTION CAPACITY ANALYSIS 19
 - Existing Traffic Operations19
 - Future Traffic Operations.....20
 - Future Queuing.....21
- 6. MITIGATION 22
- 7. CONCLUSIONS 23

APPENDICES

- Appendix A: Traffic Counts
- Appendix B: Historical Traffic Data
- Appendix C: Signal Timing Data
- Appendix D: Synchro Reports

TABLE OF FIGURES

Figure 1 - New GTC (source: Google Earth, March 2025).....1

Figure 2 - Proposed Site Plan.....2

Figure 3 - Study Intersections.....3

Figure 4 - Existing Lane Configurations and Traffic Control.....4

Figure 5 - Existing PM Peak Hour Non-Airport Adjusted Traffic*6

Figure 6 – Existing Adjusted ADPM Airport Traffic8

Figure 7 - Existing PM Peak Hour Traffic.....9

Figure 8 - Future 2034 Background (Non-Airport) Traffic*11

Figure 9 - Google Streetview image (Nov. 2022) showing former TNC Parking Area.....13

Figure 10 - Aerial showing former TNC parking area in relation to airport (source: Google Earth, March 2025)13

Figure 11 - 2034 No Build Airport Traffic15

Figure 12 - 2034 Build Airport Traffic.....16

Figure 13 - 2034 No Build PM Peak Hour Traffic Volumes.....17

Figure 14 - 2034 Build PM Peak Hour Traffic Volumes18

TABLE OF TABLES

Table 1 - Historical Monthly Enplanements for SRQ.....7

Table 2 - LOS Thresholds for Unsignalized and Signalized Intersections19

Table 3 – Existing Year 2025 Intersection Capacity Analysis Summary (HCM results)20

Table 4 - Future Year 2034 Intersection Capacity Analysis Summary.....21

Table 5 - Back of Queue (BOQ) Analysis Summary22

INTRODUCTION

The Sarasota Bradenton International Airport (SRQ) has experienced considerable growth in air traffic in recent years. To address the growing demand for air travel to and from the area, SRQ is planning improvements to the airport. The proposed airport expansion project is expected to be complete by 2029. Patel, Greene, and Associates, LLC (PGA) conducted a traffic analysis to evaluate the potential impacts of the proposed improvements on vehicular traffic at key access points to the airport terminals.

PROPOSED PROJECT

SRQ plans to expand Concourse A to better serve air travel demand in the surrounding area. The expanded Concourse A will consist of a two-story structure with four new aircraft gates, providing a net gain of three gates since Gate B1 will be eliminated as a result of the project. The new concourse will include an expanded passenger security checkpoint as well as additional passenger amenities including concessions and restrooms. The airport also intends to construct a new parking garage with a passenger connector to the terminal. At the time of this study, parking and ground transportation improvements are still being finalized; however, the final layout of the parking garage is not expected to alter the travel patterns for traffic to and from the airport. The expanded concourse is expected to generate additional air traffic which will, in turn, be expected to generate additional ground transportation traffic. Figure 2 presents a conceptual plan of the airport expansion.

GROUND TRANSPORTATION CENTER (GTC)

The previous SRQ Master Plan Update indicated a need for a Ground Transportation Center (GTC) that would provide a separate space for taxi/limousine, public transit, and Transportation Network Companies (TNCs), also known as rideshare, to serve airport customers. The new GTC was constructed in 2024/2025 and includes a pickup and drop-off area for taxis and limousines, a separate TNC pickup and drop-off area with a parking lot where TNC drivers can stage their vehicles. A designated bus loop is provided for Manatee County Area Transit and Sarasota County Breeze Transit buses. Figure 1 presents an aerial view of the new GTC.

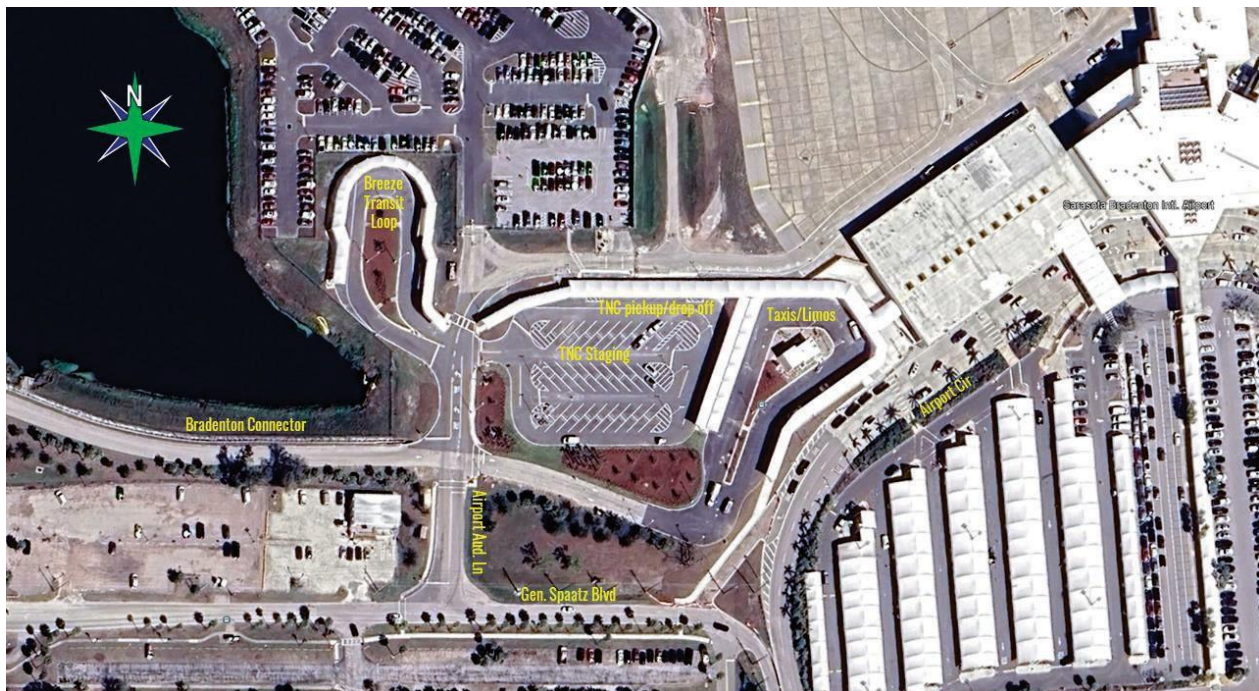
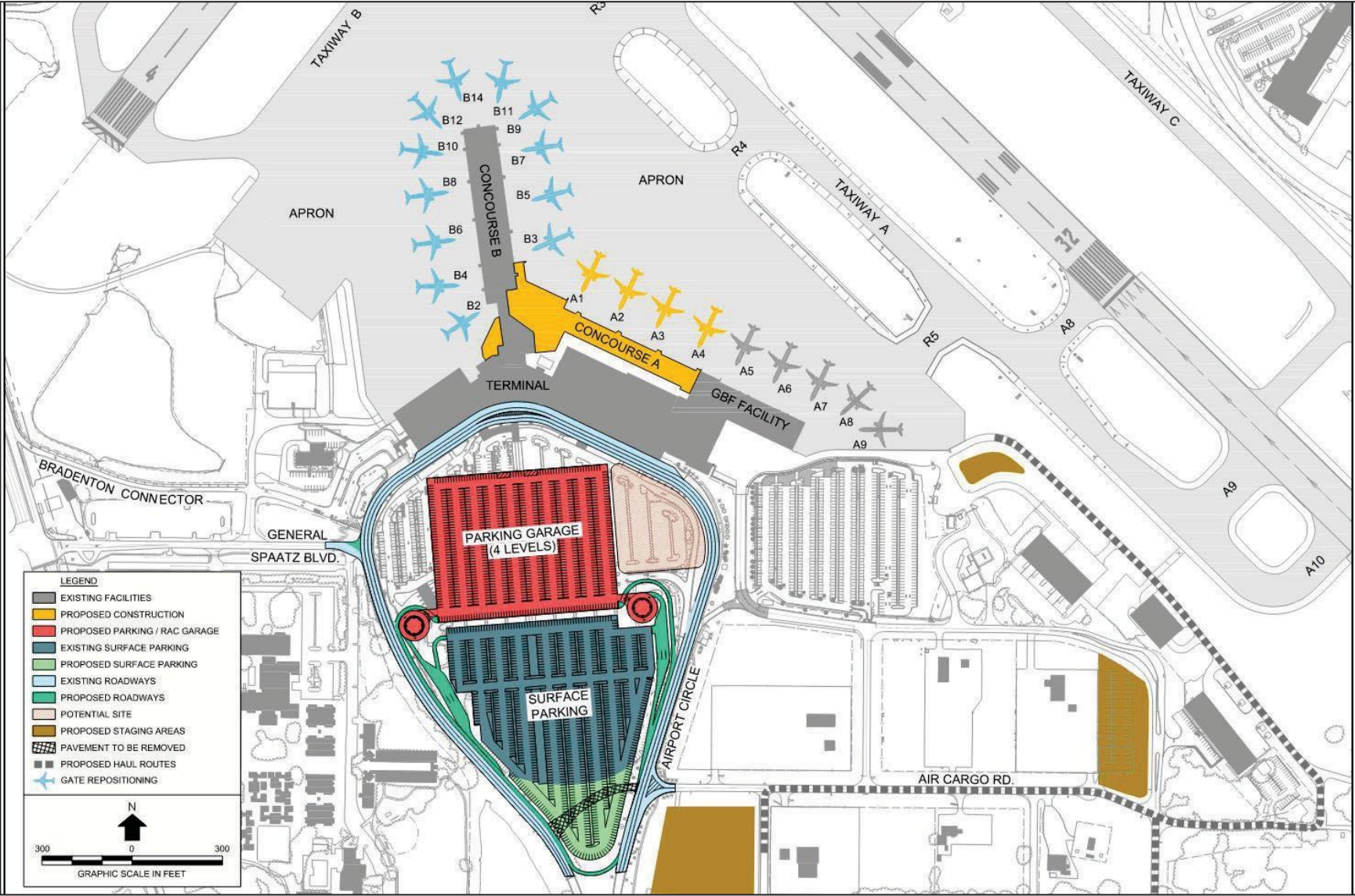


Figure 1 - New GTC (source: Google Earth, March 2025)



STUDY AREA

SRQ is located on the border of Manatee and Sarasota County on the east side of US 41/Tamiami Trail and to the north of University Parkway. The north portion of the airport lies in Manatee County and the southern portion is in Sarasota County and the City of Sarasota. Key local destinations include the beaches, which can be accessed via SR 789 to the south, the City of Sarasota to the south, the City of Bradenton to the north, and Lakewood Ranch to the east.

Six existing intersections were identified for analysis. These intersections serve as key access points for the airport's main terminal. The study intersections are listed below and shown in Figure 3:

1. University Parkway at Old Bradenton Road
2. University Parkway at Hampton Inn Access/Royal Palm Avenue
3. University Parkway at Airport Circle
4. Bradenton Connector at Airport Auditorium Lane
5. General Spaatz Boulevard at Airport Auditorium Lane
6. US 41 at General Spaatz Boulevard/College Drive

Figure 4 illustrates the lane geometry for the six intersections.

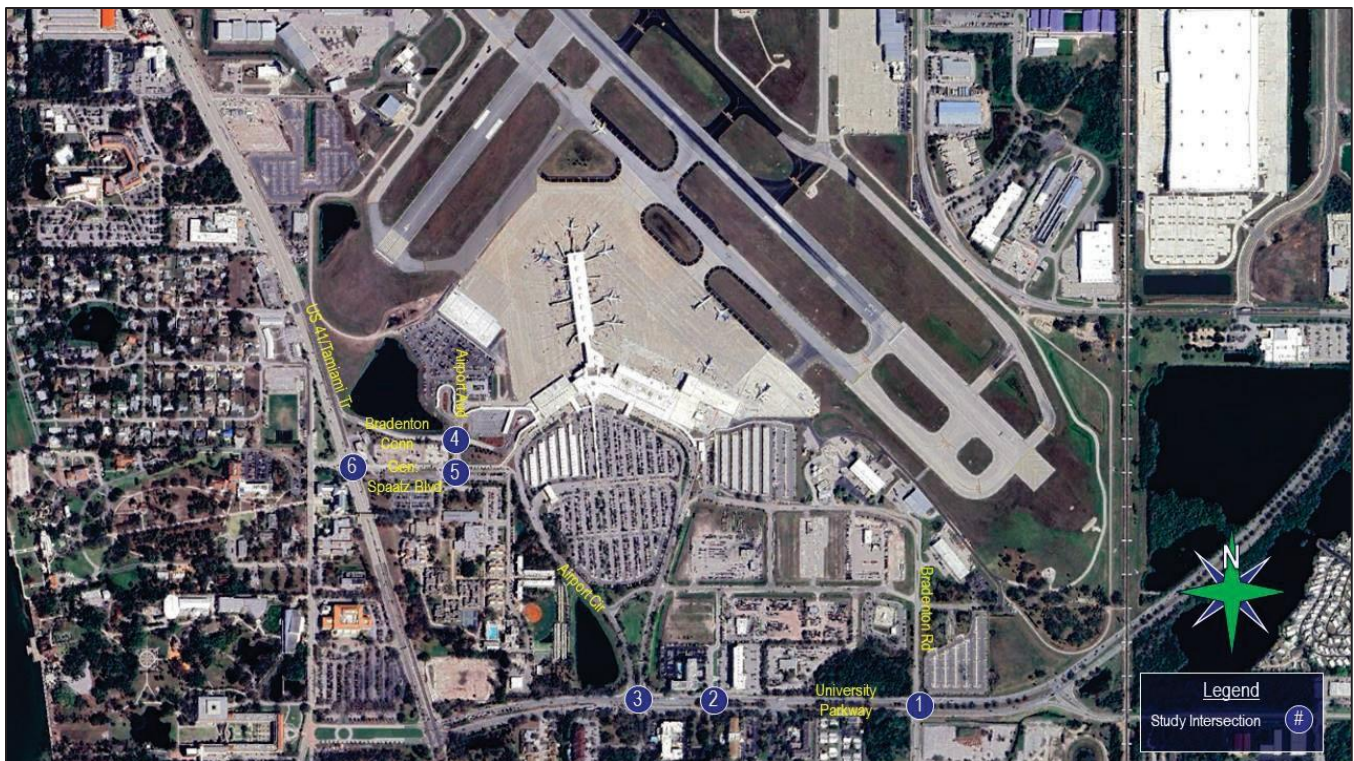


Figure 3 - Study Intersections

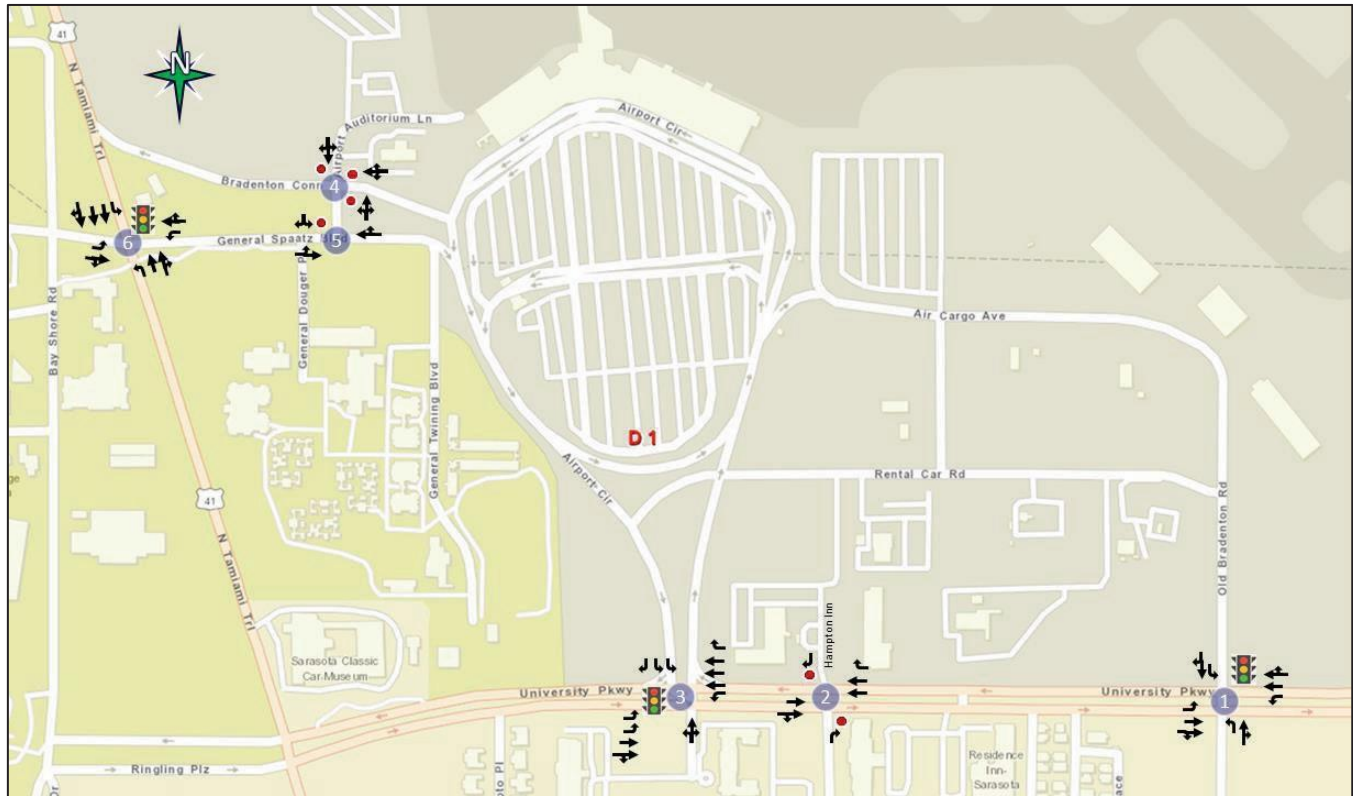


Figure 4 - Existing Lane Configurations and Traffic Control

The main entrance for the airport is via Airport Circle and University Parkway. University Parkway is a divided urban arterial with a posted speed limit of 45 mph. To the west of Airport Circle, the roadway features three lanes in each direction, with two lanes in each direction to the east of Airport Circle. Within the study area, there are sidewalks on both sides of University Parkway, as well as Breeze transit stops. Old Bradenton Road and the Hampton Inn Access function as two-lane collector roadways with posted speed limits of 30 mph. These roadways provide access to support areas for the airport, including hotels, rental car service areas, and the cell phone waiting lot. There are no sidewalks on Old Bradenton Road. A short segment of sidewalk along the Hampton Inn Access connects the sidewalk on University Parkway with the Hampton Inn. Airport Circle is a one-way two-lane loop roadway that circulates traffic for airport arrivals and departures, with a posted speed limit of 25 mph. Airport Circle provides access to the main short-term and long-term parking lots, the curbside arrivals and departures areas for the terminal, and the rental car pickup and return. An existing sidewalk runs along the east side of Airport Circle and connects University Parkway with the airport terminal building.

Secondary access to the airport is provided via General Spaatz Boulevard and US 41/Tamiami Trail. US 41/Tamiami Trail is a four-lane divided urban arterial with a posted speed limit of 45 mph providing north-south connectivity along the west coast of the state. Within the study area there are sidewalks on both sides of US 41. General Spaatz Boulevard is a two-lane facility with a posted speed limit of 25 mph. General Spaatz Boulevard provides access to the Pei Campus of the New College of Florida and provides direct access to Airport Circle. Sidewalk runs along the south side of General Spaatz Boulevard. Airport Auditorium Lane is a two-lane facility that provides access to the GTC and to existing employee parking areas. Sidewalks along Airport Auditorium Lane connect between General Spaatz Boulevard and the GTC.

It should be noted that the US 41 at University Parkway intersection was not included in this study. As discussed later in the study after Table 4, the effect of airport traffic on Intersections 1, 2, and 3 (on University Parkway) is very minor. Because US 41 and University Parkway have greater volumes of non-airport traffic, the effect of the airport traffic on this intersection would be even more diluted, and thus this intersection was excluded.

FIELD VISIT

A field visit was conducted by PGA staff on Wednesday, March 19, 2025. Peak hour operations were observed from 10:00 AM to 11:00 AM and from 4:00 PM to 5:00 PM. Intersection geometries were confirmed. The GTC was partially open at the time of the field visit. Portions of the facility were still under construction. TNC drivers were still directed to park in the lot on General Spaatz Boulevard; however, customer pickup in the new GTC was open.

During the evening peak hour, queuing from the US 41 at University Parkway intersection, which was not included as a study intersection in this analysis, was observed in the outer westbound travel lane on University Parkway. At times the southbound right turn movement from Airport Circle was blocked.

EXISTING TRAFFIC

Existing evening peak hour turning movement counts were obtained from the *2024 Annual Traffic Monitoring Study* prepared by Hanson Professional Services. The raw traffic counts were conducted in August 2024. The intersection of US 41 and General Spaatz Boulevard was not included in the report; therefore, this intersection was counted separately by AECOM in March 2025. The raw count data is all included in [Appendix A](#).

Typical traffic factors were determined based on the existing traffic counts. In general, minimal truck traffic is present on University Parkway. A standard 2 percent truck portion was used in the analysis of the University Parkway intersections. The intersection at Airport Auditorium Lane and Bradenton Connector exhibited 33 percent heavy trucks and 11 percent heavy trucks were recorded at the intersection of Airport Auditorium Lane and General Spaatz Blvd. Traffic at US 41 and General Spaatz Boulevard exhibited 2 percent heavy truck traffic.

The field-observed peak hour factors¹ (PHFs) for the University Parkway intersections range from 0.94 to 0.97, indicating that traffic at these intersections is relatively steady during the evening peak hour. The PHF at Airport Auditorium Lane was 0.68, indicating that traffic at that intersection tends to arrive in a brief peak period rather than being spread across the hour. A PHF of 0.87 was noted for General Spaatz Blvd at Airport Auditorium Lane, also reflecting a greater tendency for traffic to peak at certain periods during the hour. The PHF for US 41 at General Spaatz Boulevard was 0.98 indicating a steady flow of traffic throughout the evening peak hour.

The K-factor is a key metric that represents the ratio of the peak hour volume to the Annual Average Daily Traffic (AADT) on a particular roadway. A standard K-factor of 0.9 is commonly used to convert peak hour traffic to daily volumes or vice versa. Traffic data published by FDOT indicates that a K-factor of 0.9 is appropriate for the study area as indicated by the historical data included in [Appendix B](#). The recent counts collected within the study area included evening peak hour turning movement volumes. A standard K-factor of 0.9 was applied to estimate daily traffic volumes in the study area as needed to perform analyses as part of this study.

NON-AIRPORT TRAFFIC ADJUSTMENTS

The non-airport related traffic on the adjacent roadway network was adjusted using a Peak Season Conversion Factor² for the

¹ The peak hour factor (PHF) provides a measure of how concentrated traffic is during the peak hour, or the period when volumes are highest. The PHF is calculated by dividing the total volume of traffic entering the intersection over the hour by four times the maximum 15-minute volume entering the intersection in the same hour. A PHF closer to 1.0 indicates that the traffic is more evenly distributed throughout the hour, whereas a PHF of 0.25 would suggest that all the traffic is concentrated in one 15-minute period.

² Florida experiences what is referred to as seasonal traffic as a result of changes in the local population during certain seasons of the year. Sarasota County typically experiences a considerable increase in the resident population during fall and winter months. The Peak Season is the 13 consecutive weeks of the year with the highest traffic volume. The Peak Season Conversion Factor (PSCF) is a factor used to convert a count to the average weekday daily traffic during the peak season. FDOT develops a seasonal factor report each year listing the PSCF for each week of the year. Applying the PSCF to the counts collected in the field allows the analysis to consider the peak, or highest, traffic volumes that would be experienced in the study area.

week when counts were collected. A peak season factor of 1.25 was obtained from the FDOT Traffic Online database. The FDOT seasonal factor report for Sarasota County is included in [Appendix A](#). The non-airport traffic on the adjacent roadway network is presented in Figure 5.

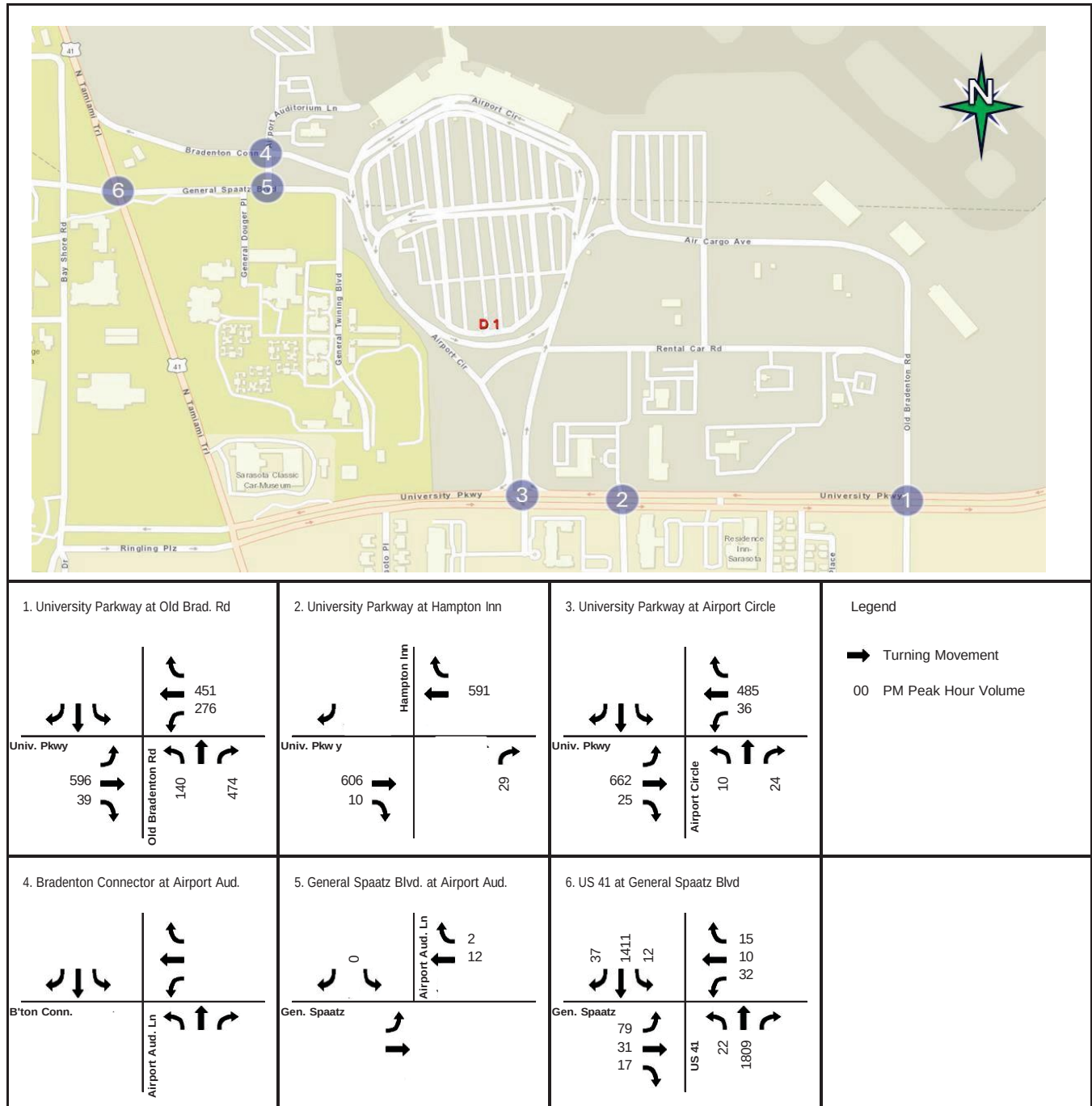


Figure 5 - Existing PM Peak Hour Non-Airport Adjusted Traffic*

*Figure 5 only shows non-airport traffic. The blank turning movements are all associated with airport traffic, so there are no non-airport vehicle counts to show at these movements.

AIRPORT TRAFFIC ADJUSTMENTS

Typically, March is the peak month for air travel at the SRQ airport; therefore, traffic counts were adjusted to reflect the peak conditions for the airport. An Average Day of Peak Month (ADPM) conversion factor relates airport traffic from a given month to the peak month of air travel for the airport. Typically, the ADPM is calculated for each month in a given year by dividing the monthly volume by the highest volume of traffic served during one month in the same year. The ADPM can also be calculated using the average monthly traffic for multiple years. An ADPM can be applied to ground traffic volumes to estimate the peak traffic that would be experienced during the busiest month of air travel for the airport. This allows the worst-case traffic conditions to be evaluated. An ADPM for SRQ was estimated based on historical enplanement data that was provided by AECOM. Table 1 presents the historical enplanement data and the ADPM calculations. Both 6-year and 3-year averages of monthly enplanement volumes were calculated. The 6-year averages were considerably lower than the averages based on the most recent three years of data. This is likely related to the impacts of the COVID-19 pandemic which began in 2020.

Table 1 - Historical Monthly Enplanements for SRQ

Month	2019	2020	2021	2022	2023	2024	6 yr Average	6 yr Conversion	3 yr Average	3 yr Conversion
January	74,068	113,327	66,464	154,563	190,391	200,884	133,283	1.34	181,946	1.38
February	73,017	113,887	77,105	166,662	191,890	209,737	138,716	1.29	189,430	1.32
March	99,961	84,126	133,824	221,497	256,293	275,162	178,477	1.00	250,984	1.00
April	92,979	5,822	154,910	193,006	239,250	238,559	154,088	1.16	223,605	1.12
May	83,414	19,835	148,680	172,164	179,549	191,776	132,570	1.35	181,163	1.39
June	74,256	28,086	156,454	144,659	154,563	169,522	121,257	1.47	156,248	1.61
July	73,831	32,104	163,473	143,026	163,271	161,035	122,790	1.45	155,777	1.61
August	68,830	29,457	123,950	121,398	132,670	129,432	100,956	1.77	127,833	1.96
September	62,098	32,257	93,457	95,730	113,502	104,215	83,543	2.14	104,482	2.40
October	76,818	52,618	137,679	154,006	160,877	93,254	112,542	1.59	136,046	1.84
November	92,151	52,348	160,821	179,427	187,445	164,177	139,395	1.28	177,016	1.42
December	108,387	53,931	173,634	181,407	193,930	193,600	150,815	1.18	189,646	1.32

For the purposes of this study, the 3-year average ADPM conversion factor of 1.96 for was calculated for the month of August based on the most recent three years of enplanement data. The August ADPM was applied to airport traffic because the counts were collected in the month of August. This factor was applied to movements entering and exiting the airport only. Adjustments were made to upstream and downstream through movements to balance volumes between intersections as appropriate. The factor was not applied to the intersection at US 41 and General Spaatz Blvd because traffic counts for that intersection were collected separately in March 2025, which is the peak month of air travel for SRQ. The adjusted, existing airport traffic for all six study intersections is presented in Figure 6.

Figure 7 presents the Existing PM peak hour traffic including the background traffic and the airport trips.

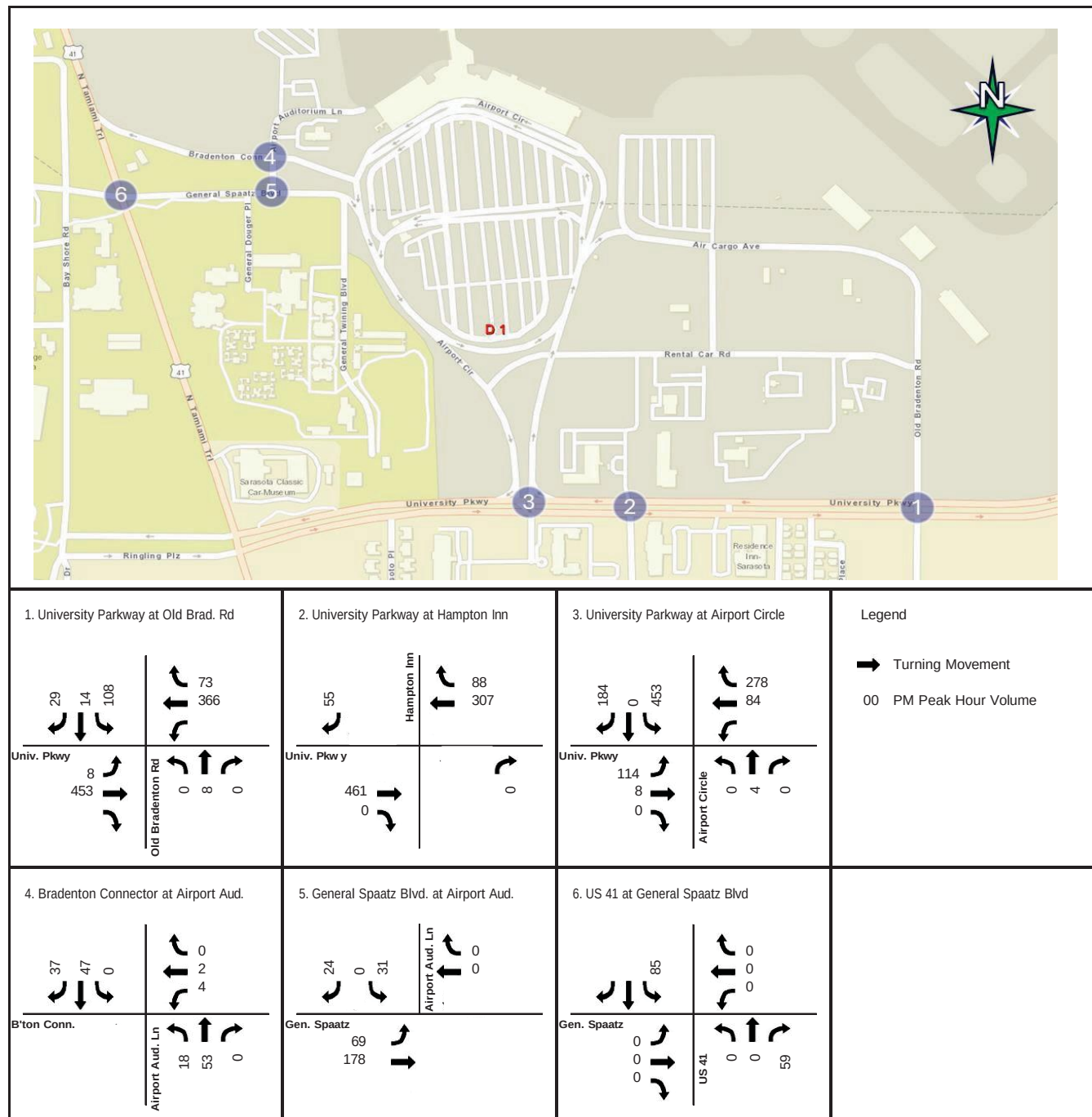


Figure 6 – Existing Adjusted ADPM Airport Traffic

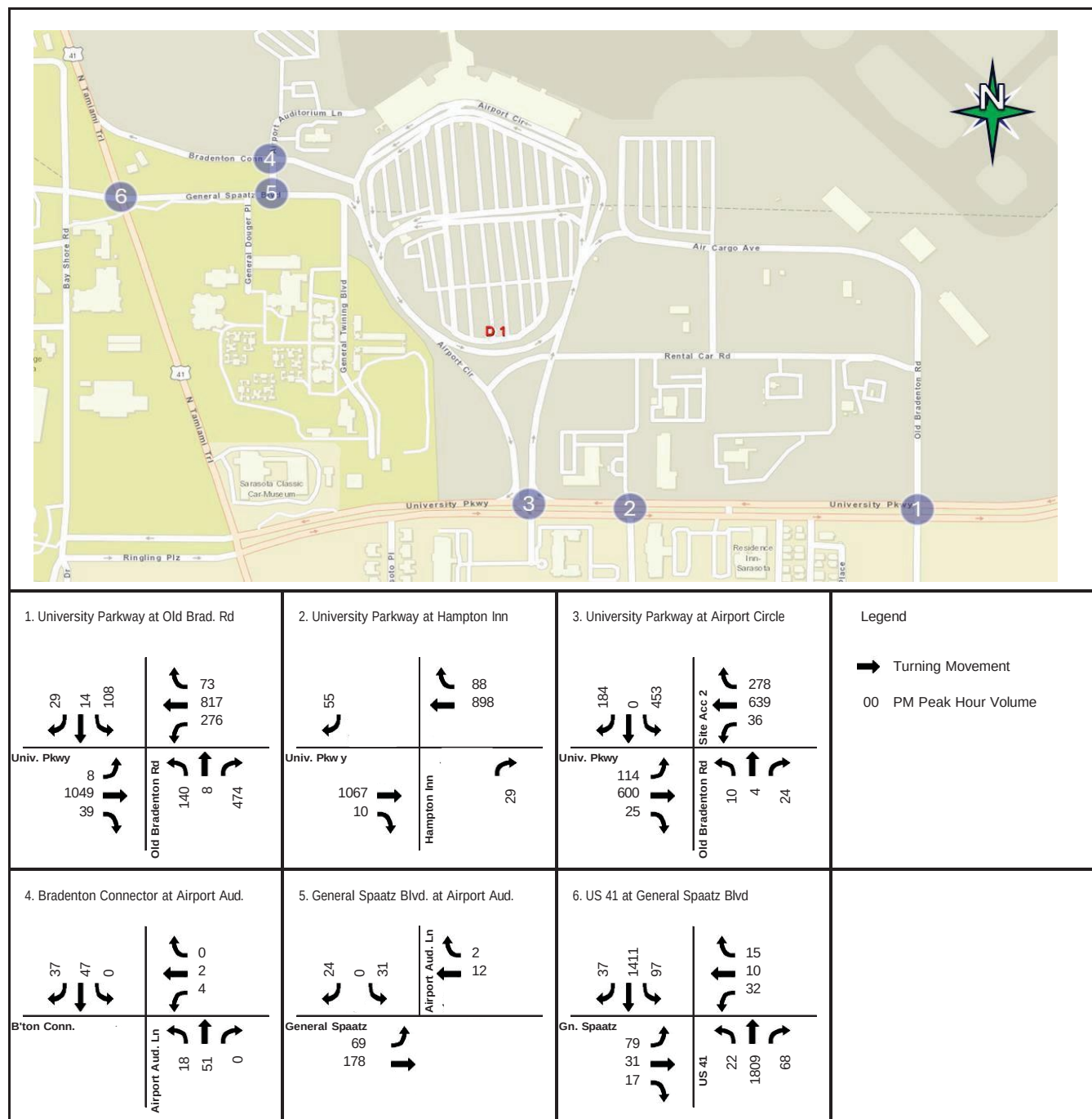


Figure 7 - Existing PM Peak Hour Traffic

FUTURE TRAFFIC

The proposed SRQ Airport Concourse A expansion is planned to be completed and fully operational by the year 2029. A future analysis year of 2034 was established for this study and corresponds to the Build Plus Five Years scenario commonly used in National Environmental Policy Act (NEPA) evaluations. The following section details how background traffic for the future year was estimated. The background traffic includes trips on University Parkway and US 41 that are external to the airport.

GROWTH RATE

The FDOT District One Regional Planning Model (D1RPM) was reviewed and daily volume outputs for the area adjacent to the airport were obtained. Unfortunately, the model did not appear to be calibrated for the study area. Volumes indicated for University Parkway were well below historical volumes reported on the roadway. As a result, the model was not used to estimate future traffic near the airport.

As an alternative method for estimating future background traffic, historical Average Annual Daily Traffic (AADT) values were obtained from the FDOT Traffic Online database. AADTs for the years 2017 through 2023 were obtained for two nearby count stations on University Parkway and for three nearby count stations on US 41. The historical data for each station is included in [Appendix B](#).

The count station on University Parkway just east of US 41 exhibited an annual growth rate of 3.96 percent per year, but the station to the east of the airport, near US 301 exhibited a negative growth rate. For the purposes of this study, the 3.96 percent annual growth rate was used for traffic on University Parkway. This growth rate was applied to existing, non-airport traffic on University Parkway to estimate future background traffic in the year 2034.

The count stations on US 41 exhibited relatively stagnant volumes, with all three stations exhibiting negative growth rates. For the purposes of this study, a 1.0 percent per year annual growth rate was assumed for US 41. This growth rate was applied to existing external traffic on US 41 to estimate future background traffic in the year 2034.

FUTURE BACKGROUND TRAFFIC

The existing traffic counts were adjusted to remove airport related traffic from the existing traffic counts. After isolating the non-airport traffic on University Parkway, the growth rate was applied to estimate the future background traffic that would be on University Parkway in the future year 2034.

Airport traffic on General Spaatz Boulevard was removed to isolate the existing traffic on the road. No growth rate was applied to the existing traffic on General Spaatz Boulevard. This facility provides access to the New College of Florida. It is assumed that the existing residence halls and other campus facilities will remain as is; therefore, no additional traffic would be attracted to the facility.

The US 41 growth rate was applied only to the northbound and southbound traffic at the intersection of US 41 and General Spaatz Boulevard. The side streets serve the New College of Florida campus and are not expected to experience significant change before the future year 2034.

Figure 8 presents the future year 2034 Background Traffic with airport-related trips excluded.

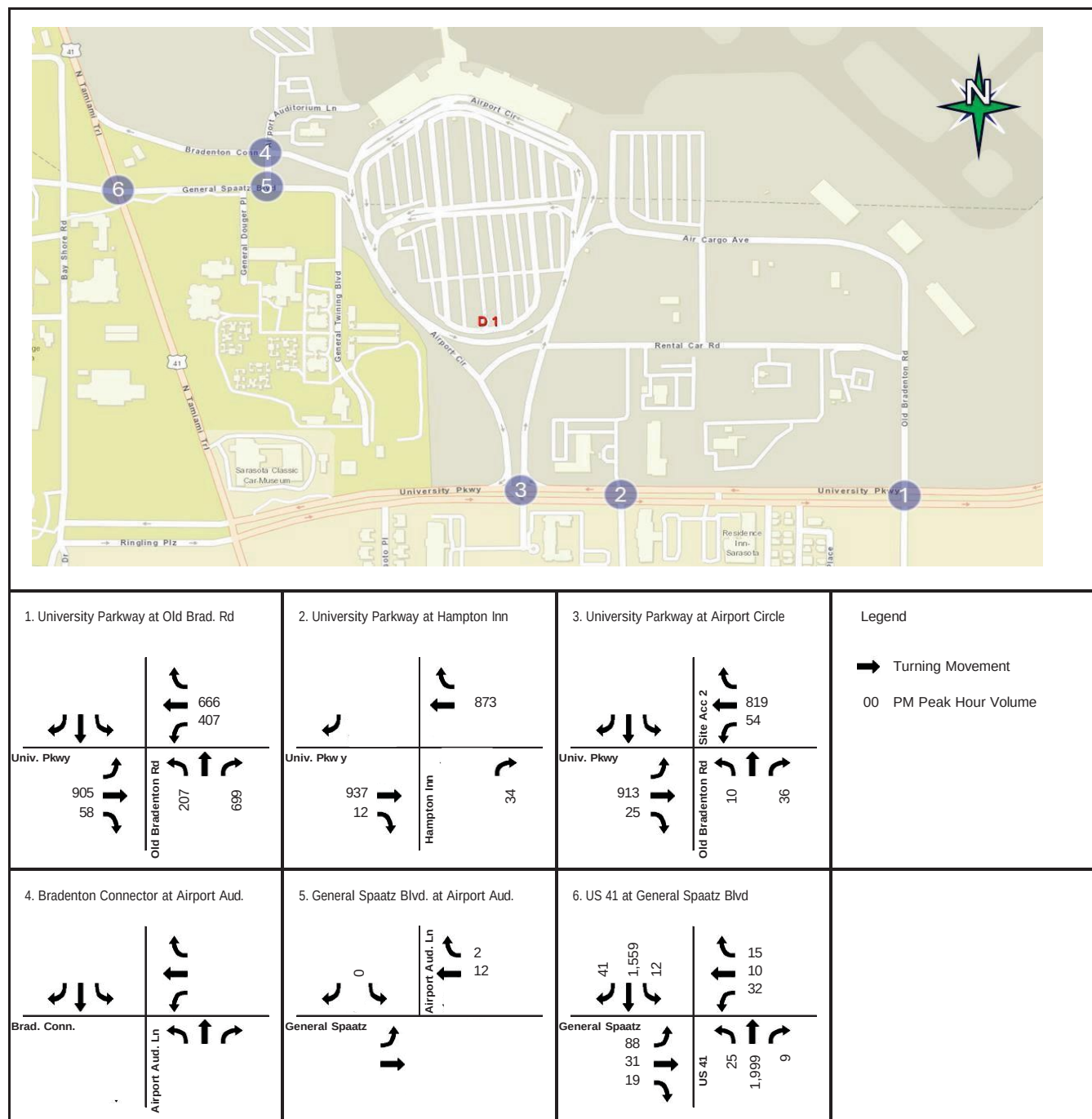


Figure 8 - Future 2034 Background (Non-Airport) Traffic*

*Figure 8 only shows non-airport traffic. The blank turning movements are all associated with airport traffic, so there are no non-airport vehicle counts to show at these movements.

AIRPORT TRAFFIC

Typical traffic analysis methods employ data published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual (TGM). The TGM includes a variety of land uses and associated trip generation data; however, the Commercial Airport land use includes very limited data points. For this evaluation, the TGM data set was not considered adequate for estimating future traffic associated with the planned terminal expansion.

An article titled *Airport Trip Generation* was published in the ITE Journal in May 1998. The article summarizes a study that evaluated methods for estimating traffic generated by commercial airports. The study concluded that a statistically significant relationship could be developed between the average daily traffic entering and exiting the airport and the number of daily origin-destination passengers, as follows:

$$y = 7.395x^{0.8526}$$

where

y = the daily trips generated by the airport

x = the daily enplanements and deplanements

SRQ tracks enplanement data on a monthly basis. For the purposes of this study, it was assumed that the daily origin trips are equivalent to the daily destination trips. Daily origin-destination pairs were estimated by doubling the estimates of daily traffic. March is typically the peak month for air travel into and out of SRQ. Future airport traffic was estimated using the methodology presented in the ITE journal article and future enplanement forecasts.

The No Build scenario reflects the conditions of the study area if no improvements are made to the airport. 2034 annual enplanements for the No Build scenario are expected to be 2,588,824 passengers.

The Build scenario assumes that the airport expansion is constructed and reflects the conditions of the study area after the facility is fully operational. The 2034 annual enplanements expected in the Build scenario are 3,008,824 passengers.

The ITE equation was developed using data from airports around the United States; therefore, local data was used to develop a local calibration factor for adjusting the equation results to better reflect the local conditions at SRQ. Actual 2024 daily volumes of traffic entering and exiting the airport were compared with 2024 daily airport traffic volumes calculated using the ITE formula. The actual volume of traffic counts was found to be slightly lower than what was estimated using the equation. A local calibration factor of 0.9 was established for SRQ.

AIRPORT TRIP GENERATION

Monthly enplanement data for 2024 was used to estimate the proportion of annual air travel that occurs during the peak month of air travel. Based on this data, it was estimated that 13 percent of annual enplanements occur during the peak month of March. This proportion was applied to the Future Year No Build and Build enplanement estimates to determine the average peak daily origin/destination trips as follows:

1. Future Annual Enplanements x 13% = Future March Enplanements
2. Future March Enplanements/31 days = Future Daily Peak Enplanements
3. Future Daily Enplanements x 2 = Future Daily enplanements and deplanements = x

The future daily origin/destination trips were plugged into the ITE formula to estimate future average daily traffic volumes for ground transportation associated with both the No Build and Build conditions. The local calibration factor and a standard K-factor of 0.09, as noted in the FDOT historical AADT data for the nearby count stations, were applied to estimate peak hour traffic for each scenario.

AIRPORT TRIP DISTRIBUTION AND ASSIGNMENT

The 2024 traffic count data was used to estimate the proportion of airport traffic that would be assigned to each study intersection. Volumes were assigned to each movement at the intersection based on the turning movement proportions calculated for the traffic counts.

TRANSPORTATION NETWORK COMPANIES TRAFFIC ADJUSTMENTS

In previous years, Transportation Network Companies (TNCs) such as Uber and Lyft parked in Short Term Parking or the Cell Phone Parking lot while waiting for a fare. Upon accepting a fare, the TNC drivers would then proceed to Airport Circle to pick up passengers in a designated curbside zone near arrivals and ticketing. In early 2025, the Airport opened the Ground Transportation Center (GTC), which includes a parking area for TNC drivers and a separate loading zone for TNC passengers.

The existing traffic count data does not reflect traffic patterns that will be expected when the GTC is fully operational. At the time traffic counts were collected in August 2024 and March 2025, all TNC drivers were directed to park in a gravel parking lot on General Spaatz Boulevard (as shown in Figure 9 and Figure 10). As of August 2024, the TNC traffic used General Spaatz Boulevard to access Airport Circle and collect passengers; therefore, the existing traffic counts do not reflect traffic patterns that would be expected when TNC traffic is using the GTC.



Figure 9 - Google Streetview image (Nov. 2022) showing former TNC Parking Area



Figure 10 - Aerial showing former TNC parking area in relation to airport (source: Google Earth, March 2025)

To better represent future conditions associated with the TNC, adjustments were made to the existing traffic patterns. The SRQ Master Plan suggests that approximately 4 percent of daily traffic is comprised of TNC vehicle trips. This proportion was used to estimate future TNC trips for both the No Build and Build conditions in the Future Year 2034.

For Future Year 2034, TNC trips were assigned to the study intersections based on the layout of the GTC and based on the expected TNC operations laid out in the Master Plan Update. According to the Master Plan Update, TNC vehicles will enter via General Spaatz Boulevard and will stage in the designated queuing area in the GTC. When exiting the property, TNC vehicles are expected to head north on US 41 via the Bradenton Connector or will use General Spaatz Boulevard to exit the property via Airport Circle.

FUTURE AIRPORT TRAFFIC

The future airport trips for 2034 No Build are presented in Figure 11 and the future airport trips for 2034 Build conditions are presented in Figure 12.

Future 2034 No Build PM Peak Hour Traffic (including both background and No Build airport traffic) is presented in Figure 13. 2034 Build PM Peak Hour Traffic (including both background and Build airport traffic) is provided in Figure 14.

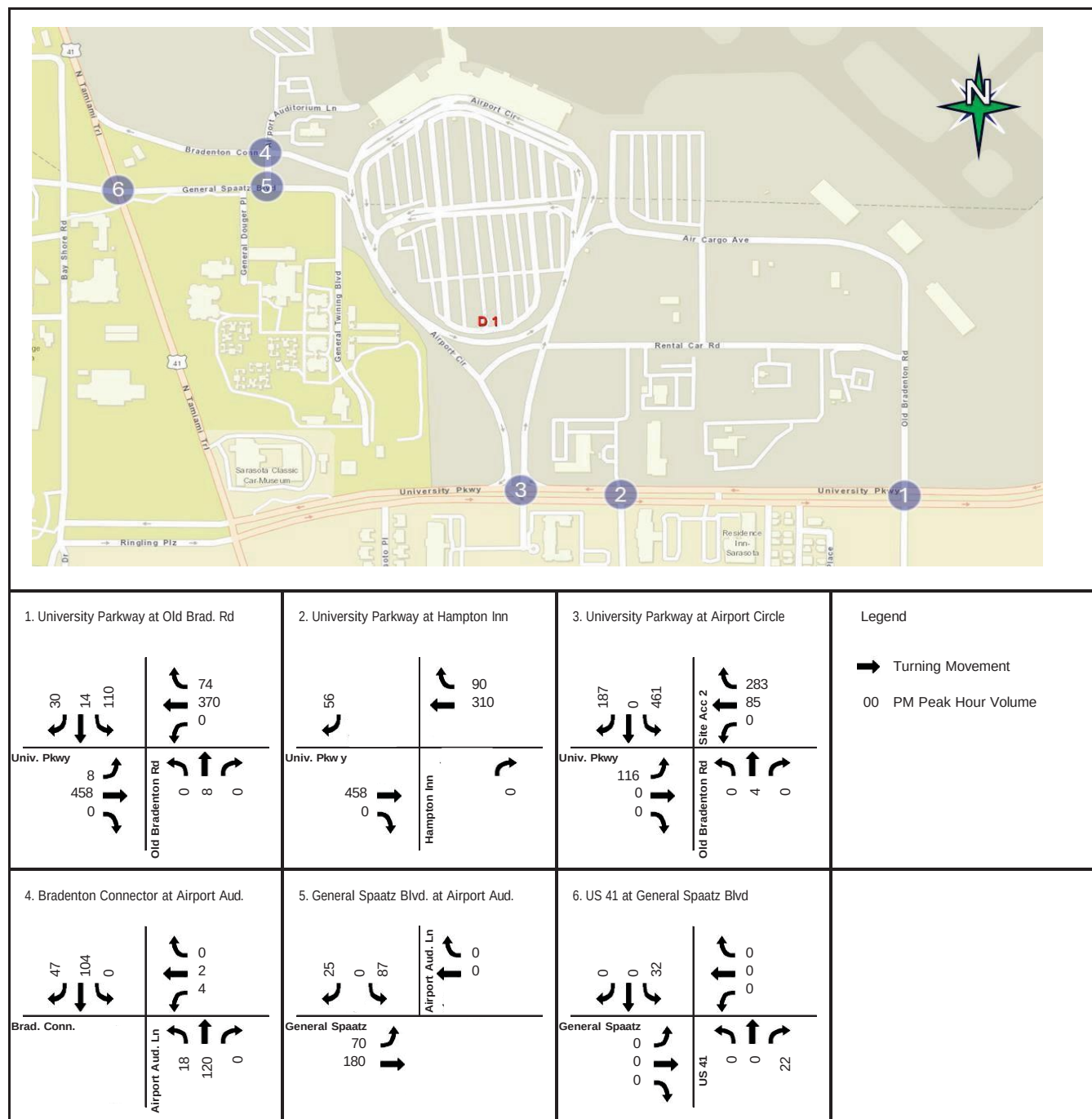


Figure 11 - 2034 No Build Airport Traffic

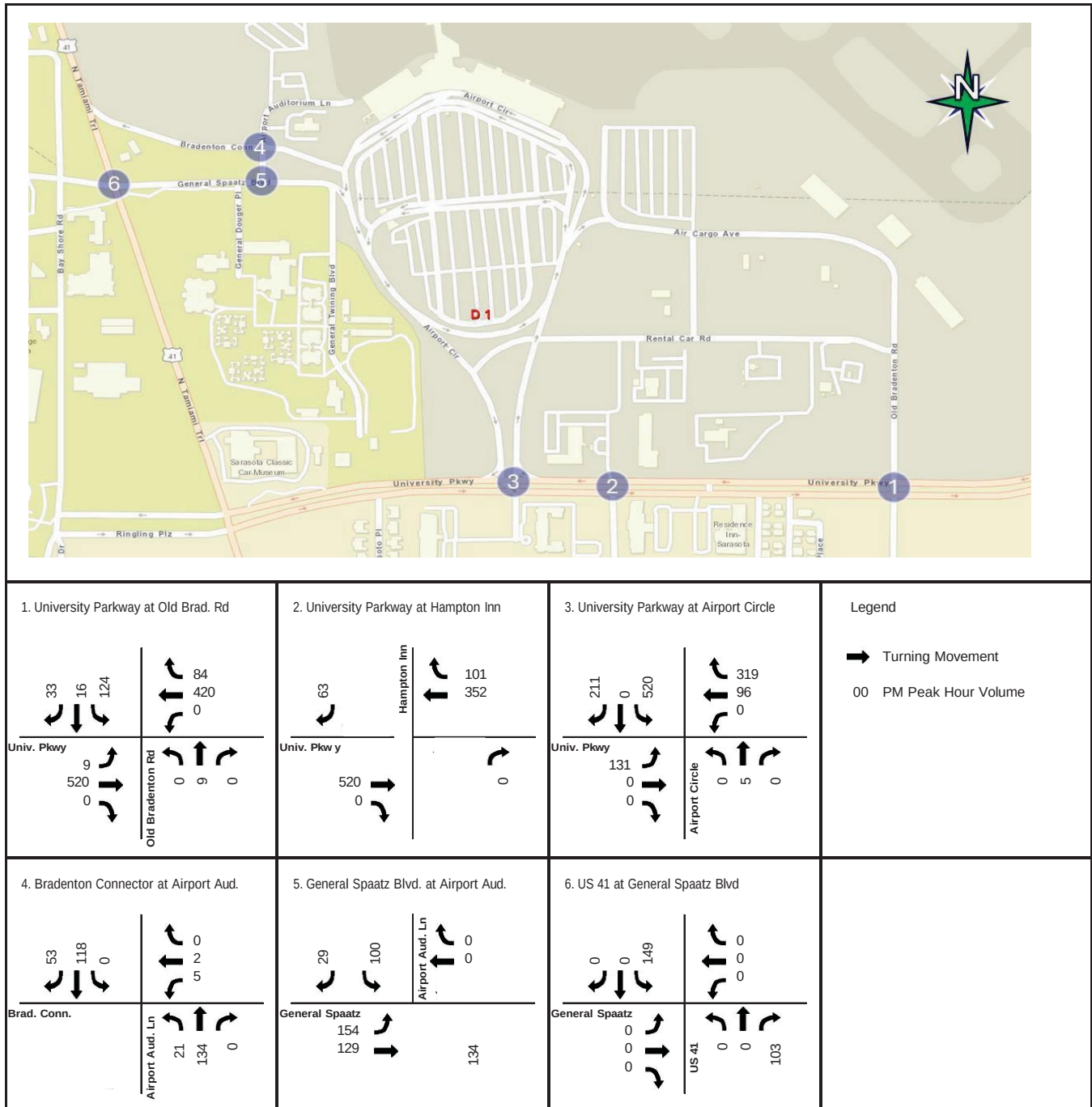


Figure 12 - 2034 Build Airport Traffic

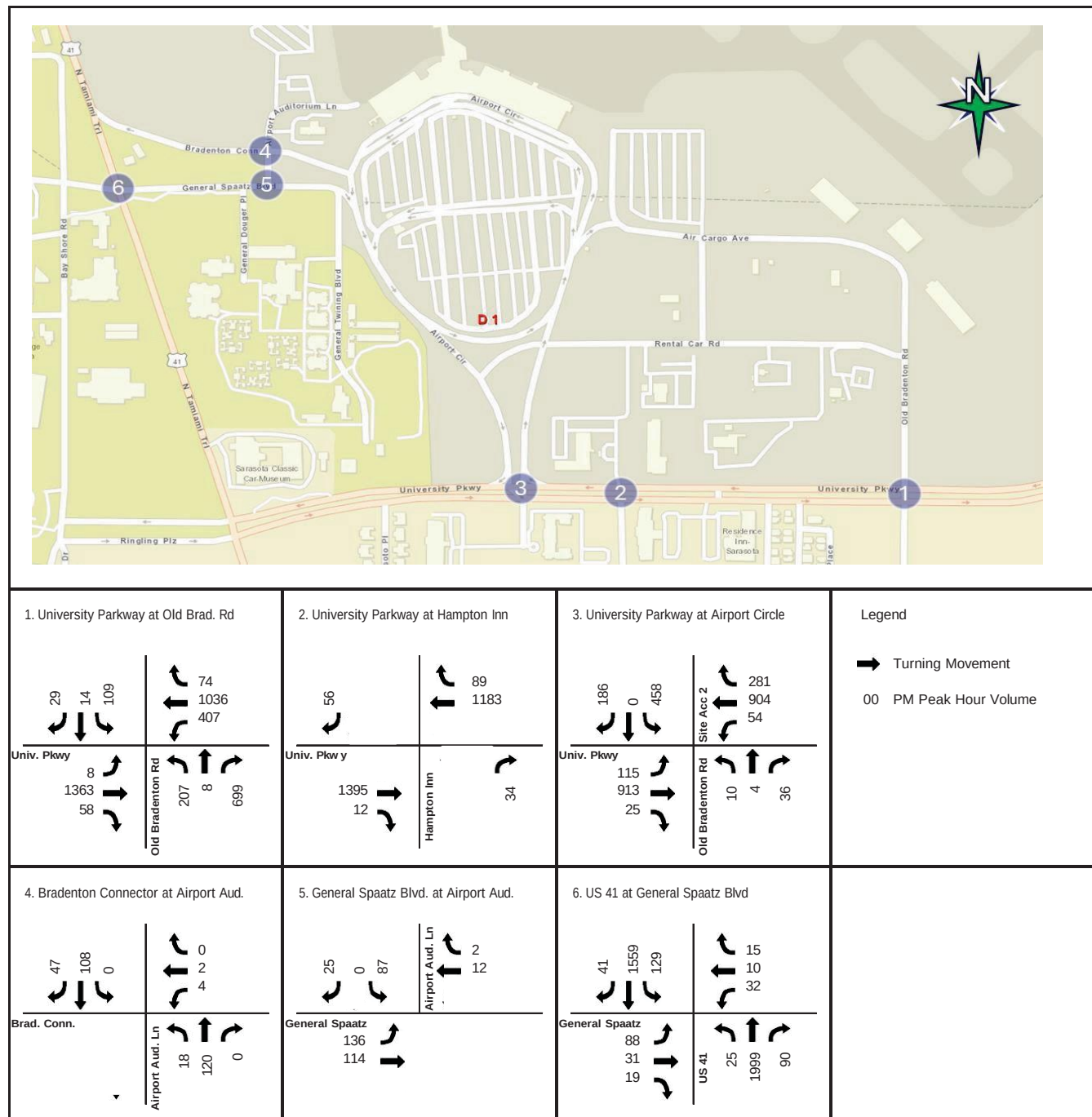


Figure 13 - 2034 No Build PM Peak Hour Traffic Volumes

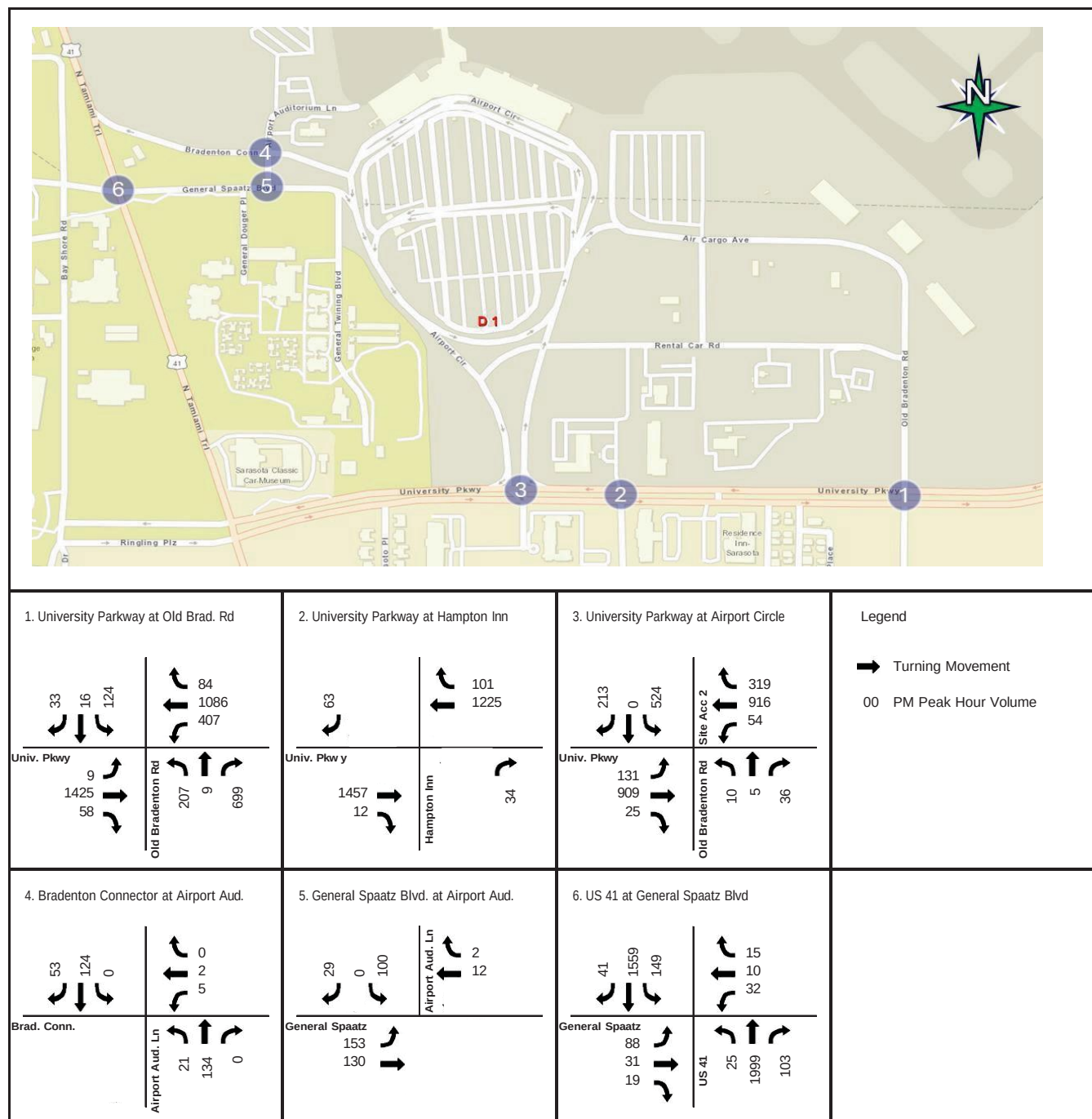


Figure 14 - 2034 Build PM Peak Hour Traffic Volumes

INTERSECTION CAPACITY ANALYSIS

Capacity analysis was performed using Synchro 11 software which applies the methodologies outlined in the *Highway Capacity Manual 6th Edition (HCM)*. Based on the HCM methodology, each intersection approach and/or movement is assigned a Level of Service (LOS) which reflects the amount of delay experienced by drivers. The HCM assumes that drivers tend to accept longer delays when waiting at a traffic signal versus when trying to find a gap in traffic while at a stop sign. This difference is reflected in the different LOS thresholds for unsignalized versus signalized intersections. Table 2 lists the delays associated with each LOS. LOS E and LOS F are typically associated with long delays and are considered unacceptable.

Table 2 - LOS Thresholds for Unsignalized and Signalized Intersections

LOS	Unsignalized Delay (sec/veh)	Signalized Delay (sec/veh)
A	≤ 10	≤ 10
B	10 - 15	10 - 20
C	15 - 25	20 - 35
D	25 - 35	35 - 55
E	35-50	55 - 80
F	> 50	> 80

Signal timings for the signalized intersections were provided by AECOM and are included in [Appendix C](#). Each of the signalized intersections is part of a coordinated system; therefore, the signal timings and phasings are not independent. Because all of the signals within the coordinated system were not evaluated as part of this study, the signal timings were not adjusted as part of the analysis.

EXISTING TRAFFIC OPERATIONS

Capacity analysis was performed for the study intersections using Existing 2025 traffic. The results of the analysis are included in [Appendix D](#). The results of the analysis are provided in Table 3.

For the Existing Year conditions, all the study intersections operate at an acceptable LOS with the exception of University Parkway and Old Bradenton Road which exhibits an overall LOS E. The eastbound and northbound approaches exhibit LOS E and F, respectively. The operations could be improved through signal timing adjustments.

For the intersection of US 41 and General Spaatz Boulevard, the eastbound and westbound side street approaches operate at LOS F; however, the overall intersection operates at LOS C. Signal timings at this intersection are designed to maximize throughput on US 41.

Table 3 – Existing Year 2025 Intersection Capacity Analysis Summary (HCM results)

Int. No.	Location	Stop Control	Approach/ Movement	Existing PM Peak Hour	
				Delay (sec/veh)	LOS
1	University Parkway at Old Bradenton Road	Signal	Eastbound	79.6	E
			Westbound	50.7	D
			Northbound	93.6	F
			Southbound	28.6	C
			Overall Intersection	68.8	E
2	University Parkway at Hampton Inn Access	Side Street Stop	Northbound Right	13.1	B
			Southbound Right	12.4	B
3	University Parkway at Airport Circle	Signal	Eastbound	25.4	C
			Westbound	32.2	C
			Northbound	54.3	D
			Southbound	37.6	D
			Overall Intersection	31.3	C
4	Bradenton Connector at Airport Auditorium Lane	All Way Stop	Westbound	8.2	A
			Northbound	8.4	A
			Southbound	8.1	A
5	General Spaatz Boulevard at Airport Auditorium Lane	Side Street Stop	Eastbound Left	7.5	A
			Southbound	10.6	B
6	US 41/Tamiami Trail at General Spaatz Boulevard	Signal	Eastbound	85.3	F
			Westbound	81.1	F
			Northbound	19.4	C
			Southbound	13.4	B
			Overall Intersection	20.1	C

FUTURE TRAFFIC OPERATIONS

Capacity analysis was performed for both the Future Year 2034 No Build and Future Year 2034 Build conditions. The detailed results of the analysis are included in [Appendix D](#). It should be noted that signal retiming would likely be performed in the future and could result in reduced delays compared with the results of this study. The signal timings were not revised as part of this analysis because the study area does not include all the intersections included in the coordinated system. Signal timings and turning movement counts were not available for the entire coordinated system. For the intersection of University Parkway at Old Bradenton Road, optimizing timing splits was tested and considered for application in the future conditions analysis; however, doing so resulted in little or no change in each approach LOS, with delays simply shifted from one approach to another. Because signal timing optimization was not enough to address delays, the analysis was performed using existing signal timing settings. Table 4 presents the results of the analysis.

In both the No Build and Build conditions, the intersection at University Parkway and Old Bradenton Road would exhibit LOS F. High volumes of northbound right turns and westbound left turns contribute to the poor operations. These movements do not serve airport related traffic.

In both the No Build and Build conditions, the northbound approach at University Parkway and Airport Circle would exhibit LOS E. This is a minor approach to the intersection and serves low volumes of traffic.

The intersection of US 41/Tamiami Trail and General Spaatz Boulevard would exhibit an overall acceptable LOS C; however,

the eastbound and westbound side street approaches would exhibit LOS F. These approaches also exhibit LOS F in the Existing Year 2025 evening peak hour. The signal at this intersection is timed to prioritize the traffic on US 41.

Table 4 - Future Year 2034 Intersection Capacity Analysis Summary

Int. No.	Location	Stop Control	Approach/ Movement	No Build PM Peak Hour		Build PM Peak Hour	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	University Parkway at Old Bradenton Road	Signal	Eastbound	230.4	F	273.1	F
			Westbound	117.2	F	120.4	E
			Northbound	262.8	F	263.5	F
			Southbound	30.1	C	29.6	C
			Overall Intersection	187.4	F	202.9	F
2	University Parkway at Hampton Inn Access	Side Street Stop	Northbound Right	15.8	C	16.4	C
			Southbound Right	14.5	B	15.1	C
3	University Parkway at Airport Circle	Signal	Eastbound	29.8	C	26.6	C
			Westbound	35.3	D	33.6	C
			Northbound	55.6	E	55.4	E
			Southbound	37.7	D	45.4	D
			Overall Intersection	33.9	C	33.5	C
4	Bradenton Connector at Airport Auditorium Lane	All Way Stop	Westbound	8.7	A	8.9	A
			Northbound	9.4	A	9.8	A
			Southbound	9.3	A	9.7	A
5	General Spaatz Boulevard at Airport Auditorium Lane	Side Street Stop	Eastbound Left	7.6	A	7.6	A
			Southbound	13.5	B	15.0	C
6	US 41/Tamiami Trail at General Spaatz Boulevard	Signal	Eastbound	85.9	F	85.9	F
			Westbound	80.0	F	80.5	F
			Northbound	28.1	C	29.4	C
			Southbound	16.1	B	19.3	B
			Overall Intersection	25.7	C	27.7	C

It should be noted that the US 41 at University Parkway intersection was not included in this study. Based on the results of Table 4 above, the effect of airport traffic on Intersections 1, 2, and 3 (on University Parkway) is very minor. Because US 41 and University Parkway have greater volumes of non-airport traffic, the effect of the airport traffic on this intersection would be even more diluted, and thus this intersection was excluded.

FUTURE QUEUING

The back of queue (BOQ) is a measure of the distance from the stop bar to the end of the motor vehicle queue during the red phase for a particular movement. The 95th percentile BOQ is a standard measure of effectiveness used to determine how much storage should be provided for a particular movement. Essentially, 95 percent of the time, the motor vehicle queue would not be expected to exceed the 95th percentile BOQ.

A BOQ analysis was performed to identify any locations at study intersections where turn lane storage deficiencies might be expected in the Future Year 2034. 95th percentile BOQ measures were reviewed for each turning movement in both the No Build and Build conditions. For the signalized intersections, BOQ lengths were taken from Synchro queueing reports. For the unsignalized intersections, Synchro reports listed the BOQ results in number of vehicles. The number of vehicles was rounded up to the nearest whole number and converted to a length in feet. A distance of 25 feet per vehicle was assumed.

The results of the BOQ analysis are presented in Table 5. Two movements were identified as having inadequate queue storage; however, neither location is expected to serve trips directly accessing the airport.

Table 5 - Back of Queue (BOQ) Analysis Summary

Int. No.	Location	Stop Control	Movement	Available Storage (ft)	No Build PM Peak Hour		Build PM Peak Hour	
					BOQ (ft)	Adequate Storage?	BOQ (ft)	Adequate Storage?
1	University Parkway at Old Bradenton Road	Signal	Eastbound Left	300	25*	Y	5*	Y
			Westbound Left	350	525†	N	532†	N
			Northbound Left	230	116	Y	116	Y
			Southbound Left	170	64	Y	74	Y
2	University Parkway at Hampton Inn Access	Side Street Stop	Northbound Right	n/a	25	n/a	25	n/a
			Southbound Right	n/a	25	n/a	25	n/a
3	University Parkway at Airport Circle	Signal	Eastbound Left	345	67	Y	74	Y
			Westbound Left	300	50*	Y	28*	Y
			Southbound Left	200^	189	Y	228	Y^
4	Bradenton Connector at Airport Auditorium Lane	All Way Stop	Westbound	325	25	Y	50	Y
			Northbound	140	50	Y	25	Y
			Southbound	70	50	Y	50	Y
5	General Spaatz Boulevard at Airport Auditorium Lane	Side Street Stop	Eastbound Left	N/A	25	Y	25	Y
			Southbound	100	25	Y	50	Y
6	US 41/Tamiami Trail at General Spaatz Boulevard	Signal	Eastbound Left	160	185	N	185	N
			Westbound Left	250	78	Y	85	Y
			Northbound Left	280	68	Y	68	Y
			Southbound Left	350	187	Y	187	Y

* Volume for 95th percentile queue is metered by upstream signal

† 95th percentile volume exceeds capacity, queue may be longer

^ 11 200 ft is the length of the SB right turn lane. There is 525 feet between the existing signal and Rental Car Road. Queues in excess of 200 feet might block access to the right turn lane.

MITIGATION

While no mitigation analysis was performed as part of this study, the Future Year 2034 capacity analysis results for the No Build and Build conditions were reviewed to determine if potential mitigation measures are necessary to accommodate the additional ground transportation traffic associated with the proposed airport expansion.

All three of the unsignalized intersections are expected to operate adequately in the Future Year 2034 No Build and Build conditions; therefore, no mitigation measures were identified for the unsignalized intersections.

The signalized intersection at University Parkway and Old Bradenton Road is expected to operate at LOS F in both the No Build and Build conditions for the Future Year 2034; however, the long delays and inadequate operations are primarily expected on the non-airport approaches. Signal timing adjustments could help to reduce delays along University Parkway. As noted previously, this intersection is part of a coordinated system which means that signal timing adjustments need to be made for the system as a whole rather than just for a single intersection. The Synchro reports indicate that the movements directly accessing the airport are expected to operate adequately. Improvements to movements that are not impacted by the airport traffic are needed to address background traffic and would benefit the intersection as a whole. Based on the results, the delays are likely associated with growth in background traffic and not with airport-generated traffic.

For both the University Parkway at Airport Circle and the US 41/Tamiami Trail at General Spaatz Boulevard intersections, minor street approaches are expected to experience long delays. The northbound approach at University Parkway and Airport Circle is a low volume approach that provides access to three hotels. This is a low priority approach and no mitigation measures are recommended. The side street approaches at US 41/Tamiami Trail and General Spaatz Boulevard are also considered low priority. It is anticipated that TNC drivers will use Airport Circle to exit the airport to access destinations to the south or east of the airport. No mitigation measures are recommended for this intersection.

CONCLUSIONS

In the Existing 2025 conditions, all the study intersections operate adequately with the exception of the eastbound approach at University Parkway and Old Bradenton Road and the side street approaches for the intersection of US 41/Tamiami Trail and General Spaatz Boulevard. These approaches serve low volumes of traffic while US 41 is a major arterial for the region. Additionally, the intersection is part of a coordinated system. Therefore, the delays to the side streets at this intersection are considered acceptable.

The following inadequate results were noted in the Future Year 2034 No Build and Build conditions:

- In both the No Build and Build conditions, the intersection at University Parkway and Old Bradenton Road would exhibit LOS F with the Build condition experiencing average delays over 100 seconds per vehicle.
- In both the No Build and Build conditions, the northbound approach at University Parkway and Airport Circle would exhibit LOS E.
- The intersection of US 41/Tamiami Trail and General Spaatz Boulevard would exhibit an overall acceptable LOS C; however, the eastbound and westbound side street approaches would exhibit LOS F. These approaches also exhibit LOS F in the Existing Year 2025 evening peak hour.

A back of queue (BOQ) analysis was performed to identify any deficiencies in turn lane storage for the study intersections. No deficiencies associated with the airport traffic were identified.

No mitigation measures were identified for the inadequate operations. The approaches exhibiting inadequate delays and measures of LOS do not directly serve airport traffic. When comparing the Build conditions to the No Build conditions, the delays and LOS results were similar. The traffic signals on University Parkway operate as part of a coordinated system. The system should be evaluated in the Future Year conditions to determine if signal timing adjustments can address future delays along University Parkway.



Appendices

Data and Analysis Sheets

APPENDIX A

Traffic Counts

Table 2 – 2024 PM Peak Hour Traffic Volumes

TABLE 2																			
SARASOTA-BRADENTON INTERNATIONAL AIRPORT, DRI																			
PM PEAK 60 MINUTES, MAXIMUM INBOUND AND OUTBOUND TRIPS																			
TRAFFIC COUNTS CONDUCTED August 2024																			
Traffic Volume Count Location		TOTAL OF INBOUND AND OUTBOUND VEHICLES																	
		15 Minute PM Period Starting																	
		4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45										
1	W. University Parkway & Airport Circle	186	140	110	86	64	69	144	158										
2	Hampton Inn, University Parkway, Access Driveway	16	27	22	22	24	12	28	31										
3	University Parkway & Old Bradenton Road	34	22	25	23	42	29	22	10										
4	15th Street and Driveway 1	5	5	4	10	4	8	8	6										
5	15th Street and Driveway 2	7	4	6	10	9	8	3	7										
6	15th Street and Driveway 3	0	2	3	2	1	1	0	1										
7	15th Street & Lindbergh Court	11	3	2	0	6	3	1	3										
8	15th Street & Driveway 4	2	2	0	1	0	0	2	3										
9	Rectrix Aviation, South Driveway and Driveway 5	3	3	1	0	3	2	2	1										
10	Rectrix Aviation, Middle Driveway and Driveway 6	3	1	2	2	0	1	0	0										
11	Rectrix Aviation, North Driveway	2	0	4	2	2	0	0	0										
12	15th Street & Driveway 7	5	1	4	9	17	1	2	1										
13	15th Street & Driveway 8	1	0	5	0	2	0	0	0										
14	15th Street & Driveways 9a and 9b	17	9	86	15	3	2	1	3										
15	15th Street and Innovation Way	7	4	10	6	9	0	4	1										
16	15th Street & Driveway 10	0	0	1	0	0	1	0	2										
17	15th Street & Driveway 11	11	10	11	10	14	5	9	14										
18	15th Street & Driveways 12a and 12b	8	8	5	2	2	5	5	7										
19	15th Street & Driveway 13	14	6	3	1	11	5	7	8										
20	15th Street & Driveway 14	0	0	0	2	1	0	0	2										
21	15th Street & Driveway 15	0	0	0	0	3	1	0	1										
22	15th Street & Driveway 16	3	3	2	1	2	4	1	5										
23	Tallevast Road & Clyde Jones Road (East)	1	5	1	1	5	4	3	4										
24	Tallevast Road & Clyde Jones Road (West)	4	6	1	3	7	7	4	4										
25	Tallevast Road & Gate 17	0	0	0	0	0	0	0	0										
26	Ponce de Leon Street & Driveway 18	0	2	1	1	0	0	0	0										
27	US 41 & Dolphin Aviation Driveway	12	16	7	15	17	9	8	11										
28	US 41 & Driveway 27	6	1	2	0	5	1	3	3										
29	Bradenton Connector & Airport Auditorium Lane	13	6	18	6	13	5	15	9										
30	General Spaatz and Airport Auditorium Lane	18	16	18	11	13	6	17	16										
TOTAL =		389	302	354	241	279	189	289	311										
PM Inbound 60 Minute Vehicle Totals <table><tr><td>4:00-5:00</td><td>4:15-5:15</td><td>4:30-5:30</td><td>4:45-5:45</td><td>5:00-6:00</td></tr><tr><td>424</td><td>382</td><td>359</td><td>370</td><td>386</td></tr></table>										4:00-5:00	4:15-5:15	4:30-5:30	4:45-5:45	5:00-6:00	424	382	359	370	386
4:00-5:00	4:15-5:15	4:30-5:30	4:45-5:45	5:00-6:00															
424	382	359	370	386															
PM Outbound 60 Minute Vehicle Totals <table><tr><td>4:00-5:00</td><td>4:15-5:15</td><td>4:30-5:30</td><td>4:45-5:45</td><td>5:00-6:00</td></tr><tr><td>862</td><td>794</td><td>704</td><td>628</td><td>682</td></tr></table>										4:00-5:00	4:15-5:15	4:30-5:30	4:45-5:45	5:00-6:00	862	794	704	628	682
4:00-5:00	4:15-5:15	4:30-5:30	4:45-5:45	5:00-6:00															
862	794	704	628	682															
		4:15 to 5:15	4:00 to 5:00	4:15 to 5:15	4:30 to 5:30	4:45 to 5:45	5:00 to 6:00												
		1,286	1,286	1,176	1,063	998	1,068												
Adjustment factor 1.141		1,467	1467	1342	1213	1139	1219												

1.W University Pkwy & Airport
Circle
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 1.W University
Pkwy & Airport Circle
Site Code: 00000001
Start Date: 08/27/2024
Page No: 1

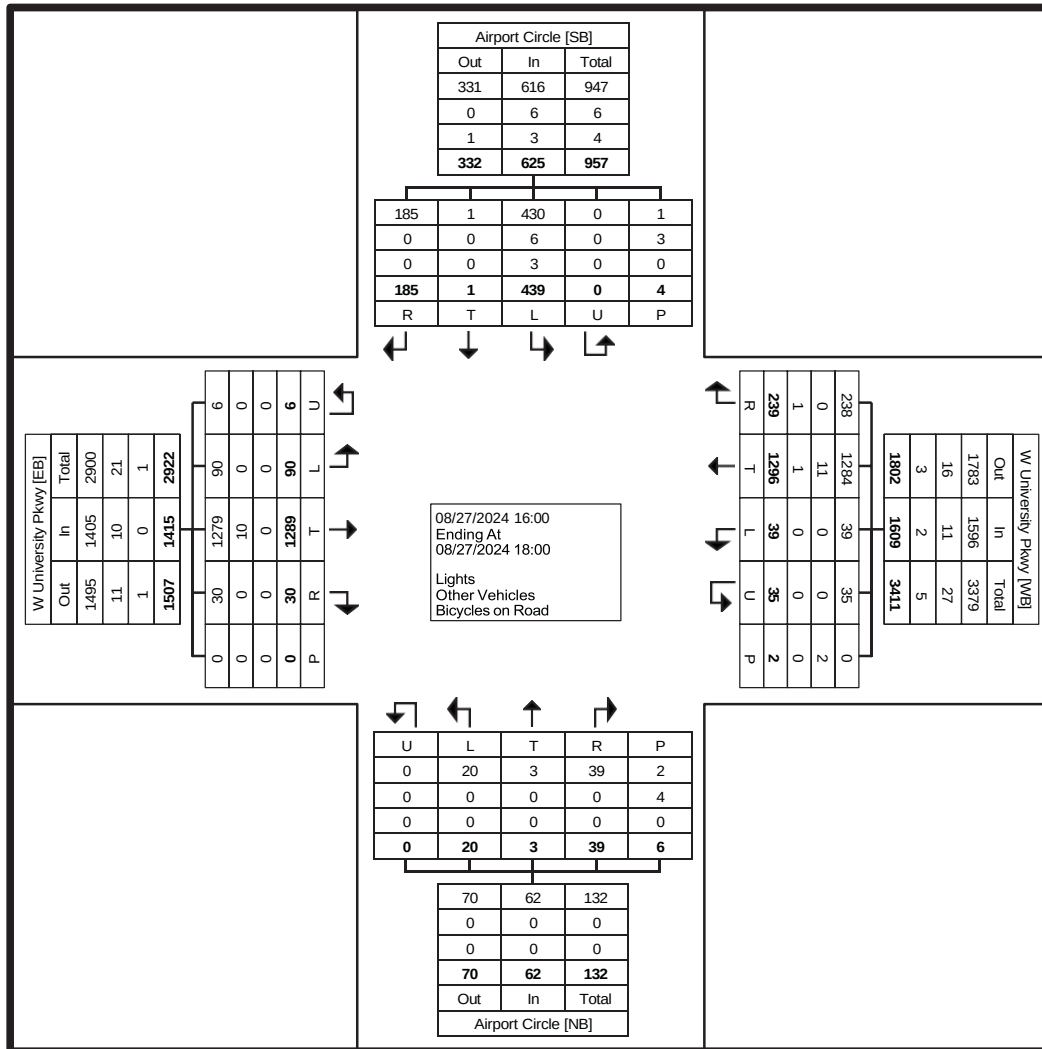
Turning Movement Data

Start Time	W University Pkwy Eastbound						W University Pkwy Westbound						Airport Circle Northbound						Airport Circle Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	16	155	5	0	176	2	6	148	53	0	209	0	4	1	3	0	8	0	82	0	34	1	116	509
16:15	2	11	172	5	0	190	1	2	161	33	1	197	0	2	1	5	3	8	0	68	0	27	0	95	490
16:30	0	12	173	6	0	191	4	4	161	36	0	205	0	1	0	7	1	8	0	47	0	15	1	62	466
16:45	3	14	156	4	0	177	5	5	176	20	1	206	0	1	0	4	1	5	0	34	0	18	1	52	440
Hourly Total	5	53	656	20	0	734	12	17	646	142	2	817	0	8	2	19	5	29	0	231	0	94	3	325	1905
17:00	0	8	178	2	0	188	10	4	169	22	0	205	0	2	0	3	1	5	0	28	0	6	0	34	432
17:15	1	5	172	4	0	182	5	5	176	28	0	214	0	4	0	6	0	10	0	29	0	7	0	36	442
17:30	0	13	161	4	0	178	2	7	163	28	0	200	0	4	1	4	0	9	0	64	0	38	1	102	489
17:45	0	11	122	0	0	133	6	6	142	19	0	173	0	2	0	7	0	9	0	87	1	40	0	128	443
Hourly Total	1	37	633	10	0	681	23	22	650	97	0	792	0	12	1	20	1	33	0	208	1	91	1	300	1806
Grand Total	6	90	1289	30	0	1415	35	39	1296	239	2	1609	0	20	3	39	6	62	0	439	1	185	4	625	3711
Approach %	0.4	6.4	91.1	2.1	-	-	2.2	2.4	80.5	14.9	-	-	0.0	32.3	4.8	62.9	-	-	0.0	70.2	0.2	29.6	-	-	-
Total %	0.2	2.4	34.7	0.8	-	38.1	0.9	1.1	34.9	6.4	-	43.4	0.0	0.5	0.1	1.1	-	1.7	0.0	11.8	0.0	5.0	-	16.8	-
Lights	6	90	1279	30	0	1405	35	39	1284	238	0	1596	0	20	3	39	2	62	0	430	1	185	1	616	3679
% Lights	100.0	100.0	99.2	100.0	-	99.3	100.0	100.0	99.1	99.6	0.0	99.2	-	100.0	100.0	100.0	33.3	100.0	-	97.9	100.0	100.0	25.0	98.6	99.1
Other Vehicles	0	0	10	0	0	10	0	0	11	0	2	11	0	0	0	0	4	0	0	6	0	0	3	6	27
% Other Vehicles	0.0	0.0	0.8	0.0	-	0.7	0.0	0.0	0.8	0.0	100.0	0.7	-	0.0	0.0	0.0	66.7	0.0	-	1.4	0.0	0.0	75.0	1.0	0.7
Bicycles on Road	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	3	0	0	0	3	5
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.4	0.0	0.1	-	0.0	0.0	0.0	0.0	0.0	-	0.7	0.0	0.0	0.0	0.5	0.1

1.W University Pkwy & Airport
Circle
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 1.W University
Pkwy & Airport Circle
Site Code: 00000001
Start Date: 08/27/2024
Page No: 2



Turning Movement Data Plot

1.W University Pkwy & Airport
Circle
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 1.W University
Pky & Airport Circle
Site Code: 00000001
Start Date: 08/27/2024
Page No: 3

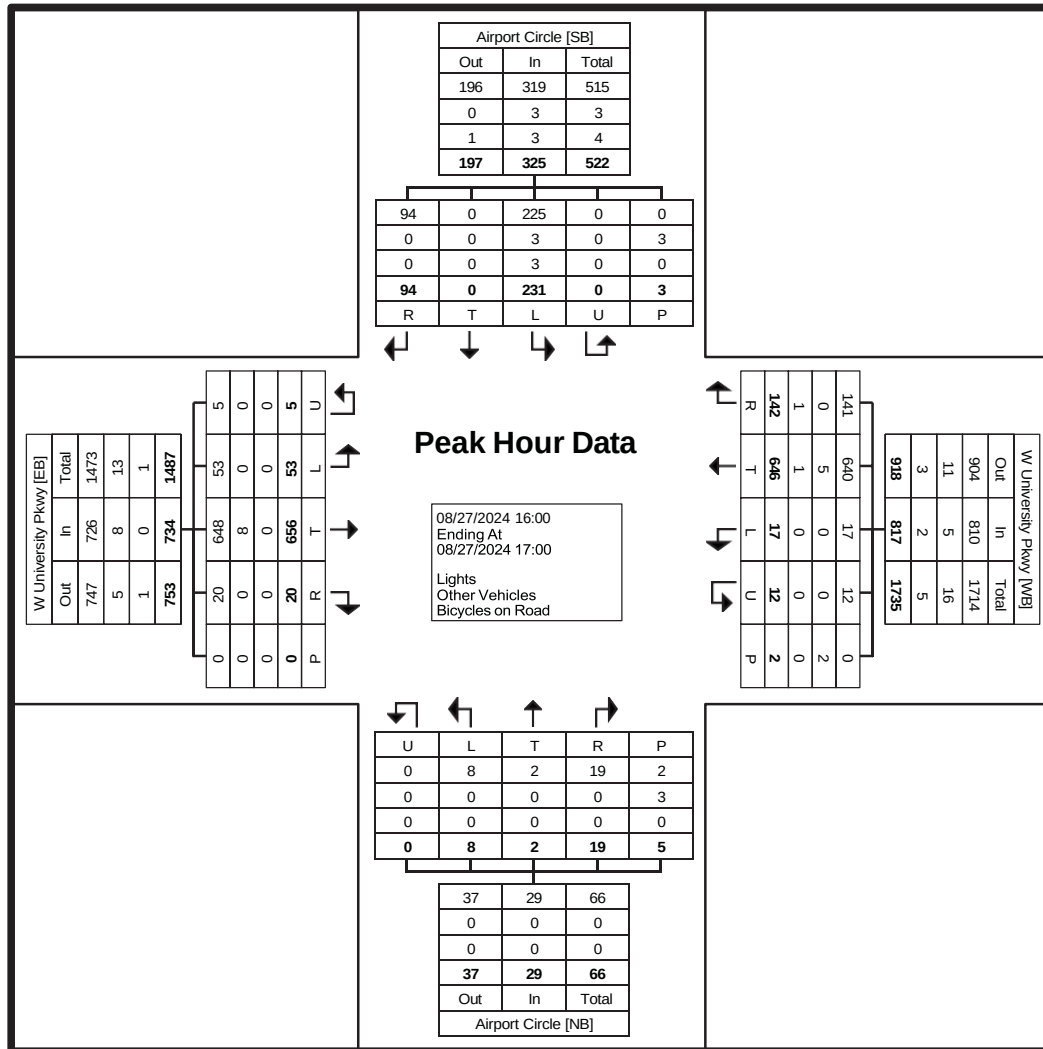
Turning Movement Peak Hour Data (16:00)

Start Time	W University Pkwy Eastbound						W University Pkwy Westbound						Airport Circle Northbound						Airport Circle Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	16	155	5	0	176	2	6	148	53	0	209	0	4	1	3	0	8	0	82	0	34	1	116	509
16:15	2	11	172	5	0	190	1	2	161	33	1	197	0	2	1	5	3	8	0	68	0	27	0	95	490
16:30	0	12	173	6	0	191	4	4	161	36	0	205	0	1	0	7	1	8	0	47	0	15	1	62	466
16:45	3	14	156	4	0	177	5	5	176	20	1	206	0	1	0	4	1	5	0	34	0	18	1	52	440
Total	5	53	656	20	0	734	12	17	646	142	2	817	0	8	2	19	5	29	0	231	0	94	3	325	1905
Approach %	0.7	7.2	89.4	2.7	-	-	1.5	2.1	79.1	17.4	-	-	0.0	27.6	6.9	65.5	-	-	0.0	71.1	0.0	28.9	-	-	-
Total %	0.3	2.8	34.4	1.0	-	38.5	0.6	0.9	33.9	7.5	-	42.9	0.0	0.4	0.1	1.0	-	1.5	0.0	12.1	0.0	4.9	-	17.1	-
PHF	0.417	0.828	0.948	0.833	-	0.961	0.600	0.708	0.918	0.670	-	0.977	0.000	0.500	0.500	0.679	-	0.906	0.000	0.704	0.000	0.691	-	0.700	0.936
Lights	5	53	648	20	0	726	12	17	640	141	0	810	0	8	2	19	2	29	0	225	0	94	0	319	1884
% Lights	100.0	100.0	98.8	100.0	-	98.9	100.0	100.0	99.1	99.3	0.0	99.1	-	100.0	100.0	100.0	40.0	100.0	-	97.4	-	100.0	0.0	98.2	98.9
Other Vehicles	0	0	8	0	0	8	0	0	5	0	2	5	0	0	0	0	3	0	0	3	0	0	3	3	16
% Other Vehicles	0.0	0.0	1.2	0.0	-	1.1	0.0	0.0	0.8	0.0	100.0	0.6	-	0.0	0.0	0.0	60.0	0.0	-	1.3	-	0.0	100.0	0.9	0.8
Bicycles on Road	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	3	0	0	0	3	5
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	0.7	0.0	0.2	-	0.0	0.0	0.0	0.0	0.0	-	1.3	-	0.0	0.0	0.9	0.3

1.W University Pkwy & Airport
Circle
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 1.W University
Pkwy & Airport Circle
Site Code: 00000001
Start Date: 08/27/2024
Page No: 4



Turning Movement Peak Hour Data Plot (16:00)

2.Hampton Inn University Pkwy
@ Access D
WEEK DAY TMC

Then Click the Comments Tab

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 2.Hampton Inn
University Pkwy @ Access
Driveway
Site Code: 2
Start Date: 08/27/2024
Page No: 1

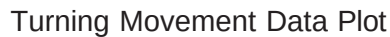
Turning Movement Data

Start Time	University Pkwy Eastbound						University Pkwy Westbound						Hampton Inn Access Driveway Northbound						Hampton Inn Access Driveway Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	0	235	2	2	237	0	0	203	8	0	211	0	0	0	6	0	6	0	0	0	9	2	9	463
16:15	0	0	249	2	0	251	0	0	193	5	0	198	0	0	0	4	1	4	0	0	0	3	0	3	456
16:30	0	0	227	2	0	229	0	0	185	17	0	202	0	0	0	5	0	5	0	0	0	6	0	6	442
16:45	0	0	193	2	2	195	0	0	201	15	0	216	0	0	0	8	0	8	0	0	0	10	0	10	429
Hourly Total	0	0	904	8	4	912	0	0	782	45	0	827	0	0	0	23	1	23	0	0	0	28	2	28	1790
17:00	0	0	210	3	0	213	0	0	185	10	0	195	0	0	0	6	0	6	0	0	0	17	0	17	431
17:15	0	0	202	5	0	207	0	0	210	15	0	225	0	0	0	7	0	7	0	0	0	11	0	11	450
17:30	0	0	221	5	0	226	0	0	198	11	0	209	0	0	0	8	0	8	0	0	0	7	1	7	450
17:45	0	0	223	4	0	227	0	0	171	13	0	184	0	0	0	4	1	4	0	0	0	13	0	13	428
Hourly Total	0	0	856	17	0	873	0	0	764	49	0	813	0	0	0	25	1	25	0	0	0	48	1	48	1759
Grand Total	0	0	1760	25	4	1785	0	0	1546	94	0	1640	0	0	0	48	2	48	0	0	0	76	3	76	3549
Approach %	0.0	0.0	98.6	1.4	-	-	0.0	0.0	94.3	5.7	-	-	0.0	0.0	0.0	100.0	-	-	0.0	0.0	0.0	100.0	-	-	-
Total %	0.0	0.0	49.6	0.7	-	50.3	0.0	0.0	43.6	2.6	-	46.2	0.0	0.0	0.0	1.4	-	1.4	0.0	0.0	0.0	2.1	-	2.1	-
Lights	0	0	1743	24	4	1767	0	0	1534	93	0	1627	0	0	0	48	0	48	0	0	0	76	2	76	3518
% Lights	-	-	99.0	96.0	100.0	99.0	-	-	99.2	98.9	-	99.2	-	-	-	100.0	0.0	100.0	-	-	-	100.0	66.7	100.0	99.1
Other Vehicles	0	0	17	1	0	18	0	0	9	0	0	9	0	0	0	0	2	0	0	0	0	0	1	0	27
% Other Vehicles	-	-	1.0	4.0	0.0	1.0	-	-	0.6	0.0	-	0.5	-	-	-	0.0	100.0	0.0	-	-	-	0.0	33.3	0.0	0.8
Bicycles on Road	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
% Bicycles on Road	-	-	0.0	0.0	0.0	0.0	-	-	0.2	1.1	-	0.2	-	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.1

Then Click the Comments Tab

Punta Gorda, Florida, United States 33950
(800) 639-4851

Page No: 2



2.Hampton Inn University Pkwy
@ Access D
WEEK DAY TMC

Then Click the Comments Tab

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 2.Hampton Inn
University Pkwy @ Access
Driveway
Site Code: 2
Start Date: 08/27/2024
Page No: 3

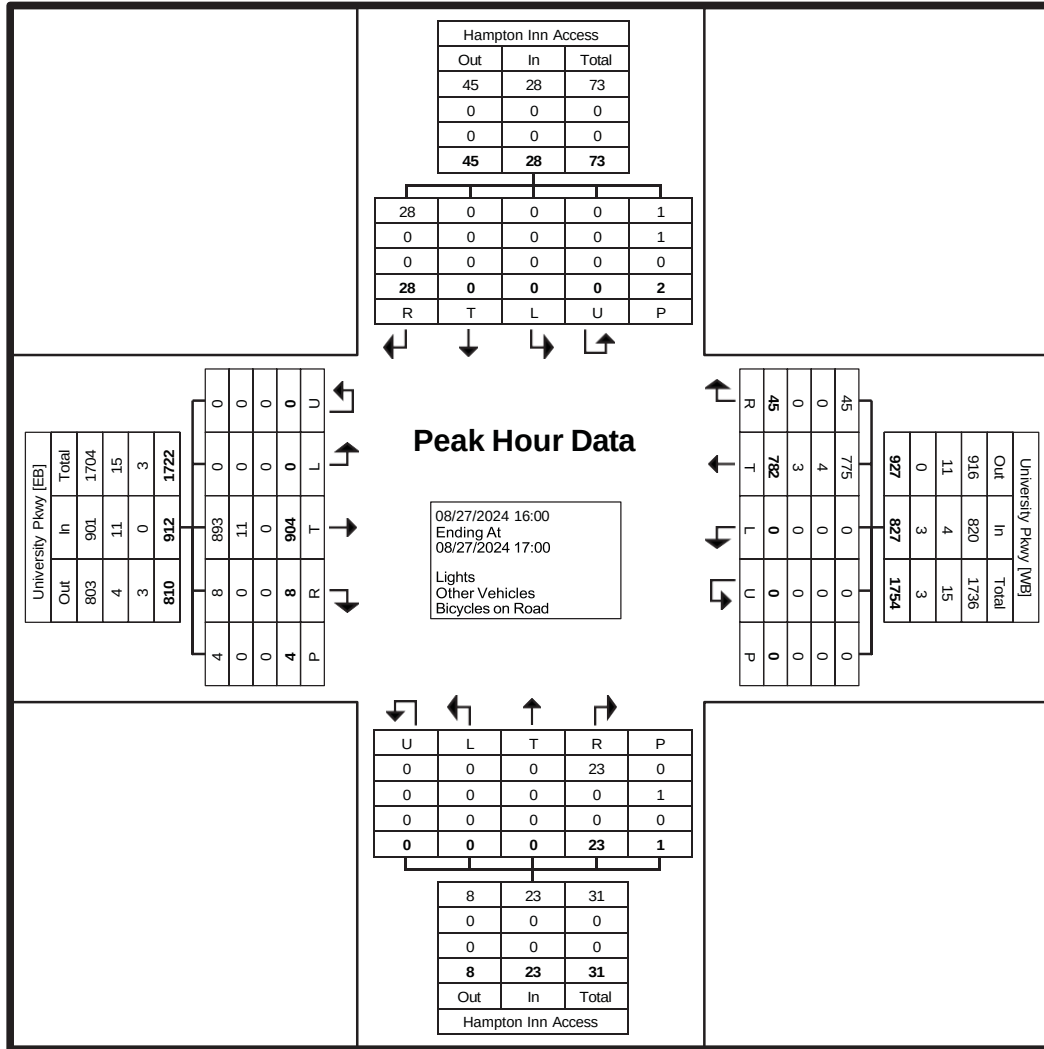
Turning Movement Peak Hour Data (16:00)

Start Time	University Pkwy Eastbound						University Pkwy Westbound						Hampton Inn Access Driveway Northbound						Hampton Inn Access Driveway Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	0	235	2	2	237	0	0	203	8	0	211	0	0	0	6	0	6	0	0	0	9	2	9	463
16:15	0	0	249	2	0	251	0	0	193	5	0	198	0	0	0	4	1	4	0	0	0	3	0	3	456
16:30	0	0	227	2	0	229	0	0	185	17	0	202	0	0	0	5	0	5	0	0	0	6	0	6	442
16:45	0	0	193	2	2	195	0	0	201	15	0	216	0	0	0	8	0	8	0	0	0	10	0	10	429
Total	0	0	904	8	4	912	0	0	782	45	0	827	0	0	0	23	1	23	0	0	0	28	2	28	1790
Approach %	0.0	0.0	99.1	0.9	-	-	0.0	0.0	94.6	5.4	-	-	0.0	0.0	0.0	100.0	-	-	0.0	0.0	0.0	100.0	-	-	-
Total %	0.0	0.0	50.5	0.4	-	50.9	0.0	0.0	43.7	2.5	-	46.2	0.0	0.0	0.0	1.3	-	1.3	0.0	0.0	0.0	1.6	-	1.6	-
PHF	0.000	0.000	0.908	1.000	-	0.908	0.000	0.000	0.963	0.662	-	0.957	0.000	0.000	0.000	0.719	-	0.719	0.000	0.000	0.000	0.700	-	0.700	0.967
Lights	0	0	893	8	4	901	0	0	775	45	0	820	0	0	0	23	0	23	0	0	0	28	1	28	1772
% Lights	-	-	98.8	100.0	100.0	98.8	-	-	99.1	100.0	-	99.2	-	-	-	100.0	0.0	100.0	-	-	-	100.0	50.0	100.0	99.0
Other Vehicles	0	0	11	0	0	11	0	0	4	0	0	4	0	0	0	0	1	0	0	0	0	0	1	0	15
% Other Vehicles	-	-	1.2	0.0	0.0	1.2	-	-	0.5	0.0	-	0.5	-	-	-	0.0	100.0	0.0	-	-	-	0.0	50.0	0.0	0.8
Bicycles on Road	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% Bicycles on Road	-	-	0.0	0.0	0.0	0.0	-	-	0.4	0.0	-	0.4	-	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.2

2.Hampton Inn University Pkwy
 @ Access D
 WEEK DAY TMC
 Then Click the Comments Tab

Florida Transportation Engineering, Inc.
 (FTE)
 8250 Pascal Dr
 Punta Gorda, Florida, United States 33950
 (800) 639-4851

Count Name: 2.Hampton Inn
 University Pkwy @ Access
 Driveway
 Site Code: 2
 Start Date: 08/27/2024
 Page No: 4



Turning Movement Peak Hour Data Plot (16:00)

3.University Pkwy & Old
Bradenteton Rd
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 3.University Pkwy
& Old Bradenteton Rd
Site Code: 3
Start Date: 08/27/2024
Page No: 1

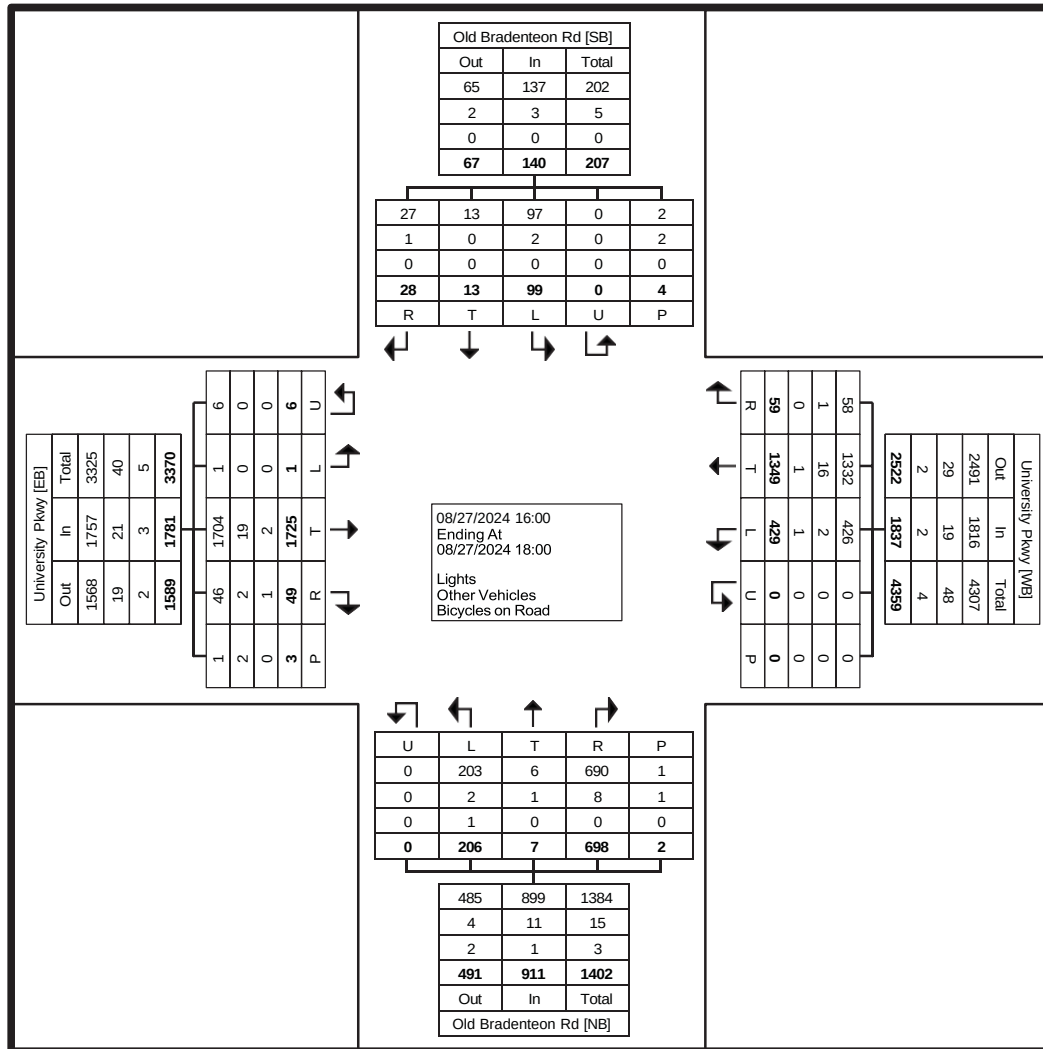
Turning Movement Data

Start Time	University Pkwy Eastbound						University Pkwy Westbound						Old Bradenteton Rd Northbound						Old Bradenteton Rd Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	0	237	7	0	244	0	49	178	7	0	234	0	19	0	69	0	88	0	19	1	7	1	27	593
16:15	1	0	242	5	0	248	0	53	162	9	0	224	0	29	0	82	0	111	0	8	3	2	0	13	596
16:30	0	0	230	5	1	235	0	55	179	4	0	238	0	27	0	102	1	129	0	16	1	4	2	21	623
16:45	1	0	192	5	0	198	0	48	178	7	0	233	0	29	1	95	0	125	0	9	2	4	0	15	571
Hourly Total	2	0	901	22	1	925	0	205	697	27	0	929	0	104	1	348	1	453	0	52	7	17	3	76	2383
17:00	1	1	204	7	0	213	0	58	165	13	0	236	0	28	2	82	0	112	0	19	3	4	0	26	587
17:15	1	0	195	8	0	204	0	60	184	13	0	257	0	28	1	100	0	129	0	11	1	3	0	15	605
17:30	2	0	212	4	1	218	0	49	166	4	0	219	0	27	2	93	1	122	0	11	2	3	1	16	575
17:45	0	0	213	8	1	221	0	57	137	2	0	196	0	19	1	75	0	95	0	6	0	1	0	7	519
Hourly Total	4	1	824	27	2	856	0	224	652	32	0	908	0	102	6	350	1	458	0	47	6	11	1	64	2286
Grand Total	6	1	1725	49	3	1781	0	429	1349	59	0	1837	0	206	7	698	2	911	0	99	13	28	4	140	4669
Approach %	0.3	0.1	96.9	2.8	-	-	0.0	23.4	73.4	3.2	-	-	0.0	22.6	0.8	76.6	-	-	0.0	70.7	9.3	20.0	-	-	-
Total %	0.1	0.0	36.9	1.0	-	38.1	0.0	9.2	28.9	1.3	-	39.3	0.0	4.4	0.1	14.9	-	19.5	0.0	2.1	0.3	0.6	-	3.0	-
Lights	6	1	1704	46	1	1757	0	426	1332	58	0	1816	0	203	6	690	1	899	0	97	13	27	2	137	4609
% Lights	100.0	100.0	98.8	93.9	33.3	98.7	-	99.3	98.7	98.3	-	98.9	-	98.5	85.7	98.9	50.0	98.7	-	98.0	100.0	96.4	50.0	97.9	98.7
Other Vehicles	0	0	19	2	2	21	0	2	16	1	0	19	0	2	1	8	1	11	0	2	0	1	2	3	54
% Other Vehicles	0.0	0.0	1.1	4.1	66.7	1.2	-	0.5	1.2	1.7	-	1.0	-	1.0	14.3	1.1	50.0	1.2	-	2.0	0.0	3.6	50.0	2.1	1.2
Bicycles on Road	0	0	2	1	0	3	0	1	1	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	6
% Bicycles on Road	0.0	0.0	0.1	2.0	0.0	0.2	-	0.2	0.1	0.0	-	0.1	-	0.5	0.0	0.0	0.0	0.1	-	0.0	0.0	0.0	0.0	0.0	0.1

3.University Pkwy & Old
Bradentoon Rd
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 3.University Pkwy
& Old Bradentoon Rd
Site Code: 3
Start Date: 08/27/2024
Page No: 2



Turning Movement Data Plot

3.University Pkwy & Old
Bradenteton Rd
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 3.University Pkwy
& Old Bradenteton Rd
Site Code: 3
Start Date: 08/27/2024
Page No: 3

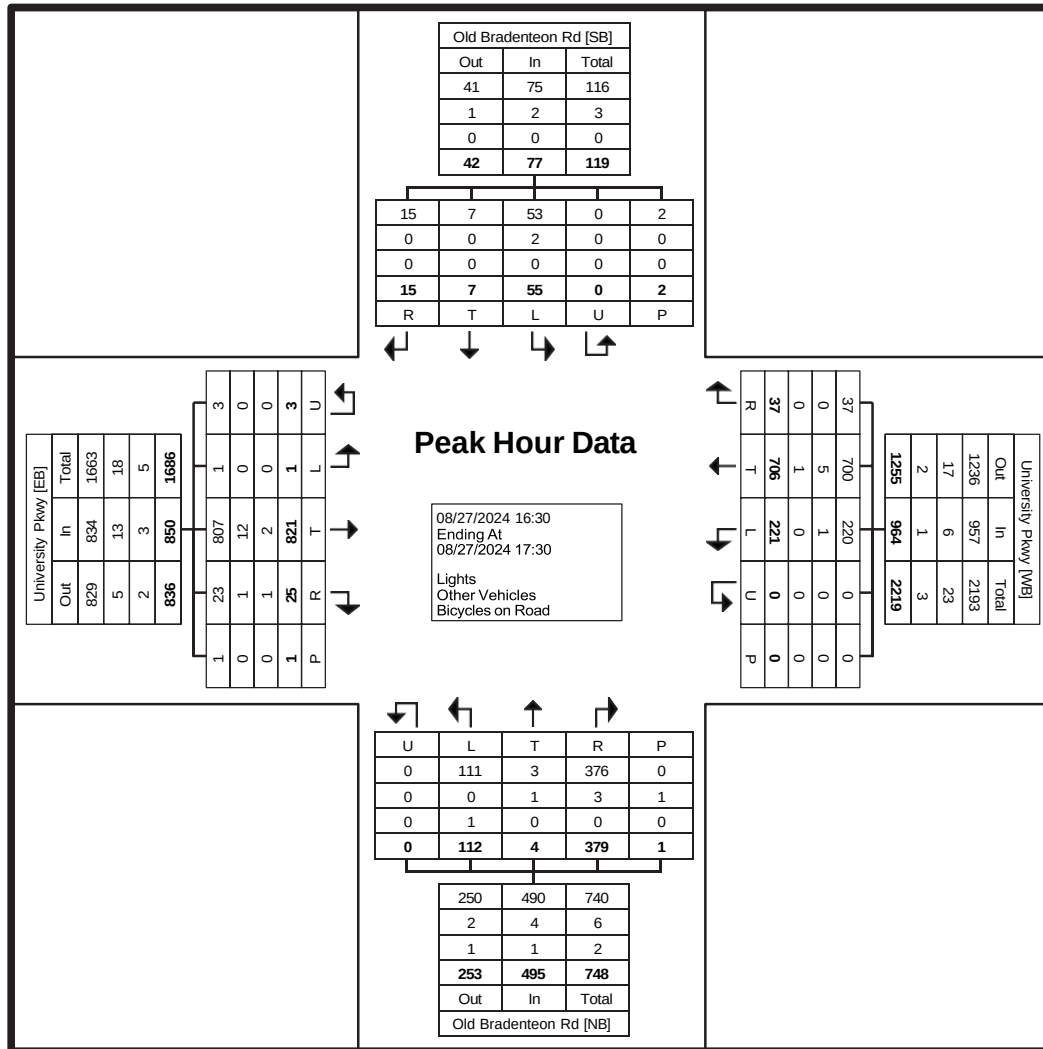
Turning Movement Peak Hour Data (16:30)

Start Time	University Pkwy Eastbound						University Pkwy Westbound						Old Bradenteton Rd Northbound						Old Bradenteton Rd Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:30	0	0	230	5	1	235	0	55	179	4	0	238	0	27	0	102	1	129	0	16	1	4	2	21	623
16:45	1	0	192	5	0	198	0	48	178	7	0	233	0	29	1	95	0	125	0	9	2	4	0	15	571
17:00	1	1	204	7	0	213	0	58	165	13	0	236	0	28	2	82	0	112	0	19	3	4	0	26	587
17:15	1	0	195	8	0	204	0	60	184	13	0	257	0	28	1	100	0	129	0	11	1	3	0	15	605
Total	3	1	821	25	1	850	0	221	706	37	0	964	0	112	4	379	1	495	0	55	7	15	2	77	2386
Approach %	0.4	0.1	96.6	2.9	-	-	0.0	22.9	73.2	3.8	-	-	0.0	22.6	0.8	76.6	-	-	0.0	71.4	9.1	19.5	-	-	-
Total %	0.1	0.0	34.4	1.0	-	35.6	0.0	9.3	29.6	1.6	-	40.4	0.0	4.7	0.2	15.9	-	20.7	0.0	2.3	0.3	0.6	-	3.2	-
PHF	0.750	0.250	0.892	0.781	-	0.904	0.000	0.921	0.959	0.712	-	0.938	0.000	0.966	0.500	0.929	-	0.959	0.000	0.724	0.583	0.938	-	0.740	0.957
Lights	3	1	807	23	1	834	0	220	700	37	0	957	0	111	3	376	0	490	0	53	7	15	2	75	2356
% Lights	100.0	100.0	98.3	92.0	100.0	98.1	-	99.5	99.2	100.0	-	99.3	-	99.1	75.0	99.2	0.0	99.0	-	96.4	100.0	100.0	100.0	97.4	98.7
Other Vehicles	0	0	12	1	0	13	0	1	5	0	0	6	0	0	1	3	1	4	0	2	0	0	0	2	25
% Other Vehicles	0.0	0.0	1.5	4.0	0.0	1.5	-	0.5	0.7	0.0	-	0.6	-	0.0	25.0	0.8	100.0	0.8	-	3.6	0.0	0.0	0.0	2.6	1.0
Bicycles on Road	0	0	2	1	0	3	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	5
% Bicycles on Road	0.0	0.0	0.2	4.0	0.0	0.4	-	0.0	0.1	0.0	-	0.1	-	0.9	0.0	0.0	0.0	0.2	-	0.0	0.0	0.0	0.0	0.0	0.2

3.University Pkwy & Old
Bradentoon Rd
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 3.University Pkwy
& Old Bradentoon Rd
Site Code: 3
Start Date: 08/27/2024
Page No: 4



Turning Movement Peak Hour Data Plot (16:30)

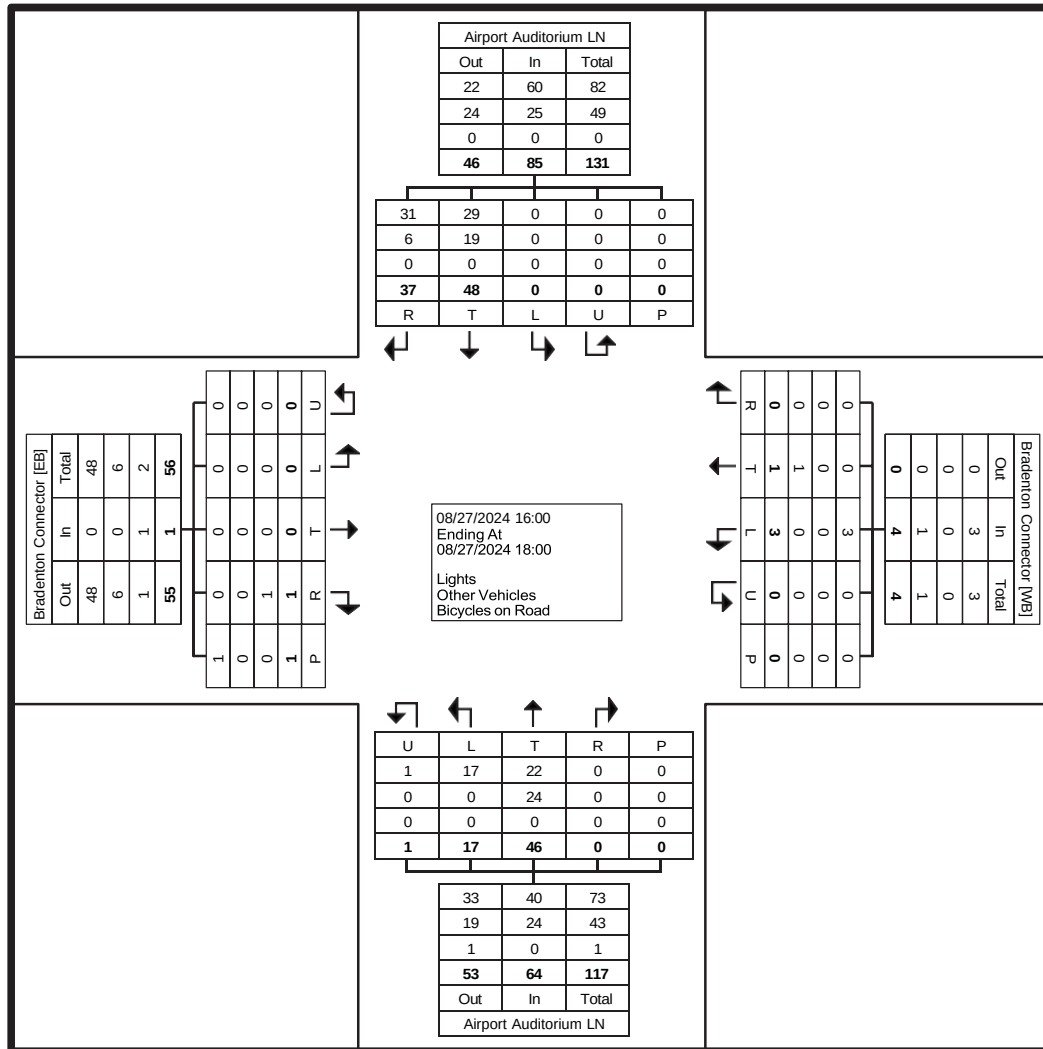
29.Bradenton Connector &
Airport Auditor
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 29.Bradenton
Connector & Airport Auditorium
LN
Site Code: 29
Start Date: 08/27/2024
Page No: 1

Turning Movement Data

Start Time	Bradenton Connector Eastbound						Bradenton Connector Westbound						Airport Auditorium LN Northbound						Airport Auditorium LN Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	8	0	0	9	0	0	9	4	0	13	22
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	9	0	0	10	0	0	5	1	0	6	16
16:30	0	0	0	0	0	0	0	1	1	0	0	2	0	5	5	0	0	10	0	0	7	11	0	18	30
16:45	0	0	0	1	0	1	0	1	0	0	0	1	0	2	4	0	0	6	0	0	3	3	0	6	14
Hourly Total	0	0	0	1	1	1	0	2	1	0	0	3	1	8	26	0	0	35	0	0	24	19	0	43	82
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	8	0	0	7	6	0	13	21
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	3	2	0	5	8
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	0	8	7	0	15	24
17:45	0	0	0	0	0	0	0	1	0	0	0	1	0	5	4	0	0	9	0	0	6	3	0	9	19
Hourly Total	0	0	0	0	0	0	0	1	0	0	0	1	0	9	20	0	0	29	0	0	24	18	0	42	72
Grand Total	0	0	0	1	1	1	0	3	1	0	0	4	1	17	46	0	0	64	0	0	48	37	0	85	154
Approach %	0.0	0.0	0.0	100.0	-	-	0.0	75.0	25.0	0.0	-	-	1.6	26.6	71.9	0.0	-	-	0.0	0.0	56.5	43.5	-	-	-
Total %	0.0	0.0	0.0	0.6	-	0.6	0.0	1.9	0.6	0.0	-	2.6	0.6	11.0	29.9	0.0	-	41.6	0.0	0.0	31.2	24.0	-	55.2	-
Lights	0	0	0	0	1	0	0	3	0	0	0	3	1	17	22	0	0	40	0	0	29	31	0	60	103
% Lights	-	-	-	0.0	100.0	0.0	-	100.0	0.0	-	-	75.0	100.0	100.0	47.8	-	-	62.5	-	-	60.4	83.8	-	70.6	66.9
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24	0	0	19	6	0	25	49
% Other Vehicles	-	-	-	0.0	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	52.2	-	-	37.5	-	-	39.6	16.2	-	29.4	31.8
Bicycles on Road	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
% Bicycles on Road	-	-	-	100.0	0.0	100.0	-	0.0	100.0	-	-	25.0	0.0	0.0	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	1.3



Turning Movement Data Plot

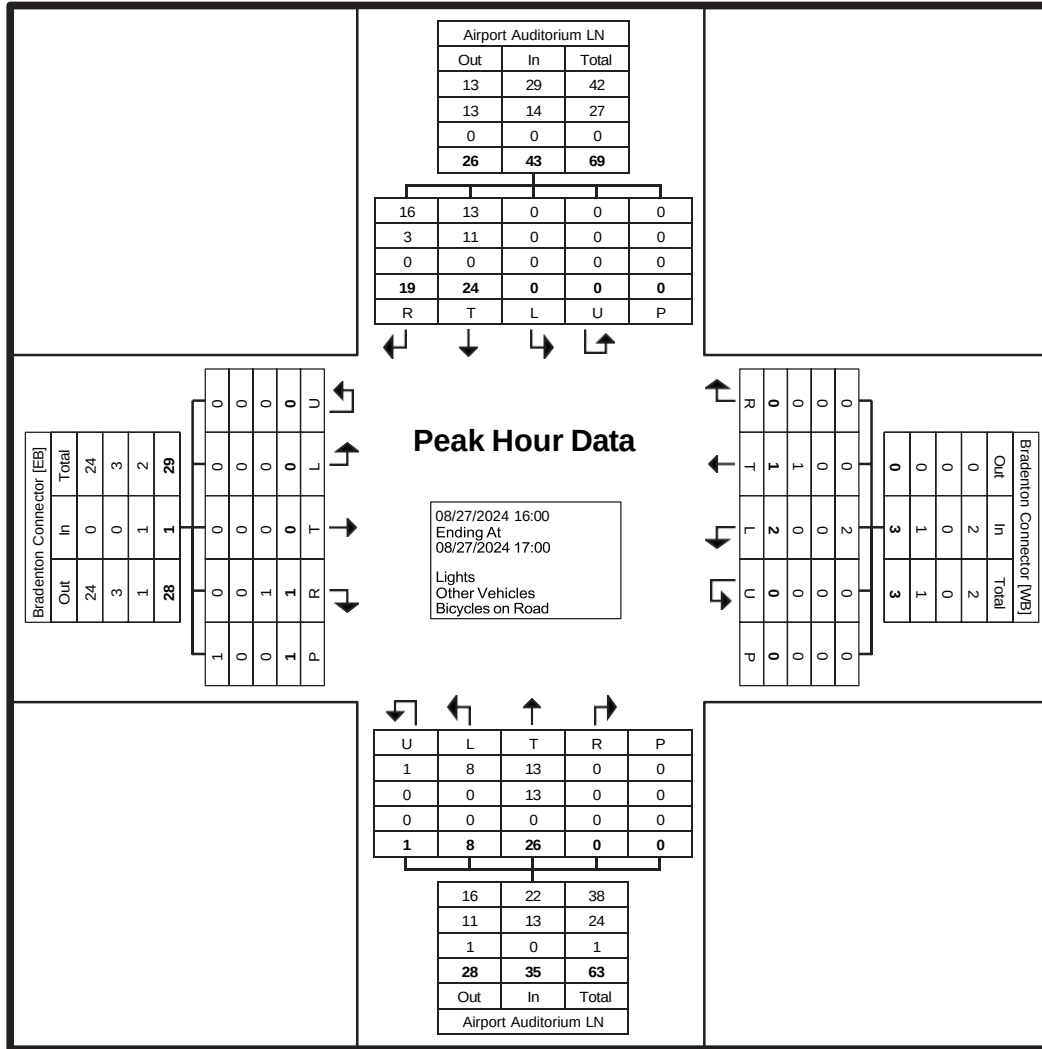
29.Bradenton Connector &
Airport Auditor
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 29.Bradenton
Connector & Airport Auditorium
LN
Site Code: 29
Start Date: 08/27/2024
Page No: 3

Turning Movement Peak Hour Data (16:00)

Start Time	Bradenton Connector Eastbound						Bradenton Connector Westbound						Airport Auditorium LN Northbound						Airport Auditorium LN Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	8	0	0	9	0	0	9	4	0	13	22
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	9	0	0	10	0	0	5	1	0	6	16
16:30	0	0	0	0	0	0	0	1	1	0	0	2	0	5	5	0	0	10	0	0	7	11	0	18	30
16:45	0	0	0	1	0	1	0	1	0	0	0	1	0	2	4	0	0	6	0	0	3	3	0	6	14
Total	0	0	0	1	1	1	0	2	1	0	0	3	1	8	26	0	0	35	0	0	24	19	0	43	82
Approach %	0.0	0.0	0.0	100.0	-	-	0.0	66.7	33.3	0.0	-	-	2.9	22.9	74.3	0.0	-	-	0.0	0.0	55.8	44.2	-	-	-
Total %	0.0	0.0	0.0	1.2	-	1.2	0.0	2.4	1.2	0.0	-	3.7	1.2	9.8	31.7	0.0	-	42.7	0.0	0.0	29.3	23.2	-	52.4	-
PHF	0.000	0.000	0.000	0.250	-	0.250	0.000	0.500	0.250	0.000	-	0.375	0.250	0.400	0.722	0.000	-	0.875	0.000	0.000	0.667	0.432	-	0.597	0.683
Lights	0	0	0	0	1	0	0	2	0	0	0	2	1	8	13	0	0	22	0	0	13	16	0	29	53
% Lights	-	-	-	0.0	100.0	0.0	-	100.0	0.0	-	-	66.7	100.0	100.0	50.0	-	-	62.9	-	-	54.2	84.2	-	67.4	64.6
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	0	0	11	3	0	14	27
% Other Vehicles	-	-	-	0.0	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	50.0	-	-	37.1	-	-	45.8	15.8	-	32.6	32.9
Bicycles on Road	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
% Bicycles on Road	-	-	-	100.0	0.0	100.0	-	0.0	100.0	-	-	33.3	0.0	0.0	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	2.4



Turning Movement Peak Hour Data Plot (16:00)

30.General Spaatz & Airport
Auditorium L
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 30.General Spaatz
& Airport Auditorium LN
Site Code: 30
Start Date: 08/27/2024
Page No: 1

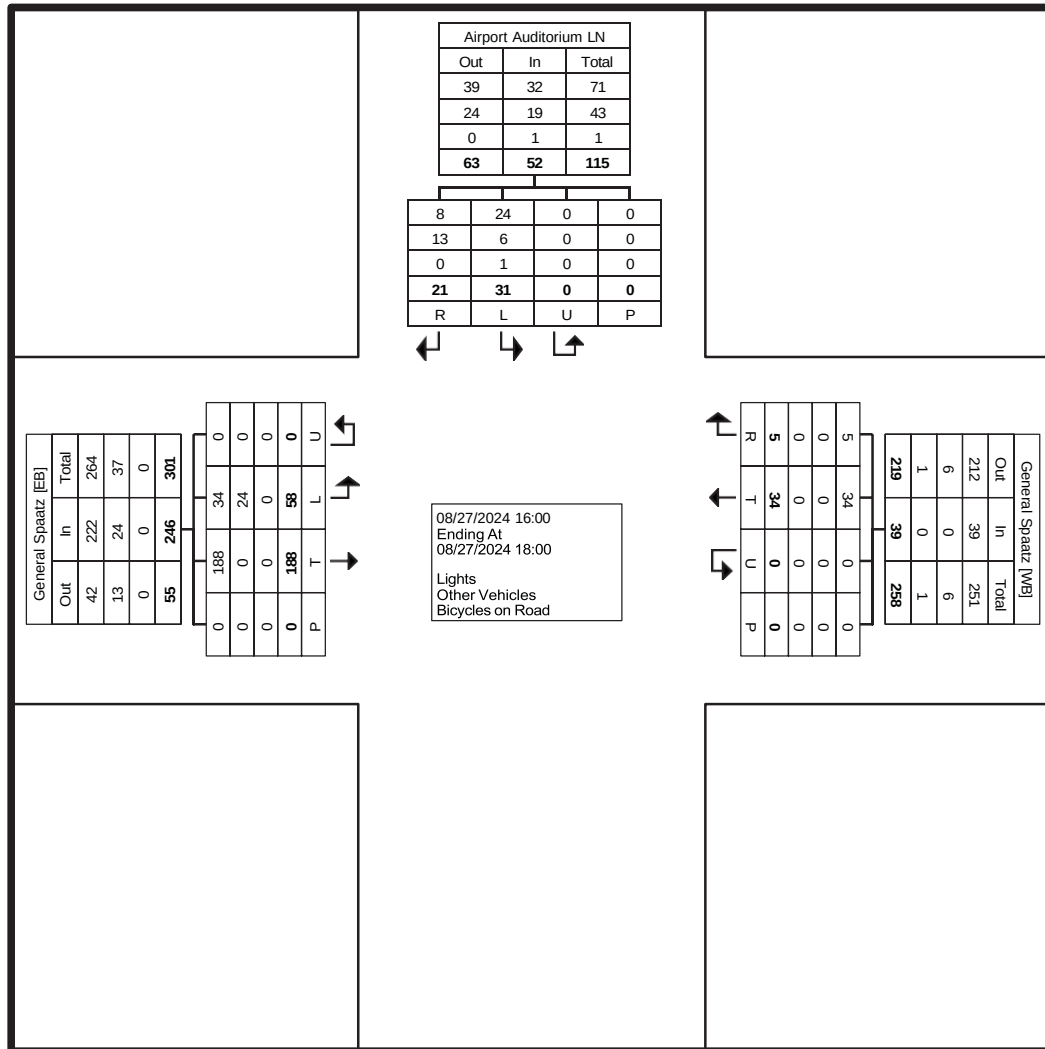
Turning Movement Data

Start Time	General Spaatz Eastbound					General Spaatz Westbound					Airport Auditorium LN Southbound					Int. Total
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
16:00	0	9	30	0	39	0	5	0	0	5	0	5	4	0	9	53
16:15	0	10	24	0	34	0	3	0	0	3	0	3	3	0	6	43
16:30	0	9	16	0	25	0	3	1	0	4	0	4	4	0	8	37
16:45	0	6	21	0	27	0	1	0	0	1	0	4	1	0	5	33
Hourly Total	0	34	91	0	125	0	12	1	0	13	0	16	12	0	28	166
17:00	0	6	27	0	33	0	5	1	0	6	0	4	2	0	6	45
17:15	0	2	22	0	24	0	3	1	0	4	0	2	1	0	3	31
17:30	0	9	21	0	30	0	8	0	0	8	0	5	3	0	8	46
17:45	0	7	27	0	34	0	6	2	0	8	0	4	3	0	7	49
Hourly Total	0	24	97	0	121	0	22	4	0	26	0	15	9	0	24	171
Grand Total	0	58	188	0	246	0	34	5	0	39	0	31	21	0	52	337
Approach %	0.0	23.6	76.4	-	-	0.0	87.2	12.8	-	-	0.0	59.6	40.4	-	-	-
Total %	0.0	17.2	55.8	-	73.0	0.0	10.1	1.5	-	11.6	0.0	9.2	6.2	-	15.4	-
Lights	0	34	188	0	222	0	34	5	0	39	0	24	8	0	32	293
% Lights	-	58.6	100.0	-	90.2	-	100.0	100.0	-	100.0	-	77.4	38.1	-	61.5	86.9
Other Vehicles	0	24	0	0	24	0	0	0	0	0	0	6	13	0	19	43
% Other Vehicles	-	41.4	0.0	-	9.8	-	0.0	0.0	-	0.0	-	19.4	61.9	-	36.5	12.8
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	3.2	0.0	-	1.9	0.3

30.General Spaatz & Airport
Auditorium L
WEEK DAY TMC

Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 30.General Spaatz
& Airport Auditorium LN
Site Code: 30
Start Date: 08/27/2024
Page No: 2



Turning Movement Data Plot

30.General Spaatz & Airport
Auditorium L
WEEK DAY TMC

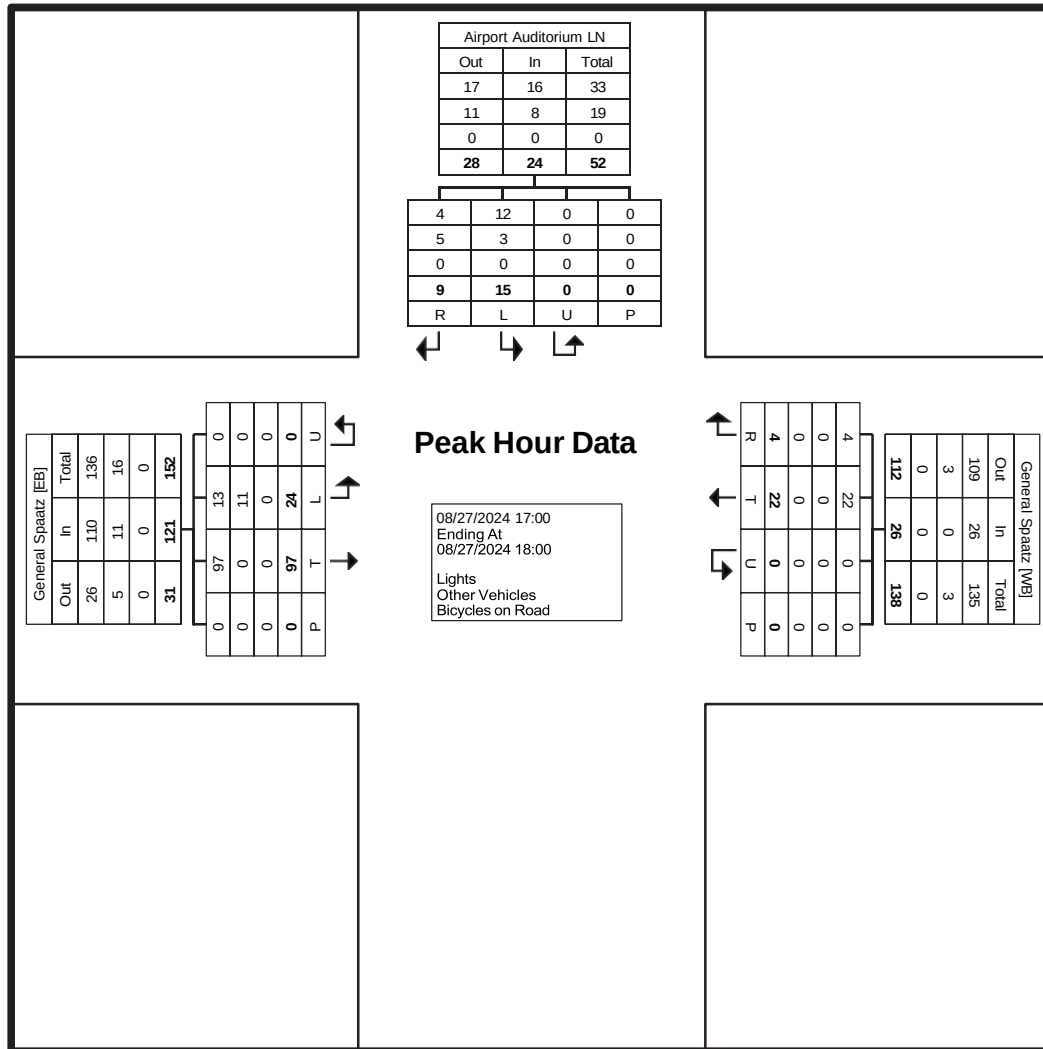
Florida Transportation Engineering, Inc.
(FTE)
8250 Pascal Dr
Punta Gorda, Florida, United States 33950
(800) 639-4851

Count Name: 30.General Spaatz
& Airport Auditorium LN
Site Code: 30
Start Date: 08/27/2024
Page No: 3

Turning Movement Peak Hour Data (17:00)

Start Time	General Spaatz Eastbound					General Spaatz Westbound					Airport Auditorium LN Southbound					Int. Total
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
17:00	0	6	27	0	33	0	5	1	0	6	0	4	2	0	6	45
17:15	0	2	22	0	24	0	3	1	0	4	0	2	1	0	3	31
17:30	0	9	21	0	30	0	8	0	0	8	0	5	3	0	8	46
17:45	0	7	27	0	34	0	6	2	0	8	0	4	3	0	7	49
Total	0	24	97	0	121	0	22	4	0	26	0	15	9	0	24	171
Approach %	0.0	19.8	80.2	-	-	0.0	84.6	15.4	-	-	0.0	62.5	37.5	-	-	-
Total %	0.0	14.0	56.7	-	70.8	0.0	12.9	2.3	-	15.2	0.0	8.8	5.3	-	14.0	-
PHF	0.000	0.667	0.898	-	0.890	0.000	0.688	0.500	-	0.813	0.000	0.750	0.750	-	0.750	0.872
Lights	0	13	97	0	110	0	22	4	0	26	0	12	4	0	16	152
% Lights	-	54.2	100.0	-	90.9	-	100.0	100.0	-	100.0	-	80.0	44.4	-	66.7	88.9
Other Vehicles	0	11	0	0	11	0	0	0	0	0	0	3	5	0	8	19
% Other Vehicles	-	45.8	0.0	-	9.1	-	0.0	0.0	-	0.0	-	20.0	55.6	-	33.3	11.1
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0

Count Name: 30.General Spaatz
& Airport Auditorium LN
Site Code: 30
Start Date: 08/27/2024
Page No: 4



Turning Movement Peak Hour Data Plot (17:00)

AECOM : Tampa (FL)
7650 W Courtney Campbell Cswy
Tampa, Florida, United States 33607
813-675-6520 robert.gisetto@aecom.com

Count Name: 60743782
Site Code: Gen Spatz Blvd
Start Date: 03/11/2025
Page No: 1

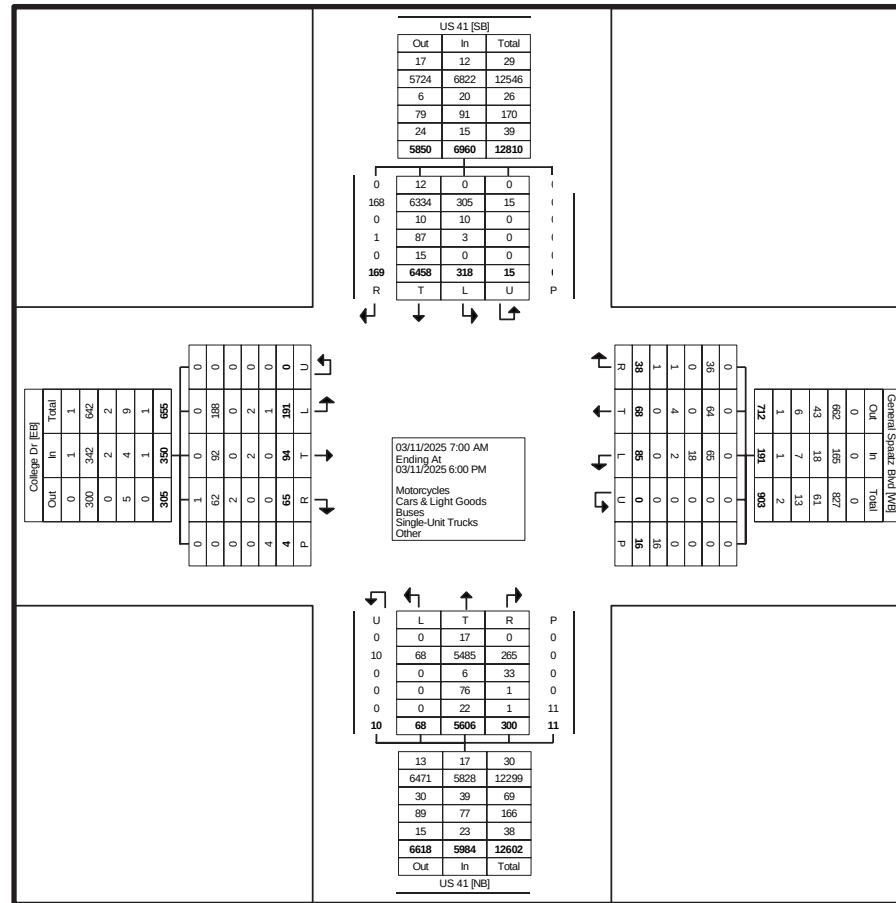
Turning Movement Data

Start Time	US 41 Southbound						General Spatz Blvd Westbound						US 41 Northbound						College Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	2	454	13	0	0	469	1	5	2	0	1	8	12	188	2	0	3	202	1	0	2	0	0	3	682
7:15 AM	6	525	12	0	0	543	0	3	0	0	1	3	23	260	0	0	0	283	2	1	4	0	0	7	836
7:30 AM	7	545	18	0	0	570	2	3	11	0	1	16	20	299	5	0	1	324	3	4	3	0	0	10	920
7:45 AM	18	515	21	0	0	554	2	3	1	0	0	6	21	282	3	0	2	306	1	4	7	0	1	12	878
Hourly Total	33	2039	64	0	0	2136	5	14	14	0	3	33	76	1029	10	0	6	1115	7	9	16	0	1	32	3316
8:00 AM	17	452	12	1	0	482	0	3	3	0	0	6	16	281	2	1	0	300	1	7	6	0	0	14	802
8:15 AM	11	498	21	1	0	531	2	1	1	0	1	4	15	231	4	0	0	250	3	3	7	0	0	13	798
8:30 AM	14	387	20	2	0	423	1	8	5	0	1	14	26	224	10	0	0	260	3	4	9	0	0	16	713
8:45 AM	34	459	28	0	0	521	1	18	4	0	0	23	28	299	10	3	0	340	6	1	4	0	2	11	895
Hourly Total	76	1796	81	4	0	1957	4	30	13	0	2	47	85	1035	26	4	0	1150	13	15	26	0	2	54	3208
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	12	338	17	3	0	370	4	5	3	0	2	12	13	439	2	0	3	454	8	13	14	0	0	35	871
4:15 PM	14	351	19	1	0	385	4	1	9	0	1	14	15	474	5	1	1	495	3	7	20	0	0	30	924
4:30 PM	4	358	24	4	0	390	3	3	8	0	1	14	19	412	5	2	0	438	6	2	13	0	0	21	863
4:45 PM	10	333	26	0	0	369	3	5	9	0	0	17	18	472	6	0	0	496	2	10	20	0	1	32	914
Hourly Total	40	1380	86	8	0	1514	14	14	29	0	4	57	65	1797	18	3	4	1883	19	32	67	0	1	118	3572
5:00 PM	9	369	22	1	0	401	5	1	5	0	3	11	16	451	2	1	1	470	6	12	26	0	0	44	926
5:15 PM	4	324	25	0	0	353	3	4	9	0	2	16	29	457	4	1	0	491	8	9	22	0	0	39	899
5:30 PM	3	254	18	1	0	276	6	3	7	0	1	16	18	402	5	0	0	425	8	12	25	0	0	45	762
5:45 PM	4	296	22	1	0	323	1	2	8	0	1	11	11	435	3	1	0	450	4	5	9	0	0	18	802
Hourly Total	20	1243	87	3	0	1353	15	10	29	0	7	54	74	1745	14	3	1	1836	26	38	82	0	0	146	3389
Grand Total	169	6458	318	15	0	6960	38	68	85	0	16	191	300	5606	68	10	11	5984	65	94	191	0	4	350	13485
Approach %	2.4	92.8	4.6	0.2	-	-	19.9	35.6	44.5	0.0	-	-	5.0	93.7	1.1	0.2	-	-	18.6	26.9	54.6	0.0	-	-	-
Total %	1.3	47.9	2.4	0.1	-	51.6	0.3	0.5	0.6	0.0	-	1.4	2.2	41.6	0.5	0.1	-	44.4	0.5	0.7	1.4	0.0	-	2.6	-
Motorcycles	0	12	0	0	-	12	0	0	0	0	-	0	0	17	0	0	-	17	1	0	0	0	-	1	30
% Motorcycles	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	0.0	-	0.3	1.5	0.0	0.0	-	-	0.3	0.2
Cars & Light Goods	168	6334	305	15	-	6822	36	64	65	0	-	165	265	5485	68	10	-	5828	62	92	188	0	-	342	13157
% Cars & Light Goods	99.4	98.1	95.9	100.0	-	98.0	94.7	94.1	76.5	-	-	86.4	88.3	97.8	100.0	100.0	-	97.4	95.4	97.9	98.4	-	-	97.7	97.6
Buses	0	10	10	0	-	20	0	0	18	0	-	18	33	6	0	0	-	39	2	0	0	0	-	2	79
% Buses	0.0	0.2	3.1	0.0	-	0.3	0.0	0.0	21.2	-	-	9.4	11.0	0.1	0.0	0.0	-	0.7	3.1	0.0	0.0	-	-	0.6	0.6
Single-Unit Trucks	1	87	3	0	-	91	1	4	2	0	-	7	1	76	0	0	-	77	0	2	2	0	-	4	179
% Single-Unit Trucks	0.6	1.3	0.9	0.0	-	1.3	2.6	5.9	2.4	-	-	3.7	0.3	1.4	0.0	0.0	-	1.3	0.0	2.1	1.0	-	-	1.1	1.3
Articulated Trucks	0	15	0	0	-	15	0	0	0	0	-	0	0	21	0	0	-	21	0	0	1	0	-	1	37
% Articulated Trucks	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	0.0	-	0.4	0.0	0.0	0.5	-	-	0.3	0.3
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	1	1	0	0	-	2	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	2.6	0.0	0.0	-	-	0.5	0.3	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0

Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	68.8	-	-	-	-	-	9.1	-	-	-	-	-	25.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	10	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	31.3	-	-	-	-	-	90.9	-	-	-	-	-	75.0	-	-

AECOM : Tampa (FL)
7650 W Courtney Campbell Cswy
Tampa, Florida, United States 33607
813-675-6520 robert.gisetto@aecom.com

Count Name: 60743782
Site Code: Gen Spatz Blvd
Start Date: 03/11/2025
Page No: 3



Turning Movement Data Plot

AECOM : Tampa (FL)
7650 W Courtney Campbell Cswy
Tampa, Florida, United States 33607
813-675-6520 robert.gisetto@aecom.com

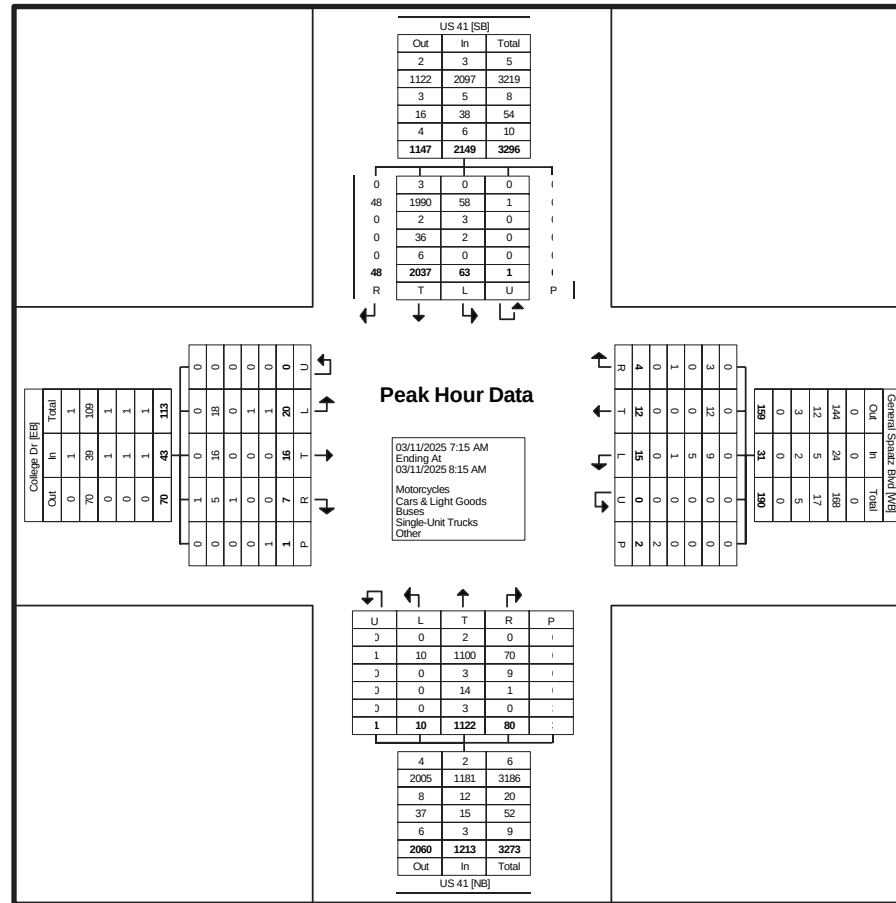
Count Name: 60743782
Site Code: Gen Spatz Blvd
Start Date: 03/11/2025
Page No: 4

Turning Movement Peak Hour Data (7:15 AM)

Start Time	US 41 Southbound						General Spatz Blvd Westbound						US 41 Northbound						College Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:15 AM	6	525	12	0	0	543	0	3	0	0	1	3	23	260	0	0	0	283	2	1	4	0	0	7	836
7:30 AM	7	545	18	0	0	570	2	3	11	0	1	16	20	299	5	0	1	324	3	4	3	0	0	10	920
7:45 AM	18	515	21	0	0	554	2	3	1	0	0	6	21	282	3	0	2	306	1	4	7	0	1	12	878
8:00 AM	17	452	12	1	0	482	0	3	3	0	0	6	16	281	2	1	0	300	1	7	6	0	0	14	802
Total	48	2037	63	1	0	2149	4	12	15	0	2	31	80	1122	10	1	3	1213	7	16	20	0	1	43	3436
Approach %	2.2	94.8	2.9	0.0	-	-	12.9	38.7	48.4	0.0	-	-	6.6	92.5	0.8	0.1	-	-	16.3	37.2	46.5	0.0	-	-	-
Total %	1.4	59.3	1.8	0.0	-	62.5	0.1	0.3	0.4	0.0	-	0.9	2.3	32.7	0.3	0.0	-	35.3	0.2	0.5	0.6	0.0	-	1.3	-
PHF	0.667	0.934	0.750	0.250	-	0.943	0.500	1.000	0.341	0.000	-	0.484	0.870	0.938	0.500	0.250	-	0.936	0.583	0.571	0.714	0.000	-	0.768	0.934
Motorcycles	0	3	0	0	-	3	0	0	0	0	-	0	0	2	0	0	-	2	1	0	0	0	-	1	6
% Motorcycles	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	0.0	-	0.2	14.3	0.0	0.0	-	-	2.3	0.2
Cars & Light Goods	48	1990	58	1	-	2097	3	12	9	0	-	24	70	1100	10	1	-	1181	5	16	18	0	-	39	3341
% Cars & Light Goods	100.0	97.7	92.1	100.0	-	97.6	75.0	100.0	60.0	-	-	77.4	87.5	98.0	100.0	100.0	-	97.4	71.4	100.0	90.0	-	-	90.7	97.2
Buses	0	2	3	0	-	5	0	0	5	0	-	5	9	3	0	0	-	12	1	0	0	0	-	1	23
% Buses	0.0	0.1	4.8	0.0	-	0.2	0.0	0.0	33.3	-	-	16.1	11.3	0.3	0.0	0.0	-	1.0	14.3	0.0	0.0	-	-	2.3	0.7
Single-Unit Trucks	0	36	2	0	-	38	1	0	1	0	-	2	1	14	0	0	-	15	0	0	1	0	-	1	56
% Single-Unit Trucks	0.0	1.8	3.2	0.0	-	1.8	25.0	0.0	6.7	-	-	6.5	1.3	1.2	0.0	0.0	-	1.2	0.0	0.0	5.0	-	-	2.3	1.6
Articulated Trucks	0	6	0	0	-	6	0	0	0	0	-	0	0	3	0	0	-	3	0	0	1	0	-	1	10
% Articulated Trucks	0.0	0.3	0.0	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	0.0	-	0.2	0.0	0.0	5.0	-	-	2.3	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

AECOM : Tampa (FL)
 7650 W Courtney Campbell Cswy
 Tampa, Florida, United States 33607
 813-675-6520 robert.gisetto@aecom.com

Count Name: 60743782
 Site Code: Gen Spatz Blvd
 Start Date: 03/11/2025
 Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)

AECOM : Tampa (FL)
7650 W Courtney Campbell Cswy
Tampa, Florida, United States 33607
813-675-6520 robert.gisetto@aecom.com

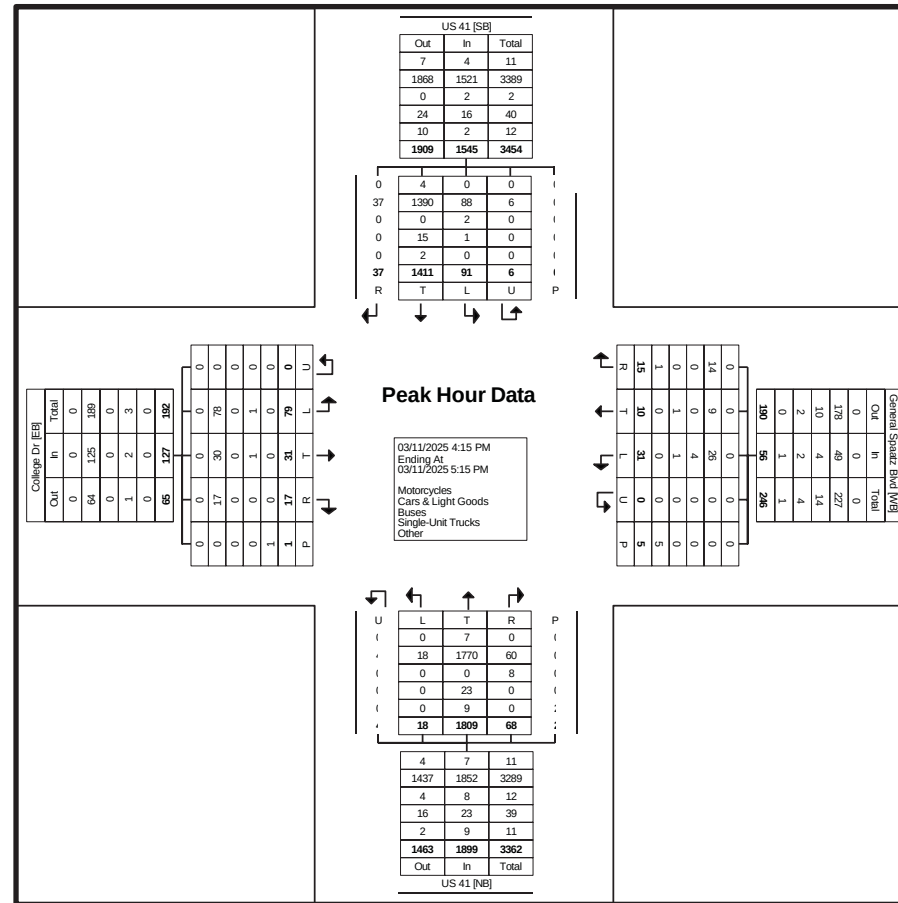
Count Name: 60743782
Site Code: Gen Spatz Blvd
Start Date: 03/11/2025
Page No: 6

Turning Movement Peak Hour Data (4:15 PM)

Start Time	US 41 Southbound						General Spatz Blvd Westbound						US 41 Northbound						College Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:15 PM	14	351	19	1	0	385	4	1	9	0	1	14	15	474	5	1	1	495	3	7	20	0	0	30	924
4:30 PM	4	358	24	4	0	390	3	3	8	0	1	14	19	412	5	2	0	438	6	2	13	0	0	21	863
4:45 PM	10	333	26	0	0	369	3	5	9	0	0	17	18	472	6	0	0	496	2	10	20	0	1	32	914
5:00 PM	9	369	22	1	0	401	5	1	5	0	3	11	16	451	2	1	1	470	6	12	26	0	0	44	926
Total	37	1411	91	6	0	1545	15	10	31	0	5	56	68	1809	18	4	2	1899	17	31	79	0	1	127	3627
Approach %	2.4	91.3	5.9	0.4	-	-	26.8	17.9	55.4	0.0	-	-	3.6	95.3	0.9	0.2	-	-	13.4	24.4	62.2	0.0	-	-	-
Total %	1.0	38.9	2.5	0.2	-	42.6	0.4	0.3	0.9	0.0	-	1.5	1.9	49.9	0.5	0.1	-	52.4	0.5	0.9	2.2	0.0	-	3.5	-
PHF	0.661	0.956	0.875	0.375	-	0.963	0.750	0.500	0.861	0.000	-	0.824	0.895	0.954	0.750	0.500	-	0.957	0.708	0.646	0.760	0.000	-	0.722	0.979
Motorcycles	0	4	0	0	-	4	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	11
% Motorcycles	0.0	0.3	0.0	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	0.0	-	0.4	0.0	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	37	1390	88	6	-	1521	14	9	26	0	-	49	60	1770	18	4	-	1852	17	30	78	0	-	125	3547
% Cars & Light Goods	100.0	98.5	96.7	100.0	-	98.4	93.3	90.0	83.9	-	-	87.5	88.2	97.8	100.0	100.0	-	97.5	100.0	96.8	98.7	-	-	98.4	97.8
Buses	0	0	2	0	-	2	0	0	4	0	-	4	8	0	0	0	-	8	0	0	0	0	-	0	14
% Buses	0.0	0.0	2.2	0.0	-	0.1	0.0	0.0	12.9	-	-	7.1	11.8	0.0	0.0	0.0	-	0.4	0.0	0.0	0.0	-	-	0.0	0.4
Single-Unit Trucks	0	15	1	0	-	16	0	1	1	0	-	2	0	23	0	0	-	23	0	1	1	0	-	2	43
% Single-Unit Trucks	0.0	1.1	1.1	0.0	-	1.0	0.0	10.0	3.2	-	-	3.6	0.0	1.3	0.0	0.0	-	1.2	0.0	3.2	1.3	-	-	1.6	1.2
Articulated Trucks	0	2	0	0	-	2	0	0	0	0	-	0	0	8	0	0	-	8	0	0	0	0	-	0	10
% Articulated Trucks	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	0.0	-	0.4	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	6.7	0.0	0.0	-	-	1.8	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-

AECOM : Tampa (FL)
 7650 W Courtney Campbell Cswy
 Tampa, Florida, United States 33607
 813-675-6520 robert.gisetto@aecom.com

Count Name: 60743782
 Site Code: Gen Spatz Blvd
 Start Date: 03/11/2025
 Page No: 7



Turning Movement Peak Hour Data Plot (4:15 PM)

2024 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1700 SARASOTA COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.91 PSCF
1	01/01/2024 - 01/06/2024	0.98	1.08
2	01/07/2024 - 01/13/2024	0.99	1.09
3	01/14/2024 - 01/20/2024	1.00	1.10
4	01/21/2024 - 01/27/2024	0.98	1.08
* 5	01/28/2024 - 02/03/2024	0.95	1.04
* 6	02/04/2024 - 02/10/2024	0.93	1.02
* 7	02/11/2024 - 02/17/2024	0.91	1.00
* 8	02/18/2024 - 02/24/2024	0.90	0.99
* 9	02/25/2024 - 03/02/2024	0.89	0.98
*10	03/03/2024 - 03/09/2024	0.88	0.97
*11	03/10/2024 - 03/16/2024	0.88	0.97
*12	03/17/2024 - 03/23/2024	0.89	0.98
*13	03/24/2024 - 03/30/2024	0.90	0.99
*14	03/31/2024 - 04/06/2024	0.91	1.00
*15	04/07/2024 - 04/13/2024	0.92	1.01
*16	04/14/2024 - 04/20/2024	0.93	1.02
*17	04/21/2024 - 04/27/2024	0.95	1.04
18	04/28/2024 - 05/04/2024	0.97	1.07
19	05/05/2024 - 05/11/2024	0.99	1.09
20	05/12/2024 - 05/18/2024	1.01	1.11
21	05/19/2024 - 05/25/2024	1.02	1.12
22	05/26/2024 - 06/01/2024	1.03	1.13
23	06/02/2024 - 06/08/2024	1.04	1.14
24	06/09/2024 - 06/15/2024	1.05	1.15
25	06/16/2024 - 06/22/2024	1.05	1.15
26	06/23/2024 - 06/29/2024	1.06	1.16
27	06/30/2024 - 07/06/2024	1.06	1.16
28	07/07/2024 - 07/13/2024	1.07	1.18
29	07/14/2024 - 07/20/2024	1.07	1.18
30	07/21/2024 - 07/27/2024	1.09	1.20
31	07/28/2024 - 08/03/2024	1.10	1.21
32	08/04/2024 - 08/10/2024	1.12	1.23
33	08/11/2024 - 08/17/2024	1.14	1.25
34	08/18/2024 - 08/24/2024	1.14	1.25
35	08/25/2024 - 08/31/2024	1.14	1.25
36	09/01/2024 - 09/07/2024	1.15	1.26
37	09/08/2024 - 09/14/2024	1.15	1.26
38	09/15/2024 - 09/21/2024	1.16	1.27
39	09/22/2024 - 09/28/2024	1.12	1.23
40	09/29/2024 - 10/05/2024	1.08	1.19
41	10/06/2024 - 10/12/2024	1.05	1.15
42	10/13/2024 - 10/19/2024	1.01	1.11
43	10/20/2024 - 10/26/2024	1.00	1.10
44	10/27/2024 - 11/02/2024	0.99	1.09
45	11/03/2024 - 11/09/2024	0.99	1.09
46	11/10/2024 - 11/16/2024	0.98	1.08
47	11/17/2024 - 11/23/2024	0.98	1.08
48	11/24/2024 - 11/30/2024	0.98	1.08
49	12/01/2024 - 12/07/2024	0.98	1.08
50	12/08/2024 - 12/14/2024	0.98	1.08
51	12/15/2024 - 12/21/2024	0.98	1.08
52	12/22/2024 - 12/28/2024	0.99	1.09
53	12/29/2024 - 12/31/2024	1.00	1.10

* PEAK SEASON

04-MAR-2025 16:32:51

830UPD

1_1700_PKSEASON.TXT

APPENDIX B

Historical Traffic Data

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2023 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 4176 - UNIVERSITY PKWY, W OF BRADENTON ROAD SC 176 NHS/SIS

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2023	27000 C	E 13000	W 14000	9.00	54.00	3.10
2022	28500 C	E 14000	W 14500	9.00	52.90	2.90
2021	24000 X			9.00	52.60	3.70
2020	22000 S	E 11000	W 11000	9.00	52.20	3.80
2019	23000 F	E 11500	W 11500	9.00	52.30	3.60
2018	23000 C	E 11500	W 11500	9.00	52.40	3.40
2017	21500 C	E 10500	W 11000	9.00	52.30	2.70
2016	23000 F	E 11500	W 11500	9.00	52.60	2.70
2015	22000 C	E 11000	W 11000	9.00	52.80	2.70
2014	21000 F	E 10500	W 10500	9.00	52.40	2.60
2013	21000 C	E 10500	W 10500	9.00	52.60	2.60
2012	20000 F	E 10000	W 10000	9.00	52.70	3.60
2011	20000 C	E 10000	W 10000	9.00	52.90	3.60
2010	21000 F	E 10500	W 10500	10.38	52.56	3.80
2009	21000 C	E 10500	W 10500	10.58	53.66	3.80
2008	22000 C	E 11000	W 11000	10.63	52.82	3.20

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2023 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 0060 - UNIVERSITY PKWY, WEST OF US 301 SC 177 NHS/SIS

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2023	25500 C	E 12000	W 13500	9.00	54.00	4.20
2022	25500 C	E 12000	W 13500	9.00	52.90	3.40
2021	30000 X			9.00	52.60	6.80
2020	28500 S	E 13500	W 15000	9.00	52.20	5.90
2019	29500 F	E 14000	W 15500	9.00	52.30	5.40
2018	29500 C	E 14000	W 15500	9.00	52.40	5.70
2017	29000 C	E 14000	W 15000	9.00	52.30	3.30
2016	31000 F	E 15500	W 15500	9.00	52.60	3.30
2015	30000 C	E 15000	W 15000	9.00	52.80	3.30
2014	28000 F	E 14000	W 14000	9.00	52.40	3.30
2013	28000 C	E 14000	W 14000	9.00	52.60	3.30
2012	26000 F	E 13500	W 12500	9.00	52.70	4.00
2011	26000 C	E 13500	W 12500	9.00	52.90	4.00
2010	26500 C	E 13000	W 13500	10.38	52.56	3.80
2009	23000 C	E 11500	W 11500	10.58	53.66	3.70
2008	20500 C	E 10500	W 10000	10.63	52.82	3.80

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2023 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 5035 - SR-45/US-41B, S OF GAINES AVE/TALLEVAST RD

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2023	39000 C	N	19000	S	20000	9.00	56.80	2.80
2022	38500 F	N	19000	S	19500	9.00	54.80	3.00
2021	38500 C	N	19000	S	19500	9.00	54.00	3.30
2020	34000 C	N	16500	S	17500	9.00	52.60	3.60
2019	39500 C	N	19500	S	20000	9.00	55.80	3.10
2018	39500 C	N	19500	S	20000	9.00	55.60	3.10
2017	40000 C	N	20000	S	20000	9.00	56.00	2.90
2016	39500 C	N	19500	S	20000	9.00	56.20	2.80
2015	39500 C	N	20000	S	19500	9.00	55.60	3.10
2014	41500 F	N	21000	S	20500	9.00	55.00	3.00
2013	40500 C	N	20500	S	20000	9.00	54.80	3.00
2012	36500 C	N	18500	S	18000	9.00	55.50	2.90
2011	35000 C	N	17000	S	18000	9.00	55.50	2.90
2010	38500 C	N	19000	S	19500	9.85	54.33	2.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE

S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE

V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2023 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 0001 - SR 45/US 41 @ MANATEE/SARASOTA CTY LINE, SARASOTA

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2023	41000 F	N	20500	S	20500	9.00	54.50	3.00
2022	39000 C	N	19500	S	19500	9.00	52.80	3.00
2021	36500 C	N	18000	S	18500	9.00	52.60	3.20
2020	32500 C	N	16000	S	16500	9.00	52.20	3.70
2019	38500 C	N	18500	S	20000	9.00	52.20	3.10
2018	40500 C	N	20000	S	20500	9.00	52.50	3.00
2017	39500 C	N	19500	S	20000	9.00	52.60	2.80
2016	45000 C	N	22500	S	22500	9.00	52.60	2.90
2015	40500 C	N	20000	S	20500	9.00	52.80	2.90
2014	41500 F	N	20500	S	21000	9.00	52.50	2.80
2013	40500 C	N	20000	S	20500	9.00	52.40	2.80
2012	38500 C	N	19500	S	19000	9.00	52.70	2.30
2011	38500 F	N	19000	S	19500	9.00	53.10	2.70
2010	38500 C	N	19000	S	19500	10.54	52.03	2.70
2009	37000 C	N	18000	S	19000	10.59	53.04	2.70
2008	42500 C	N	20500	S	22000	10.48	52.68	2.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE

S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE

V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2023 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 5011 - SR 45/US 41, SOUTH OF UNIVERSITY PARKWAY SARASOTA

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2023	33500 C	N 16000	S 17500	9.00	54.50	4.00
2022	34500 F	N 17000	S 17500	9.00	52.80	3.00
2021	33500 C	N 16500	S 17000	9.00	52.60	3.20
2020	28500 C	N 14000	S 14500	9.00	52.20	3.70
2019	37500 C	N 18500	S 19000	9.00	52.20	3.10
2018	36500 C	N 18000	S 18500	9.00	52.50	3.00
2017	37500 C	N 18000	S 19500	9.00	52.60	2.40
2016	40000 C	N 19500	S 20500	9.00	52.60	2.40
2015	37500 C	N 18500	S 19000	9.00	52.80	2.40
2014	35000 C	N 17000	S 18000	9.00	52.50	2.80
2013	37000 C	N 18000	S 19000	9.00	52.40	2.70
2012	37000 C	N 18000	S 19000	9.00	52.70	2.90
2011	31500 C	N 16000	S 15500	9.00	53.10	2.60
2010	36500 C	N 17500	S 19000	10.54	52.03	2.90
2009	36000 C	N 17500	S 18500	10.59	53.04	2.50
2008	35000 C	N 17000	S 18000	10.48	52.68	3.20

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

APPENDIX C

Signal Timing Data

Agency Name

Timing Sheet

2/12/2025 11:51:43 AM

Station : 1400 - University Pkwy @ Airport Cir (Standard File)

Phase	1 (EL)	2 (WT)	3	4 (NT)	5 (WL)	6 (ET)	7	8 (ST)	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		10		31		10		30								
Min Green	5	10		5	5	10		5								
Passage	1	1		1	1	1		1								
Max1	15	60		10	15	60		25								
Max2	45	90		10	20	90		15								
Yellow	4.8	4.8	9	3.7	4.8	4.8	9	3.4	9	9	9	9	9	9	9	9
Red	2.3	2		2.6	2	2		3.9								
Red Revert	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Added Initial																
Max Initial																
Time Before Reduce																
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap																
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry	ON				ON											
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call																
Min Recall																
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON				ON										
Sim Gap Enable	ON	ON			ON	ON										
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON				
Override Higher	ON					
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green	5	5	20	20	20	20
Min Walk						
Ped Clear			99	99	99	99
Track Green						
Min Dwell	5	5	10	10	10	10
Max Presence			120	120	120	120
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type				
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				

TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

2/12/2025 11:51:43 AM

Coordination

[illegible]

2/12/2025 11:51:43 AM

[illegible][illegible]

User Comments:

Agency Name

Timing Sheet

2/12/2025 11:52:23 AM

Station : 1402 - University Pkwy @ Old Bradenton Rd (Standard File)

Phase	1 (EL)	2 (WT)	3 (SL)	4 (NT)	5 (WL)	6 (ET)	7 (NL)	8 (ST)	9	10	11	12	13	14	15	16
Walk		10				10		7								
Ped Clearance								33								
Min Green	5	10	5	5	5	10	5	5								
Passage	1	1	1	1	1	1	1	1								
Max1	20	50	20	20	20	50	20	40								
Max2	20	85	20	40	20	85	20	40								
Yellow	4.9	4.9	3.4	3.7	4.4	4.9	3.7	3.7	9	9	9	9	9	9	9	9
Red	2.2	2.2	2	3	2	2.2	2.1	3								
Red Revert	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Added Initial																
Max Initial																
Time Before Reduce																
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap																
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry				ON				ON								
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call																
Min Recall																
Max Recall																
Ped Recall																
Soft Recall		ON				ON										
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON				
Override Higher	ON					
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green	5	5	5	5	5	5
Min Walk						
Ped Clear						
Track Green						
Min Dwell	5	5	10	10	10	10
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type				
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				

TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

2/12/2025 11:52:23 AM

Coordination

[illegible]

2/12/2025 11:52:23 AM

[illegible][illegible]

User Comments:

Agency Name

Timing Sheet

2/12/2025 11:50:54 AM

Station : 1096 - US 41 @ General Spaatz Blvd (Standard File)

Phase	1 (SL)	2 (NT)	3	4 (ET)	5 (NL)	6 (ST)	7	8 (WT)	9	10	11	12	13	14	15	16
Walk		7		7		7										
Ped Clearance		22		27		26										
Min Green	5	12		7	5	12		7								
Passage	3.5	6		4	3.5	6		4								
Max1	15	65		30	15	60		30								
Max2	35	130		35	30	135		35								
Yellow	4.8	4.8		3.4	4.8	4.8		3.4								
Red	4.3	2		3.8	3.5	2		3.8								
Red Revert																
Added Initial																
Max Initial																
Time Before Reduce																
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap																
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry				ON				ON								
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call	ON				ON											
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash						
Override Higher	ON					
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type				
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				

TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

2/12/2025 11:50:54 AM

Coordination

[illegible]

2/12/2025 11:50:54 AM

[illegible][illegible]

User Comments:

APPENDIX D

Synchro Reports

2025 Existing

Queues
1: Old Bradenton Rd & University Pkwy

2025 Existing
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	1134	288	927	146	502	113	45
v/c Ratio	0.03	0.91	0.72	0.46	0.43	0.82	0.48	0.21
Control Delay	11.0	40.9	32.3	16.3	30.6	16.5	34.7	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	40.9	32.3	16.3	30.6	16.5	34.7	19.6
Queue Length 50th (ft)	2	374	113	146	76	16	57	9
Queue Length 95th (ft)	m6	#721	#231	360	99	110	78	36
Internal Link Dist (ft)		1259		401		715		487
Turn Bay Length (ft)	300		350		230		170	
Base Capacity (vph)	343	1253	399	2014	392	789	388	495
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.91	0.72	0.46	0.37	0.64	0.29	0.09
Intersection Summary								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM 6th Signalized Intersection Summary

1: Old Bradenton Rd & University Pkwy

2025 Existing
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1049	39	276	817	73	140	8	474	108	14	29
Future Volume (veh/h)	8	1049	39	276	817	73	140	8	474	108	14	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	1093	41	288	851	76	146	8	494	112	15	30
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	1021	38	261	1259	112	542	7	442	183	147	294
Arrive On Green	0.02	0.58	0.58	0.11	0.38	0.38	0.08	0.28	0.28	0.06	0.26	0.26
Sat Flow, veh/h	1781	3493	131	1781	3300	295	1781	25	1564	1781	557	1113
Grp Volume(v), veh/h	8	556	578	288	458	469	146	0	502	112	0	45
Grp Sat Flow(s),veh/h/ln	1781	1777	1847	1781	1777	1817	1781	0	1589	1781	0	1670
Q Serve(g_s), s	0.3	29.2	29.2	10.6	21.5	21.5	5.9	0.0	28.3	4.5	0.0	2.0
Cycle Q Clear(g_c), s	0.3	29.2	29.2	10.6	21.5	21.5	5.9	0.0	28.3	4.5	0.0	2.0
Prop In Lane	1.00		0.07	1.00		0.16	1.00		0.98	1.00		0.67
Lane Grp Cap(c), veh/h	190	520	540	261	678	693	542	0	450	183	0	440
V/C Ratio(X)	0.04	1.07	1.07	1.10	0.68	0.68	0.27	0.00	1.12	0.61	0.00	0.10
Avail Cap(c_a), veh/h	313	520	540	261	678	693	710	0	450	386	0	473
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	20.8	20.8	27.2	25.8	25.8	23.6	0.0	35.9	27.7	0.0	27.9
Incr Delay (d2), s/veh	0.0	59.5	58.9	86.5	5.3	5.2	0.1	0.0	78.1	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	21.6	22.2	16.3	14.5	14.7	4.4	0.0	29.7	3.5	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	80.3	79.7	113.7	31.1	31.0	23.7	0.0	114.0	28.9	0.0	27.9
LnGrp LOS	C	F	F	F	C	C	C	A	F	C	A	C
Approach Vol, veh/h	1142			1215			648			157		
Approach Delay, s/veh	79.6			50.7			93.6			28.6		
Approach LOS	E			D			F			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	45.2	11.7	35.0	17.0	36.3	13.6	33.1				
Change Period (Y+Rc), s	* 7.1	* 7.1	5.4	* 6.7	6.4	* 7.1	* 5.8	* 6.7				
Max Green Setting (Gmax), s	* 7.9	* 20	17.6	* 28	10.6	* 18	* 17	* 28				
Max Q Clear Time (g_c+I1), s	2.3	23.5	6.5	30.3	12.6	31.2	7.9	4.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 68.8

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

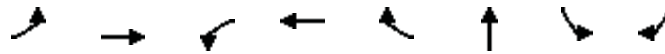
HCM 6th TWSC
2: Royal Palm Ave/Hampton Access & University Pkwy

2025 Existing
PM Peak Hour

Intersection													
Int Delay, s/veh	0.5												
Lane Configurations													
Traffic Vol, veh/h	0	1067	10	0	898	88	0	0	29	0	0	55	
Future Vol, veh/h	0	1067	10	0	898	88	0	0	29	0	0	55	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
Storage Length	-	-	-	-	-	250	-	-	0	-	-	0	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Major/Minor	Major1		Major2			Minor1			Minor2				
Conflicting Flow All	-	0	0	-	-	0	-	-	555	-	-	463	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32	
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-	
Platoon blocked, %	-		-	-		-							
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB		WB			NB			SB				
HCM LOS							B			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1							
Capacity (veh/h)	475	-	-	-	-	546							
HCM Lane V/C Ratio	0.063	-	-	-	-	0.104							
HCM Control Delay (s)	13.1	-	-	-	-	12.4							
HCM Lane LOS	B	-	-	-	-	B							
HCM 95th %tile O(veh)	0.2	-	-	-	-	0.3							

Queues
3: Dwy/Airport Cir & University Pkwy

2025 Existing
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	121	665	38	680	296	41	482	196
v/c Ratio	0.50	0.50	0.36	0.42	0.19	0.35	0.43	0.12
Control Delay	51.7	26.5	48.1	32.8	0.2	32.2	29.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	26.5	48.1	32.8	0.2	32.2	29.0	0.2
Queue Length 50th (ft)	39	179	25	121	0	9	130	0
Queue Length 95th (ft)	66	247	m56	201	0	43	186	0
Internal Link Dist (ft)	1171		409		286			
Turn Bay Length (ft)	345		300		300			200
Base Capacity (vph)	477	1340	162	1630	1583	202	1128	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.50	0.23	0.42	0.19	0.20	0.43	0.12

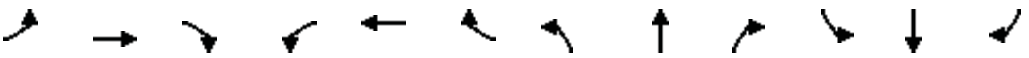
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Dwy/Airport Cir & University Pkwy

2025 Existing
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕		↔	↕↕↕	↔		↕↕		↔↔	↕	↔
Traffic Volume (veh/h)	114	600	25	36	639	278	10	4	24	453	0	184
Future Volume (veh/h)	114	600	25	36	639	278	10	4	24	453	0	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	638	27	38	680	0	11	4	26	482	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	1509	64	58	2099		15	6	36	802	434	
Arrive On Green	0.05	0.43	0.43	0.01	0.14	0.00	0.03	0.03	0.03	0.23	0.00	0.00
Sat Flow, veh/h	3456	3474	147	1781	5106	1585	445	162	1052	3456	1870	1585
Grp Volume(v), veh/h	121	326	339	38	680	0	41	0	0	482	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1844	1781	1702	1585	1659	0	0	1728	1870	1585
Q Serve(g_s), s	3.4	12.7	12.7	2.1	12.0	0.0	2.4	0.0	0.0	12.4	0.0	0.0
Cycle Q Clear(g_c), s	3.4	12.7	12.7	2.1	12.0	0.0	2.4	0.0	0.0	12.4	0.0	0.0
Prop In Lane	1.00		0.08	1.00		1.00	0.27		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	183	772	801	58	2099		56	0	0	802	434	
V/C Ratio(X)	0.66	0.42	0.42	0.65	0.32		0.73	0.00	0.00	0.60	0.00	
Avail Cap(c_a), veh/h	480	772	801	164	2099		177	0	0	802	434	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.5	19.6	19.6	48.9	30.7	0.0	47.8	0.0	0.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	1.5	1.7	1.6	4.6	0.4	0.0	6.5	0.0	0.0	3.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	9.0	9.2	1.8	9.2	0.0	2.0	0.0	0.0	9.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	21.3	21.2	53.5	31.1	0.0	54.3	0.0	0.0	37.6	0.0	0.0
LnGrp LOS	D	C	C	D	C		D	A	A	D	A	
Approach Vol, veh/h	786			718			41			482		
Approach Delay, s/veh	25.4			32.2			54.3			37.6		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.4	47.9		9.7	10.1	50.2		30.0				
Change Period (Y+Rc), s	* 7.1	6.8		* 6.3	6.8	6.8		6.8				
Max Green Setting (Gmax), s	* 14	25.2		* 11	9.2	30.2		23.2				
Max Q Clear Time (g_c+I1), s	5.4	14.0		4.4	4.1	14.7		14.4				
Green Ext Time (p_c), s	0.0	1.3		0.0	0.0	1.0		1.9				

Intersection Summary

HCM 6th Ctrl Delay 31.3

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
4: Airport Auditorium Ln. & Bradenton Connector

2025 Existing
PM Peak Hour

Intersection

Intersection Delay, s/veh 8.2

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	4	2	0	18	51	0	0	47	37
Future Vol, veh/h	0	0	0	4	2	0	18	51	0	0	47	37
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	33	33	33	33	33	33	33	33	33	33	33	33
Mvmt Flow	0	0	0	6	3	0	26	75	0	0	69	54
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.4	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	26%	67%	0%
Vol Thru, %	74%	33%	56%
Vol Right, %	0%	0%	44%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	69	6	84
LT Vol	18	4	0
Through Vol	51	2	47
RT Vol	0	0	37
Lane Flow Rate	101	9	124
Geometry Grp	1	1	1
Degree of Util (X)	0.13	0.013	0.147
Departure Headway (Hd)	4.622	5.125	4.288
Convergence, Y/N	Yes	Yes	Yes
Cap	773	703	833
Service Time	2.663	3.125	2.332
HCM Lane V/C Ratio	0.131	0.013	0.149
HCM Control Delay	8.4	8.2	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0	0.5

Intersection

Int Delay, s/veh 3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	178	12	2	31	24
Future Vol, veh/h	69	178	12	2	31	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	79	205	14	2	36	28

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	16	0	0 378 15
Stage 1	-	-	- 15 -
Stage 2	-	-	- 363 -
Critical Hdwy	4.21	-	- 6.51 6.31
Critical Hdwy Stg 1	-	-	- 5.51 -
Critical Hdwy Stg 2	-	-	- 5.51 -
Follow-up Hdwy	2.299	-	- 3.599 3.399
Pot Cap-1 Maneuver	1545	-	- 606 1039
Stage 1	-	-	- 985 -
Stage 2	-	-	- 684 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1545	-	- 571 1039
Mov Cap-2 Maneuver	-	-	- 571 -
Stage 1	-	-	- 928 -
Stage 2	-	-	- 684 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	711
HCM Lane V/C Ratio	0.051	-	-	-	0.089
HCM Control Delay (s)	7.5	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Queues
6: US 41 & College Dr/General Spaatz Blvd.

2025 Existing
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	49	33	25	22	1915	99	1478
v/c Ratio	0.69	0.30	0.29	0.16	0.28	0.77	0.71	0.37
Control Delay	108.3	63.2	82.6	43.1	91.6	20.2	107.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.3	63.2	82.6	43.1	91.6	20.2	107.0	7.4
Queue Length 50th (ft)	94	41	37	11	26	761	115	217
Queue Length 95th (ft)	158	89	78	46	60	870	187	256
Internal Link Dist (ft)		163		634		602		509
Turn Bay Length (ft)			250		280		350	
Base Capacity (vph)	136	185	133	181	95	2492	156	3948
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.26	0.25	0.14	0.23	0.77	0.63	0.37
Intersection Summary								

HCM 6th Signalized Intersection Summary

6: US 41 & College Dr/General Spaatz Blvd.

2025 Existing
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	31	17	32	10	15	22	1809	68	97	1411	37
Future Volume (veh/h)	79	31	17	32	10	15	22	1809	68	97	1411	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	32	17	33	10	15	22	1846	69	99	1440	38
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	96	51	118	56	85	33	2523	94	118	3960	104
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.72	0.72	0.07	0.77	0.77
Sat Flow, veh/h	1386	1150	611	1356	675	1013	1781	3494	130	1781	5115	135
Grp Volume(v), veh/h	81	0	49	33	0	25	22	933	982	99	958	520
Grp Sat Flow(s),veh/h/ln	1386	0	1760	1356	0	1688	1781	1777	1847	1781	1702	1846
Q Serve(g_s), s	10.4	0.0	4.7	4.2	0.0	2.5	2.2	55.3	56.7	9.9	15.9	15.9
Cycle Q Clear(g_c), s	12.9	0.0	4.7	9.0	0.0	2.5	2.2	55.3	56.7	9.9	15.9	15.9
Prop In Lane	1.00		0.35	1.00		0.60	1.00		0.07	1.00		0.07
Lane Grp Cap(c), veh/h	137	0	147	118	0	141	33	1283	1334	118	2635	1429
V/C Ratio(X)	0.59	0.00	0.33	0.28	0.00	0.18	0.67	0.73	0.74	0.84	0.36	0.36
Avail Cap(c_a), veh/h	158	0	174	139	0	167	96	1283	1334	157	2635	1429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.7	0.0	77.8	82.0	0.0	76.7	87.8	14.6	14.8	83.1	6.4	6.4
Incr Delay (d2), s/veh	6.1	0.0	1.9	1.8	0.0	0.8	24.4	3.6	3.7	26.7	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.2	0.0	4.0	2.8	0.0	2.0	2.2	29.2	30.9	9.2	9.1	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.8	0.0	79.6	83.8	0.0	77.6	112.2	18.3	18.5	109.8	6.8	7.1
LnGrp LOS	F	A	E	F	A	E	F	B	B	F	A	A
Approach Vol, veh/h	130				58			1937			1577	
Approach Delay, s/veh	85.3				81.1			19.4			13.4	
Approach LOS	F				F			B			B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	21.0	136.8	22.2		11.6	146.1	22.2					
Change Period (Y+Rc), s	9.1	6.8	* 7.2		8.3	6.8	* 7.2					
Max Green Setting (Gmax), s	15.9	123.2	* 18		9.7	130.2	* 18					
Max Q Clear Time (g_c+I1), s	11.9	58.7	14.9		4.2	17.9	11.0					
Green Ext Time (p_c), s	0.1	56.6	0.1		0.0	52.6	0.1					

Intersection Summary

HCM 6th Ctrl Delay 20.1

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

2034 No Build

Queues
1: Old Bradenton Rd & University Pkwy

2034 No Build
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	1480	424	1156	216	736	114	45
v/c Ratio	0.05	2.34	1.19	0.88	0.33	0.89	0.55	0.12
Control Delay	16.6	626.1	137.9	40.7	16.2	26.6	29.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	626.1	137.9	40.7	16.2	26.6	29.5	12.7
Queue Length 50th (ft)	2	~836	~298	355	76	187	37	6
Queue Length 95th (ft)	m3	#940	#525	#666	116	#443	64	32
Internal Link Dist (ft)		1259		401		715		487
Turn Bay Length (ft)	300		350		230		170	
Base Capacity (vph)	227	633	357	1309	691	834	388	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	2.34	1.19	0.88	0.31	0.88	0.29	0.08
Intersection Summary								
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM 6th Signalized Intersection Summary

1: Old Bradenton Rd & University Pkwy

2034 No Build
PM Peak Hour

												
Lane Configurations												
Future Volume (veh/h)	8	1363	58	407	1036	74	207	8	699	109	14	29
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach	No		No				No			No		
Adj Flow Rate, veh/h	8	1420	60	424	1079	77	216	8	728	114	15	30
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Arrive On Green	0.01	0.29	0.29	0.11	0.38	0.38	0.11	0.28	0.28	0.07	0.23	0.23
Grp Volume(v), veh/h	8	725	755	424	570	586	216	0	736	114	0	45
Q Serve(g_s), s	0.3	29.0	29.0	10.6	29.3	29.4	8.9	0.0	28.3	4.8	0.0	2.1
Cycle Q Clear(g_c), s												
Prop In Lane	1.00		0.08	1.00		0.13	1.00		0.99	1.00		0.67
Lane Grp Cap(c), veh/h												
V/C Ratio(X)	0.06	1.41	1.41	1.63	0.85	0.85	0.39	0.00	1.64	0.61	0.00	0.11
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	35.5	35.5	27.1	28.4	28.4	23.8	0.0	35.9	28.9	0.0	30.1
Incr Delay (d2), s/veh												
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp LOS	C	F	F	F	D	D	C	A	F	C	A	C
Approach Vol, veh/h	1488		1580			952			159			
Approach Delay, s/veh	230.4		117.2			262.8			30.1			
Approach LOS	F		F			F			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Change Period (Y+Rc), s	* 7.1	* 7.1	5.4	* 6.7	6.4	* 7.1	* 5.8	* 6.7				
Max Q Clear Time (g_c+I1), s	2.3	31.4	6.8	30.3	12.6	31.0	10.9	4.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			187.4									
HCM 6th LOS			F									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

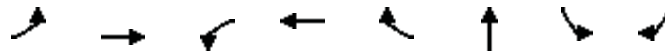
HCM 6th TWSC
2: Royal Palm Ave/Hampton Access & University Pkwy

2034 No Build
PM Peak Hour

Intersection													
Int Delay, s/veh	0.5												
Lane Configurations													
Traffic Vol, veh/h	0	1395	12	0	1183	89	0	0	34	0	0	56	
Future Vol, veh/h	0	1395	12	0	1183	89	0	0	34	0	0	56	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
Storage Length	-	-	-	-	-	250	-	-	0	-	-	0	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Major/Minor	Major1		Major2			Minor1			Minor2				
Conflicting Flow All	-	0	0	-	-	0	-	-	725	-	-	610	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32	
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-	
Platoon blocked, %	-		-		-		-						
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB		WB			NB			SB				
HCM LOS							C			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1							
Capacity (veh/h)	368	-	-	-	-	437							
HCM Lane V/C Ratio	0.095	-	-	-	-	0.132							
HCM Control Delay (s)	15.8	-	-	-	-	14.5							
HCM Lane LOS	C	-	-	-	-	B							
HCM 95th %tile O(veh)	0.3	-	-	-	-	0.5							

Queues
3: Dwy/Airport Cir & University Pkwy

2034 No Build
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	122	998	57	962	299	53	487	198
v/c Ratio	0.50	0.81	0.47	0.59	0.19	0.40	0.47	0.13
Control Delay	51.7	37.1	39.2	39.3	0.2	29.9	31.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	37.1	39.2	39.3	0.2	29.9	31.0	0.2
Queue Length 50th (ft)	39	310	38	232	0	9	132	0
Queue Length 95th (ft)	67	#454	m50	m269	m0	47	189	0
Internal Link Dist (ft)		1171		409		286		
Turn Bay Length (ft)	345		300		300			200
Base Capacity (vph)	477	1233	162	1628	1583	212	1045	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.81	0.35	0.59	0.19	0.25	0.47	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

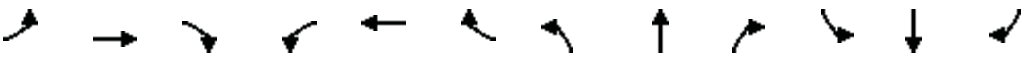
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Dwy/Airport Cir & University Pkwy

2034 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕		↔	↕↕↕	↔		↕↕		↔↔	↕	↔
Traffic Volume (veh/h)	115	913	25	54	904	281	10	4	36	458	0	186
Future Volume (veh/h)	115	913	25	54	904	281	10	4	36	458	0	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	971	27	57	962	0	11	4	38	487	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	1481	41	74	2065		14	5	47	802	434	
Arrive On Green	0.05	0.42	0.42	0.01	0.13	0.00	0.04	0.04	0.04	0.23	0.00	0.00
Sat Flow, veh/h	3456	3531	98	1781	5106	1585	341	124	1177	3456	1870	1585
Grp Volume(v), veh/h	122	489	509	57	962	0	53	0	0	487	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1853	1781	1702	1585	1641	0	0	1728	1870	1585
Q Serve(g_s), s	3.5	22.0	22.0	3.2	17.4	0.0	3.2	0.0	0.0	12.6	0.0	0.0
Cycle Q Clear(g_c), s	3.5	22.0	22.0	3.2	17.4	0.0	3.2	0.0	0.0	12.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		1.00	0.21		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	184	745	777	74	2065		66	0	0	802	434	
V/C Ratio(X)	0.66	0.66	0.66	0.78	0.47		0.80	0.00	0.00	0.61	0.00	
Avail Cap(c_a), veh/h	480	745	777	164	2065		176	0	0	802	434	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.5	23.2	23.2	48.9	33.3	0.0	47.6	0.0	0.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	1.5	4.5	4.3	6.4	0.8	0.0	8.0	0.0	0.0	3.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	14.4	14.9	2.8	12.6	0.0	2.6	0.0	0.0	9.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	27.7	27.5	55.2	34.1	0.0	55.6	0.0	0.0	37.7	0.0	0.0
LnGrp LOS	D	C	C	E	C		E	A	A	D	A	
Approach Vol, veh/h	1120			1019			53			487		
Approach Delay, s/veh	29.8			35.3			55.6			37.7		
Approach LOS	C			D			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.4	47.2		10.3	10.9	48.7		30.0				
Change Period (Y+Rc), s	* 7.1	6.8		* 6.3	6.8	6.8		6.8				
Max Green Setting (Gmax), s	* 14	25.2		* 11	9.2	30.2		23.2				
Max Q Clear Time (g_c+I1), s	5.5	19.4		5.2	5.2	24.0		14.6				
Green Ext Time (p_c), s	0.0	1.4		0.0	0.0	1.2		1.9				

Intersection Summary

HCM 6th Ctrl Delay 33.9

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Intersection Delay, s/veh 9.3

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	4	2	0	18	120	0	0	108	47
Future Vol, veh/h	0	0	0	4	2	0	18	120	0	0	108	47
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	33	33	33	33	33	33	33	33	33	33	33	33
Mvmt Flow	0	0	0	6	3	0	26	176	0	0	159	69
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

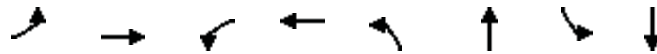
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	9.4	9.3
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	13%	67%	0%
Vol Thru, %	87%	33%	70%
Vol Right, %	0%	0%	30%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	138	6	155
LT Vol	18	4	0
Through Vol	120	2	108
RT Vol	0	0	47
Lane Flow Rate	203	9	228
Geometry Grp	1	1	1
Degree of Util (X)	0.263	0.014	0.282
Departure Headway (Hd)	4.674	5.614	4.446
Convergence, Y/N	Yes	Yes	Yes
Cap	761	641	798
Service Time	2.753	3.614	2.528
HCM Lane V/C Ratio	0.267	0.014	0.286
HCM Control Delay	9.4	8.7	9.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.1	0	1.2

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	136	114	12	2	87	25
Future Vol, veh/h	136	114	12	2	87	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	156	131	14	2	100	29
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	16	0	-	0	458	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	443	-
Critical Hdwy	4.21	-	-	-	6.51	6.31
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	5.51	-
Follow-up Hdwy	2.299	-	-	-	3.599	3.399
Pot Cap-1 Maneuver	1545	-	-	-	545	1039
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	486	1039
Mov Cap-2 Maneuver	-	-	-	-	486	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	628	-
Approach	EB		WB		SB	
HCM Control Delay, s	4.1		0		13.5	
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1545	-	-	-	552	
HCM Lane V/C Ratio	0.101	-	-	-	0.233	
HCM Control Delay (s)	7.6	0	-	-	13.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9	

Queues
6: US 41 & College Dr/General Spaatz Blvd.

2034 No Build
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	51	33	25	26	2132	132	1633
v/c Ratio	0.74	0.30	0.28	0.15	0.32	0.87	0.85	0.42
Control Delay	111.6	62.0	81.7	42.9	93.2	27.0	119.1	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.6	62.0	81.7	42.9	93.2	27.0	119.1	8.0
Queue Length 50th (ft)	104	42	37	11	30	1002	157	260
Queue Length 95th (ft)	#185	92	78	46	68	1121	#286	293
Internal Link Dist (ft)		163		634		602		509
Turn Bay Length (ft)			250		280		350	
Base Capacity (vph)	136	185	133	181	95	2443	160	3924
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.28	0.25	0.14	0.27	0.87	0.82	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

6: US 41 & College Dr/General Spaatz Blvd.

2034 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	31	19	32	10	15	25	1999	90	129	1559	41
Future Volume (veh/h)	88	31	19	32	10	15	25	1999	90	129	1559	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	32	19	33	10	15	26	2040	92	132	1591	42
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	99	58	124	60	91	36	2417	108	150	3920	103
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.70	0.70	0.08	0.77	0.77
Sat Flow, veh/h	1386	1100	653	1354	675	1013	1781	3464	155	1781	5115	135
Grp Volume(v), veh/h	90	0	51	33	0	25	26	1039	1093	132	1059	574
Grp Sat Flow(s),veh/h/ln	1386	0	1753	1354	0	1688	1781	1777	1842	1781	1702	1846
Q Serve(g_s), s	11.6	0.0	4.9	4.2	0.0	2.5	2.6	76.6	79.4	13.2	19.0	19.0
Cycle Q Clear(g_c), s	14.0	0.0	4.9	9.1	0.0	2.5	2.6	76.6	79.4	13.2	19.0	19.0
Prop In Lane	1.00		0.37	1.00		0.60	1.00		0.08	1.00		0.07
Lane Grp Cap(c), veh/h	145	0	157	124	0	151	36	1240	1285	150	2609	1415
V/C Ratio(X)	0.62	0.00	0.32	0.27	0.00	0.17	0.72	0.84	0.85	0.88	0.41	0.41
Avail Cap(c_a), veh/h	158	0	173	137	0	167	96	1240	1285	157	2609	1415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.2	0.0	76.8	81.1	0.0	75.7	87.7	19.8	20.2	81.5	7.1	7.1
Incr Delay (d2), s/veh	7.8	0.0	1.7	1.6	0.0	0.7	27.8	6.9	7.2	38.5	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	4.2	2.8	0.0	2.0	2.7	40.4	43.2	12.2	10.6	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.0	0.0	78.5	82.7	0.0	76.4	115.4	26.7	27.4	120.0	7.6	8.0
LnGrp LOS	F	A	E	F	A	E	F	C	C	F	A	A
Approach Vol, veh/h	141				58				2158			
Approach Delay, s/veh	85.9				80.0				28.1			
Approach LOS	F				F				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.3	132.4		23.3	11.9	144.7		23.3				
Change Period (Y+Rc), s	9.1	6.8		* 7.2	8.3	6.8		* 7.2				
Max Green Setting (Gmax), s	15.9	123.2		* 18	9.7	130.2		* 18				
Max Q Clear Time (g_c+I1), s	15.2	81.4		16.0	4.6	21.0		11.1				
Green Ext Time (p_c), s	0.0	40.0		0.1	0.0	62.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay	25.7											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

2034 Build

Queues
1: Old Bradenton Rd & University Pkwy

2034 Build
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	1544	424	1219	216	737	129	51
v/c Ratio	0.05	2.44	1.38	1.00	0.34	0.89	0.58	0.10
Control Delay	22.1	674.9	215.5	59.9	15.4	28.1	26.5	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	674.9	215.5	59.9	15.4	28.1	26.5	12.1
Queue Length 50th (ft)	4	~896	~334	401	72	205	40	7
Queue Length 95th (ft)	m5	#1035	#531	#713	116	#478	72	34
Internal Link Dist (ft)		1259		401		715		487
Turn Bay Length (ft)	300		350		230		170	
Base Capacity (vph)	220	632	308	1220	700	825	386	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	2.44	1.38	1.00	0.31	0.89	0.33	0.09
Intersection Summary								
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM 6th Signalized Intersection Summary

1: Old Bradenton Rd & University Pkwy

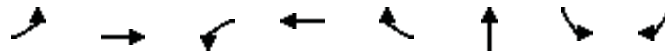
2034 Build
PM Peak Hour

												
Lane Configurations												
Future Volume (veh/h)	9	1425	58	407	1086	84	207	9	699	124	16	33
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach	No			No			No			No		
Adj Flow Rate, veh/h	9	1484	60	424	1131	88	216	9	728	129	17	34
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Arrive On Green	0.01	0.28	0.28	0.11	0.37	0.37	0.11	0.28	0.28	0.07	0.24	0.24
Grp Volume(v), veh/h	9	756	788	424	601	618	216	0	737	129	0	51
Q Serve(g_s), s	0.4	28.3	28.3	10.6	32.2	32.2	8.9	0.0	28.3	5.4	0.0	2.4
Cycle Q Clear(g_c), s												
Prop In Lane	1.00		0.08	1.00		0.14	1.00		0.99	1.00		0.67
Lane Grp Cap(c), veh/h												
V/C Ratio(X)	0.08	1.50	1.51	1.63	0.91	0.91	0.38	0.00	1.64	0.64	0.00	0.13
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	35.8	35.8	26.9	29.9	29.9	23.8	0.0	35.9	28.3	0.0	29.7
Incr Delay (d2), s/veh												
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp LOS	C	F	F	F	D	D	C	A	F	C	A	C
Approach Vol, veh/h	1553		1643			953			180			
Approach Delay, s/veh	272.1		120.2			263.5			29.6			
Approach LOS	F		F			F			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Change Period (Y+Rc), s	* 7.1	* 7.1	5.4	* 6.7	6.4	* 7.1	* 5.8	* 6.7				
Max Q Clear Time (g_c+I1), s	2.4	34.2	7.4	30.3	12.6	30.3	10.9	4.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			202.5									
HCM 6th LOS			F									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	0.5											
Lane Configurations	↑↑ ↑↑↑ ↑ ↑ ↑											
Traffic Vol, veh/h	0	1457	12	0	1225	101	0	0	34	0	0	63
Future Vol, veh/h	0	1457	12	0	1225	101	0	0	34	0	0	63
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Storage Length	-	-	-	-	-	250	-	-	0	-	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	-	0	0	-	-	0	-	-	757	-	-	632
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-		-		-		-					
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM LOS					C				C			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1						
Capacity (veh/h)	350	-	-	-	-	423						
HCM Lane V/C Ratio	0.1	-	-	-	-	0.154						
HCM Control Delay (s)	16.4	-	-	-	-	15						
HCM Lane LOS	C	-	-	-	-	C						
HCM 95th %tile O(veh)	0.3	-	-	-	-	0.5						

Queues
3: Dwy/Airport Cir & University Pkwy

2034 Build
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	139	994	57	974	339	54	557	227
v/c Ratio	0.54	0.63	0.47	0.47	0.21	0.41	0.80	0.33
Control Delay	52.2	26.9	48.7	19.1	0.3	30.4	46.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	26.9	48.7	19.1	0.3	30.4	46.7	1.3
Queue Length 50th (ft)	44	276	30	214	0	10	171	0
Queue Length 95th (ft)	74	#397	m28	m233	m0	48	228	0
Internal Link Dist (ft)		1171		409		286		
Turn Bay Length (ft)	345		300		300			200
Base Capacity (vph)	477	1569	162	2091	1583	212	779	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.63	0.35	0.47	0.21	0.25	0.72	0.32

Intersection Summary

95th percentile volume exceeds cap. city, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Dwy/Airport Cir & University Pkwy

2034 Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 	 	
Traffic Volume (veh/h)	131	909	25	54	916	319	10	5	36	524	0	213
Future Volume (veh/h)	131	909	25	54	916	319	10	5	36	524	0	213
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	967	27	57	974	0	11	5	38	557	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	1607	45	74	2219		14	6	48	659	357	
Arrive On Green	0.06	0.45	0.45	0.01	0.14	0.00	0.04	0.04	0.04	0.19	0.00	0.00
Sat Flow, veh/h	3456	3531	99	1781	5106	1585	335	152	1158	3456	1870	1585
Grp Volume(v), veh/h	139	487	507	57	974	0	54	0	0	557	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1853	1781	1702	1585	1645	0	0	1728	1870	1585
Q Serve(g_s), s	3.9	20.6	20.6	3.2	17.4	0.0	3.3	0.0	0.0	15.6	0.0	0.0
Cycle Q Clear(g_c), s	3.9	20.6	20.6	3.2	17.4	0.0	3.3	0.0	0.0	15.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		1.00	0.20		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	203	808	843	74	2219		68	0	0	659	357	
V/C Ratio(X)	0.69	0.60	0.60	0.78	0.44		0.80	0.00	0.00	0.85	0.00	
Avail Cap(c_a), veh/h	480	808	843	164	2219		176	0	0	784	425	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.2	20.5	20.5	48.9	31.7	0.0	47.5	0.0	0.0	39.0	0.0	0.0
Incr Delay (d2), s/veh	1.5	3.3	3.2	6.4	0.6	0.0	7.8	0.0	0.0	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	13.3	13.7	2.8	12.6	0.0	2.7	0.0	0.0	11.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	23.8	23.6	55.2	32.3	0.0	55.4	0.0	0.0	45.4	0.0	0.0
LnGrp LOS	D	C	C	E	C		E	A	A	D	A	
Approach Vol, veh/h	1133			1031			54			557		
Approach Delay, s/veh	26.6			33.6			55.4			45.4		
Approach LOS	C			C			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	50.3		10.4	10.9	52.3		26.4				
Change Period (Y+Rc), s	* 7.1	6.8		* 6.3	6.8	6.8		7.3				
Max Green Setting (Gmax), s	* 14	25.2		* 11	9.2	30.2		22.7				
Max Q Clear Time (g_c+I1), s	5.9	19.4		5.3	5.2	22.6		17.6				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.0	1.4		1.5				

Intersection Summary

HCM 6th Ctrl Delay 33.5

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
4: Airport Auditorium Ln. & Bradenton Connector

2034 Build
PM Peak Hour

Intersection

Intersection Delay, s/veh 9.7

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	2	0	21	134	0	0	124	53
Future Vol, veh/h	0	0	0	5	2	0	21	134	0	0	124	53
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	33	33	33	33	33	33	33	33	33	33	33	33
Mvmt Flow	0	0	0	7	3	0	31	197	0	0	182	78
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	9.8	9.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	14%	71%	0%
Vol Thru, %	86%	29%	70%
Vol Right, %	0%	0%	30%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	155	7	177
LT Vol	21	5	0
Through Vol	134	2	124
RT Vol	0	0	53
Lane Flow Rate	228	10	260
Geometry Grp	1	1	1
Degree of Util (X)	0.298	0.016	0.323
Departure Headway (Hd)	4.7	5.758	4.47
Convergence, Y/N	Yes	Yes	Yes
Cap	754	625	794
Service Time	2.793	3.758	2.564
HCM Lane V/C Ratio	0.302	0.016	0.327
HCM Control Delay	9.8	8.9	9.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0	1.4

Intersection

Int Delay, s/veh 7.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	130	12	2	100	29
Future Vol, veh/h	153	130	12	2	100	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	176	149	14	2	115	33

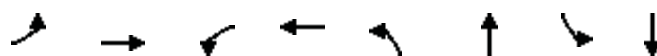
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	16	0	0 516 15
Stage 1	-	-	- - 15 -
Stage 2	-	-	- - 501 -
Critical Hdwy	4.21	-	- - 6.51 6.31
Critical Hdwy Stg 1	-	-	- - 5.51 -
Critical Hdwy Stg 2	-	-	- - 5.51 -
Follow-up Hdwy	2.299	-	- - 3.599 3.399
Pot Cap-1 Maneuver	1545	-	- - 504 1039
Stage 1	-	-	- - 985 -
Stage 2	-	-	- - 591 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1545	-	- - 442 1039
Mov Cap-2 Maneuver	-	-	- - 442 -
Stage 1	-	-	- - 863 -
Stage 2	-	-	- - 591 -

Approach	EB	WB	SB
HCM Control Delay, s	4.1	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	508
HCM Lane V/C Ratio	0.114	-	-	-	0.292
HCM Control Delay (s)	7.6	0	-	-	15
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.2

Queues
6: US 41 & College Dr/General Spaatz Blvd.

2034 Build
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	51	33	25	26	2145	152	1633
v/c Ratio	0.74	0.30	0.28	0.15	0.32	0.89	0.90	0.42
Control Delay	111.6	62.0	81.7	42.9	93.2	28.5	126.1	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.6	62.0	81.7	42.9	93.2	28.5	126.1	8.0
Queue Length 50th (ft)	104	42	37	11	30	1020	183	260
Queue Length 95th (ft)	#185	92	78	46	68	1140	#344	293
Internal Link Dist (ft)		163		634		602		509
Turn Bay Length (ft)			250		280		350	
Base Capacity (vph)	136	185	133	181	95	2418	168	3924
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.28	0.25	0.14	0.27	0.89	0.90	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

6: US 41 & College Dr/General Spaatz Blvd.

2034 Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	31	19	32	10	15	25	1999	103	149	1559	41
Future Volume (veh/h)	88	31	19	32	10	15	25	1999	103	149	1559	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	32	19	33	10	15	26	2040	105	152	1591	42
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	99	58	124	60	91	36	2387	122	157	3920	103
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.69	0.69	0.09	0.77	0.77
Sat Flow, veh/h	1386	1100	653	1354	675	1013	1781	3440	176	1781	5115	135
Grp Volume(v), veh/h	90	0	51	33	0	25	26	1045	1100	152	1059	574
Grp Sat Flow(s),veh/h/ln	1386	0	1753	1354	0	1688	1781	1777	1839	1781	1702	1846
Q Serve(g_s), s	11.6	0.0	4.9	4.2	0.0	2.5	2.6	78.7	82.1	15.3	19.0	19.0
Cycle Q Clear(g_c), s	14.0	0.0	4.9	9.1	0.0	2.5	2.6	78.7	82.1	15.3	19.0	19.0
Prop In Lane	1.00		0.37	1.00		0.60	1.00		0.10	1.00		0.07
Lane Grp Cap(c), veh/h	145	0	157	124	0	151	36	1233	1276	157	2609	1415
V/C Ratio(X)	0.62	0.00	0.32	0.27	0.00	0.17	0.72	0.85	0.86	0.97	0.41	0.41
Avail Cap(c_a), veh/h	158	0	173	137	0	167	96	1233	1276	157	2609	1415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.2	0.0	76.8	81.1	0.0	75.7	87.7	20.5	21.0	81.8	7.1	7.1
Incr Delay (d2), s/veh	7.8	0.0	1.7	1.6	0.0	0.7	27.8	7.3	7.8	61.5	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	4.2	2.8	0.0	2.0	2.7	41.7	44.7	14.8	10.6	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.0	0.0	78.5	82.7	0.0	76.4	115.4	27.8	28.8	143.3	7.6	8.0
LnGrp LOS	F	A	E	F	A	E	F	C	C	F	A	A
Approach Vol, veh/h	141				58			2171			1785	
Approach Delay, s/veh	85.9				80.0			29.4			19.3	
Approach LOS	F				F			C			B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	25.0	131.7	23.3		11.9	144.7	23.3					
Change Period (Y+Rc), s	9.1	6.8	* 7.2		8.3	6.8	* 7.2					
Max Green Setting (Gmax), s	15.9	123.2	* 18		9.7	130.2	* 18					
Max Q Clear Time (g_c+I1), s	17.3	84.1	16.0		4.6	21.0	11.1					
Green Ext Time (p_c), s	0.0	37.6	0.1		0.0	62.1	0.1					

Intersection Summary

HCM 6th Ctrl Delay 27.7
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.