

NORTHEAST FLORIDA REGIONAL AIRPORT MASTER PLAN

VOLUME 2: APPENDICES



June 2020

PREPARED FOR:
St. Augustine -
St. Johns County
Airport Authority

PREPARED BY:
Passero Associates, LLC





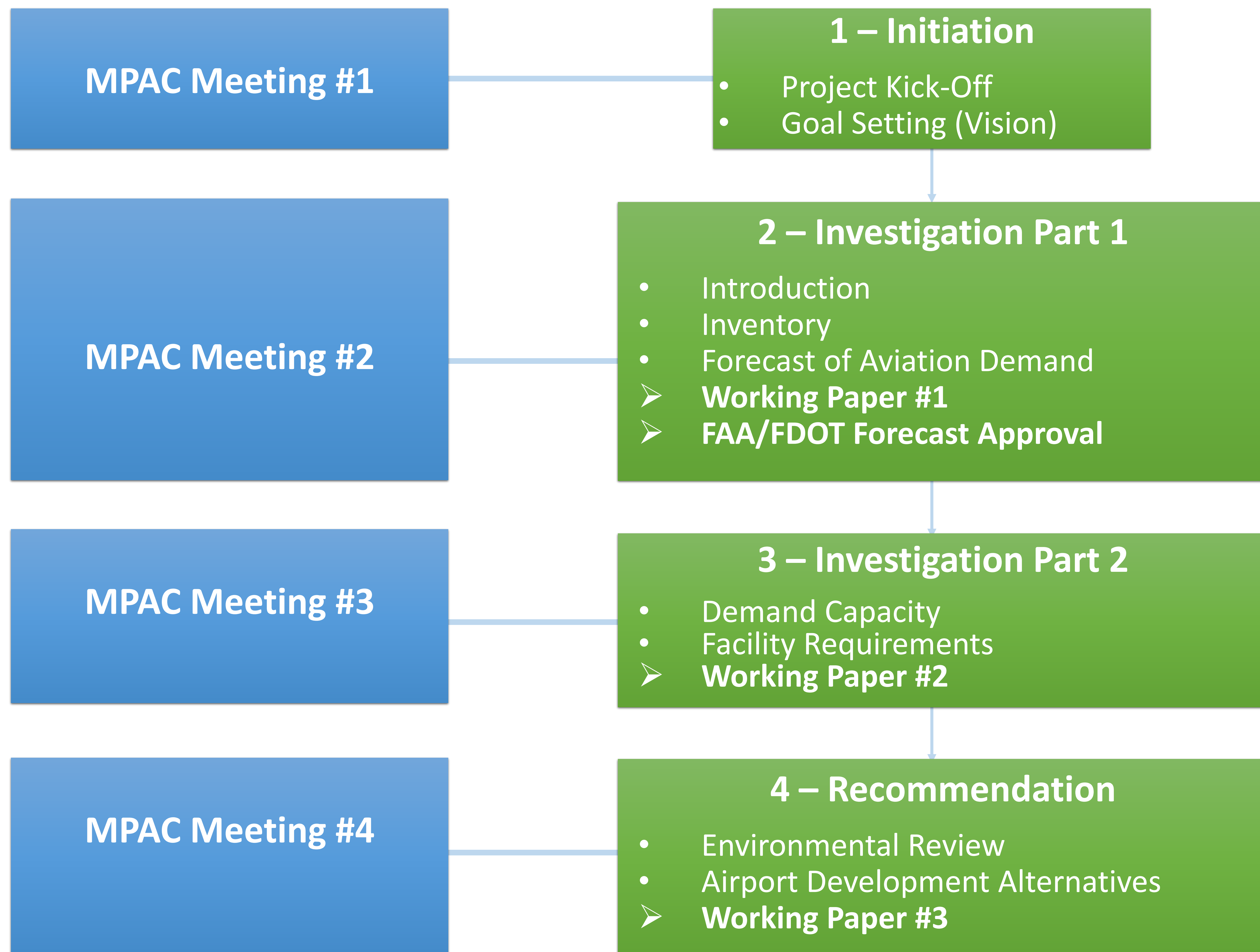
Appendices List

- A. Technical Advisory Committee, Master Plan Process & Public Outreach
- B. Grant History
- C. Approach Plate and Departure Procedures
- D. Environmental Information
- E. FAA Approval of Aeronautical Forecast
- F. Runway Length Analysis
- G. Airport Signage Plan
- H. Preliminary Environmental Assessment
- I. Stormwater Management Report
- J. Water and Wastewater Evaluation

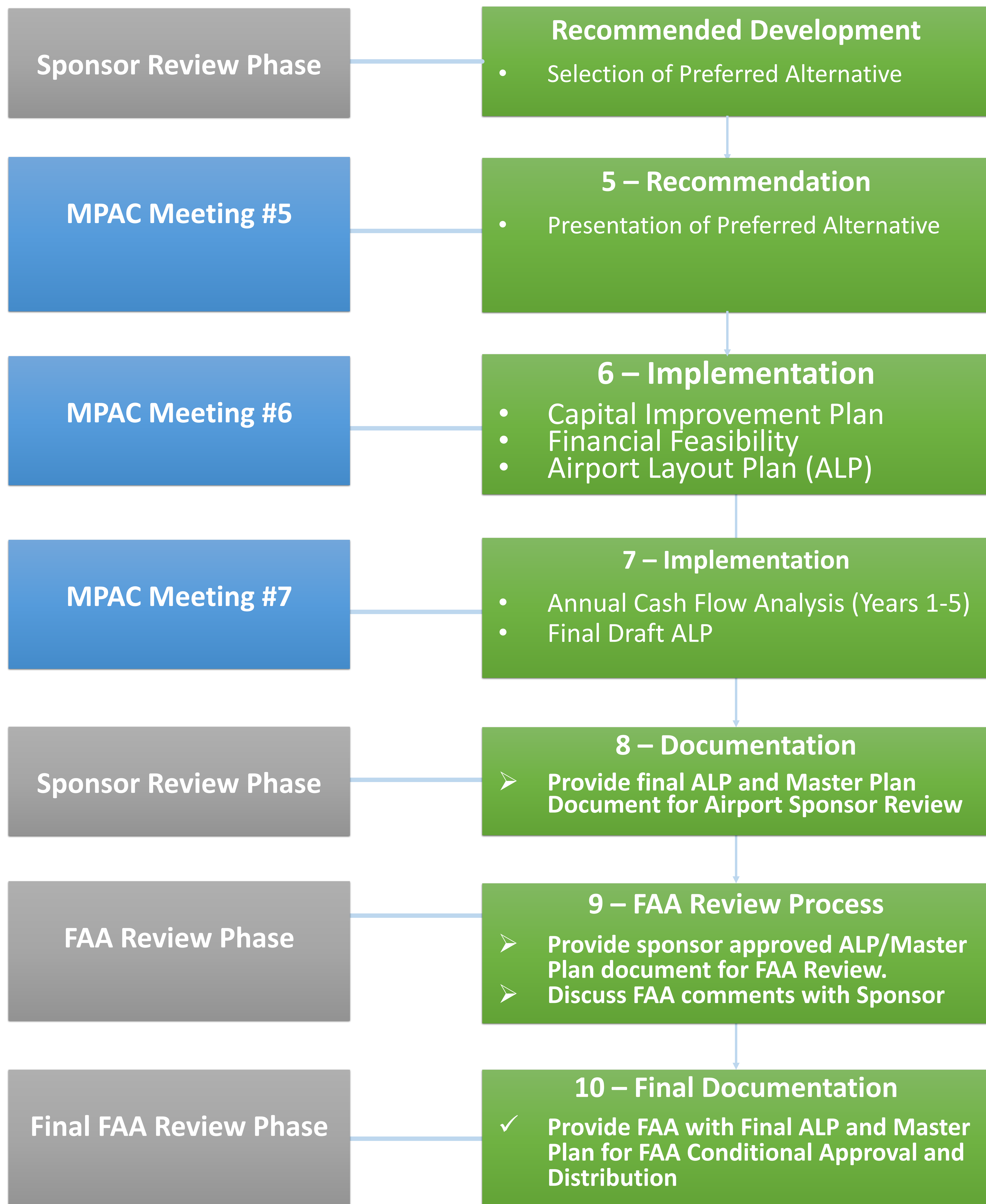
Appendix A

*Technical Advisory Committee, Master Plan Process &
Public Outreach*

MASTER PLAN PROCESS



MASTER PLAN PROCESS (Cont'd.)





Northeast Florida Regional Airport

Master Plan Advisory Committee (MPAC)

Representing

NFRA

Atlantic Aviation

Corporate User/Commercial Aviation

General Aviation

Local Resident

Northrup Grumman

SAAPA

St. Augustine & St. Johns County Board of REALTORS

SJC Economic Development

SJC Planning

Airport Authority

ATC

FAA

FDOT

Florida Inland Navigation District

North Florida Transportation Planning Organization

Space Florida

City of St Augustine

St Johns Aerospace Academy



Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #1

February 22, 2017

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Introductions
2. Study Overview and Specialty Studies
3. Goal Setting & Objectives
 - a. Survey
4. Planning Process and Meetings
5. Public Outreach: MPAC

NOTES:

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Northeast Florida Regional Airport

Airport Planning Process

Study Tasks/Challenges

1. Long-Term Commercial Service Airline Facilities
2. Long-Term Fixed Base Operator (FBO) Facilities
3. Long-Term, additional aircraft Maintenance-Repair-Overhaul (MRO) Facilities
4. Long-term airfield capacity constraints (land use, transportation corridors, natural features)
5. Ground Access (immediate airport area, proposed State Rd 313)
6. Intermodal Access (US1, FEC Railway and proposed State Rd 313)
7. Inland Port/Aviation development opportunities (US1, FEC Railway and proposed State Rd 313)
8. On-Airport Parking Plan
9. Feasibility and need for passenger and tenant support facilities (professional office, hotels, consolidated car rental facilities)



Northeast Florida Regional Airport

Airport Planning Process

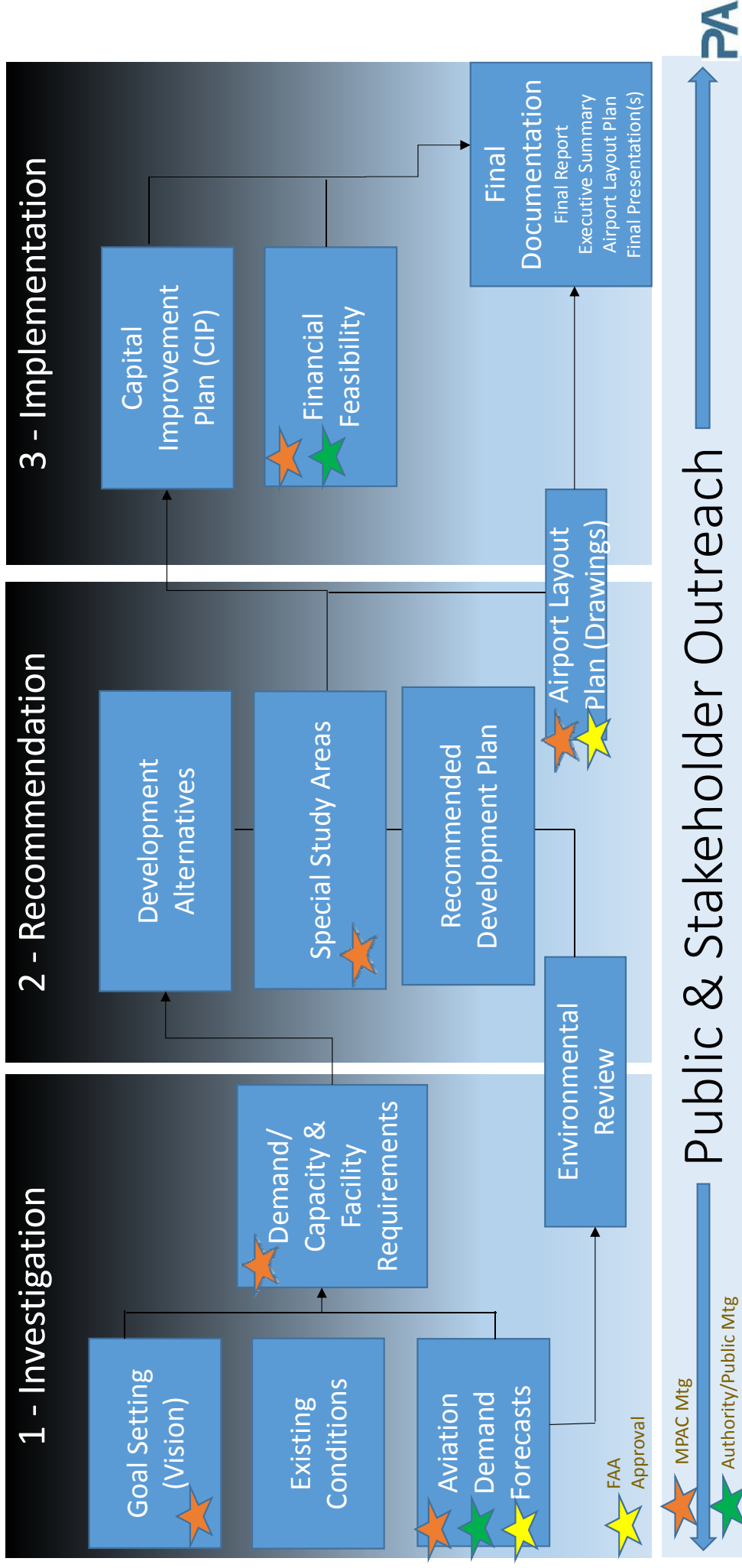
Special Study Areas – Consultant Assignments

1. Passero – PM (Prime Consultant)
2. Aerial Mapping, Obstruction Survey and AGIS - Quantum Spatial
3. Exhibit A – Property Map Update – Geomatics Corp
4. Wetlands and Environmental Sensitive Areas – Environmental Resources Solutions, Inc.
5. Ground Access Planning – Matthews Design Group
6. Financial Feasibility – Liebowitz-Horton
7. Drainage/Stormwater Planning – EG Solutions
8. Passenger Forecasts and Public/Stakeholder Outreach –Volaire Aviation
9. Multi-modal Planning - Hanson Professional Services, Inc
10. Airport Security Assessment – BMEL Business Solutions (Stellar Security Group)
11. Runway Development Alternatives – Kimley -Horne



Northeast Florida Regional Airport

Airport Planning Process





Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #1 Minutes

February 22, 2017

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

MPAC members introduced themselves.

Purpose of this Master Plan Update (MPU) is to review the potential development of the Northeast Florida Regional Airport, as a community asset for the next 10-20 years. Several specialty studies are included as part of this MPU. Each specialty studies element was identified by the respective sub consultant who was present.

These studies include the following areas:

- Quantum Spatial – acquisition of new aerial imagery and identification of obstructions to the approach surfaces
- Geomatics - Update property map to show new purchases and sales since 2006.
- Environmental Resources Solutions – master planning for development of undeveloped property west of US1, review wetlands and species protection.
- Matthews Design Group – review ground access at US 1, Gun Club Road, Proposed SR 313, potential access to I-95
- Leibowitz – Horton – review financial management of airport operations and capital development structure, constraints, requirements and opportunities for financing the Master Plan Capital Improvement Program
- EG Solutions - Master drainage plan evaluations for future development
- Volaire Aviation – Enplaned passenger forecasts including catchment areas and demographic information, evaluate impact of scheduled service and on demand charter service; and Stakeholder outreach – public information dissemination (press releases, social media management, e-blasts to stakeholder group).
- Hanson – Intermodal evaluations: air, rail, roadway infrastructure, including proposed SR 313. Coordinate with FDOT & FEC RR.
- BMEL Business (Stellar) – inspect, inventory and access security facilities. Provide comprehensive list of recommendations for improving airport's security program
- Kimley-Horn – examine alternatives for a new GA airport within County for future consideration

Focus of this meeting was to discuss Goal Setting. Items presented:

- Airfield Security & Safety Goals – meet FAA design standards, obstruction free
- Opportunities/Interface of general aviation/commercial (domestic and international)/military
- Size of airport – airport property; constraints
- Land uses – demand exceeds available land. There is a waiting list of approximately 150 aircraft. No lands available to lease.
- Financial – past 20 years the annual revenue has grown from \$159-400,000 to \$4 million. No taxpayer dollars needed to fund the airport. 2014 FDOT economic analysis concluded NFRA impact is \$409,573,000.
- Projects need to focus on revenue producing (e.g. hangars), non-revenue producing (airside to support the whole), seaplane/barge activity (mainly for government contractors)
- Airport Authority's Charter was amended to include multi-modal ability
- Airport Authority with the County is like that of a contractor, permits are required. Excellent relationship with the County and the City.
- County's interest is business development: office space (legal, air brokers, etc), hangars, maintenance, restaurant.
- City's interest is multi-modal issues (parking, passenger transportation to the City)
- Land Access to the airport and surrounding areas (east and west side of US 1: discuss with DOT to designate US1 as SIS for funding, available for trucking industry). Connection to SR313
- How to develop airport lands west of US 1: Avoid duplication of services between the city/county/airport (connect office space, parking, car rental, etc). Primary access point to airport and future development
- Parking needs for airport, city overflow, shuttle. No land large enough for overflow parking between City and Airport.
- Plan needs to be realistic
- Consider impact of airport's development on staffing needs
- Runway 13-31 is at maximum length within the land envelope

Action Items:

- Provide the Scope of Services to the MPAC to increase their understanding of the airport master plan.
- Provide a list and graphic of projects that came out of 2005 MP, what has been done and what is still needed to be done.
- Supplemental Survey will be provided to MPAC.
- Future meetings will be on Wednesday's. Next meeting end of May. Invite will be send out 2 weeks before meeting date.

Submitted by,

Approved by MPAC 6/21/17

Motion passed by Mr. Green, second Mr. Raymos



Lisa M Cheung
Sr Airport Planner



Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #2

June 21, 2017

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Approval of Meeting Minutes: MPAC #1
2. Inventory and Forecast Review
3. Next Steps
 - a. Demand Capacity/Facility Requirements
 - b. Multi-modal opportunities

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Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #2 Minutes

June 21, 2017

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

Each member was presented with the meeting minutes from MPAC #1 and an overview report prior to the meeting. The meeting commenced at 11 a.m. with the MPAC members approving the meeting minutes from MPAC #1. Mr. Green motioned, and Mr Raymos seconded. All were in favor.

Passero Associates' presentation focused on the key findings of the first phase of the report, which included introduction, inventory of existing facilities and forecasts.

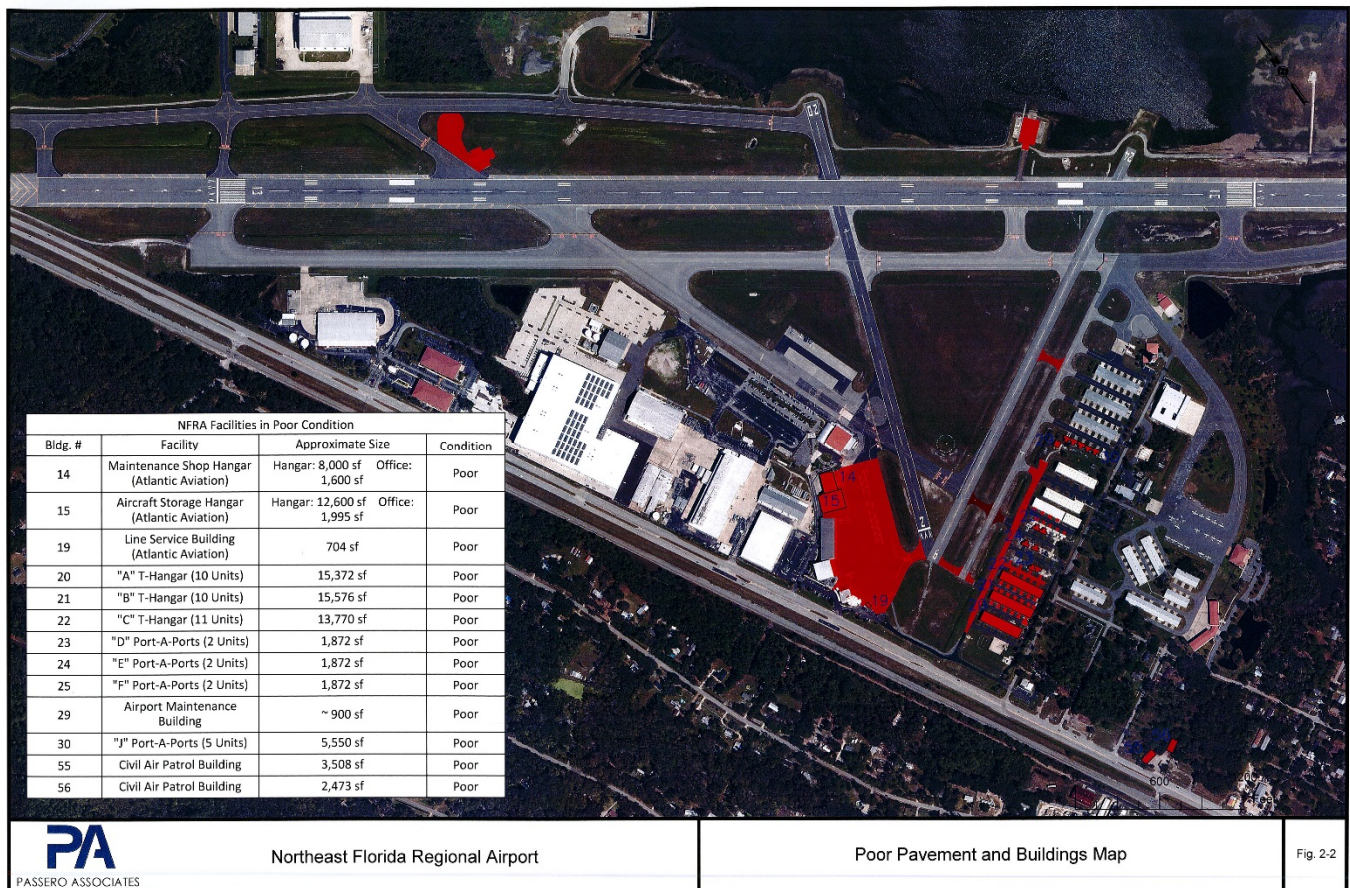
The presentation started with the goals that the MPAC identified for the Master Plan, identified as:

- Provide safe airport facility by meeting design standards
- Provide secure airfield, especially along the east side
- Provide sufficient capacity to accommodate aircraft users and development
- Provide adequate ground access to all parts of the airport
- Provide for multi-modal considerations tying airport with lands west of US 1
- Ensure development is financially sound

The meeting moved onto where we are in the planning process: Investigation Part 1 - data collection and forecasting. The meeting focused on the functional areas of the airport (North Development Area, South Development Area, West Development Area, and the Future Development Area, on the west side of US 1), the existing facilities in each functional area. Listed below are the general facilities and conditions.

Facility Type	Dimension/Location	Condition
RWY 13-31	8,002' x 150', asphalt	Good
RWY 6-24	2,701' x 60', asphalt	Excellent
RWY 2-20	2,610' x 75', asphalt	Excellent
Taxiway A	East side of Rwy 13-31	Excellent
Taxiway B	West side of Rwy 13-31	Excellent
Taxiway D connectors	Parallel to Rwy 6-24	Poor, except D3 north
Taxiway E	Parallel to Twy D	Poor
Taxiway F	Provides access to South GA area	Good
Taxiway G	Provides access to South GA area	Good
Seaplane Ramp	East of Runway 13-31	Poor
Apron	South development area	Good
Apron	FBO, west development area	Poor, under rehabilitation
Apron	Terminal apron	Fair
Compass Rose	Off Taxiway A	Poor

In the south and west development areas, the facility review included buildings that are in poor condition as well as pavement (identified in red on the attached plans).



Review of the forecasts was presented. Various methodologies that were examined were discussed. Historical general aviation based aircraft and operations were presented alongside the methodologies used to forecast based aircraft and operations. The presented based aircraft forecast suggested the use of 2% annual growth rate following the growth in Northeast Florida. This increased the based aircraft from present level of 216 to 322 by planning year 2036. The presented general aviation and military operations forecast suggested use of 1.9% annual growth rate. After discussion among the MPAC members it was recommended that the preferred general aviation and military forecasts be adjusted to the Florida State Aviation System Plan levels, increasing from 134,867 to 179,206 by 2036.

Commercial and air taxi operations were presented separately by Volaire Aviation. SGJ is unique because its carriers don't operate every day of the week all year long. Air Taxi was further defined for clarification. The suggested forecast uses a 4% annual growth rate for air taxi. Air carrier operations and enplanements followed a conservative approach increasing from 300 to 1,791 operations and 10,099 to 94,750 enplanements by 2036. The MPAC concurred with these forecasts for air taxi and air carrier.

The future development area, west side of US 1, was presented with its multi-modal connectivity, which will be examined further in later sections of the Master Plan process. The presentation concluded with identifying the next steps:

- submit the forecasts to FAA/FDOT for review and approval
- prepare demand/capacity analysis and facility requirements, and
- multi-modal alternative review with sub-consultants.

Open Discussion

The MPAC proceeded to ask questions for clarification, which led to a discussion among members. Questions are grouped together, where they overlapped.

- Q: Future Northrup Grumman development needs to be considered during facility requirements
 - A: Will coordinate with Northrup Grumman to understand their facility needs
- Q: Commercial service: other determinants to determine commercial service? Forecasting commercial service is a chicken and egg situation?
 - Discussion: Examined other methodologies given the lack of historical data. Yes, commercial service is a wildcard. The existing facility can accommodate the conservative growth (preferred forecast)
- Q: Appears there is a pent up demand for hangars, given the waiting list, and the starting number for forecasts should be higher? Pilots at other airports may come if there were more hangars.
 - Discussion: There is a waiting list, but some pilots may be duplicates, and without surveying them, don't want to overestimate the number of based aircraft.
- Q: Not enough hangars.
 - Discussion: There is a pricing issue, SGJ is more expensive than other surrounding airports, but it isn't an apple to apple comparison, because of funding available to the airports. Creating more disparity if adjustment to the whole pricing structure at the airport aren't considered. There is a GA consolidation in Northeast Florida. Takes time to construct hangars. Some surrounding airports (Palatka and Herlong) don't have wait list, unlike SGJ, who has an extensive wait list. Tearing down old hangar and displacing tenants in an ethical problem. FBO receives about 6 calls/week for hangars. Airport Authority is surveying the waiting list. Need existing replacement and new hangars in the south area for the areas identified in poor condition. The Master Plan will show additional hangars in the south area, to be discussed further in future meetings.
- Q: Land leases tied to t-hangars.
 - A: Yes, but the real revenue source is hangars.
- Q: How many years before there is complete access to the lands in the south development area, that aren't owned by the airport now?
 - A: There are 5 residential lots remaining. Hangar project will occur on lands that are already owned.
- FAA personnel spoke about the forecast growth. 2% is average for Northeast Florida, 3% is highest. Florida State Aviation System Plan more in depth than FAA Terminal Area Forecasts (TAF). The FAA concurs with the State's formula. The FAA approved the forecasts compares to the TAF. The forecasts of 2% seem reasonable for this airport.
- Flight training is skewing operation counts, not consistent with true based aircraft, too aggressive. GA operations should be more in line with Florida State Aviation System Plan. (*Adjusted preferred operations as a result of this comment.*)
- While the airport has 3 runways, it really is a one runway facility (Runway 13-31), which will have a physical impact on operations.

Action Items:

- Edit overview report and master report based on MPAC's preferred forecasts
- MPAC meeting minutes #1 and Overview Report to be provided to Airport Authority for their approval prior to sending the forecasts to the FAA/FDOT.
- Work with sub-consultants to review multi-modal alternatives.

Next Meeting Topic:

- Investigation Part 2: Demand Capacity and Facility Requirements

Meeting minutes approved by MPAC 1/31/18: V. Raymos motioned, K. Harvey second. Passed unanimously.

Submitted by,



Lisa M Cheung
Sr Airport Planner



Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #3

January 31, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Approval of Meeting Minutes: MPAC #2
2. Review of Demand Capacity/Facility Requirements
3. Alternative Analysis: Introduction to Evaluation Criteria
4. Next Steps
 - a. Present and Finalize Alternatives
 - b. Preparation of Airport Layout Plan
 - c. Preparation of Capital Improvement Program

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Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #3 Minutes

January 31, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

Each member was presented with the meeting minutes from MPAC #2 and an overview report prior to the meeting. The meeting commenced at 11 a.m. This meeting discussed the facility deficiencies of the Northeast Florida Regional Airport (NFRA).

Passero Associates provided a brief overview of where the Master Plan is in the planning process. The inventory and forecasts have been prepared and approved by the FAA on September 22, 2017. Over the last several months the facility deficiencies have been analyzed, and small group meetings have occurred. After this meeting the master plan will move into the alternative development section, environmental overview and development costs.

The remainder of the meeting discussed the facility deficiencies. Discussions on the airfield highlighted several points:

- Annual Service Volume (ASV) the theoretical capacity of the runway environment. Presently the airport is at 70% and is anticipated to experience additional demand over the planning period, which will lead to delays. There is only so much that can be done at the airport to alleviate constraints. The alternatives will examine parallel runways at the airport, and potential new site. With new State Route 313 the old Master Plan proposal for a runway on the west side of the airport will not be considered.
- Primary runway – analysis determined the primary Runway 13-31 is of sufficient length, width and pavement strength.
- Crosswind runway – analysis determined that there is need for a single crosswind runway. Alternatives will examine the location of the crosswind runway, extending the length to 3,700 feet. FAA guidance will only fund one of the two crosswind runways. Existing Runway 6-24 has a design issue with Taxiway “D”.
- Instrument Approach to crosswind runway – improve the selected crosswind runway with a non-precision instrument approach for smaller aircraft.
- Conversion of Runway 2-20 to a taxiway – Runway 2-20 is used less than 1% of the time for operations. It is used as a taxiway for commercial service aircraft and jet traffic accessing the terminal/FBO apron. The following design deficiencies were discovered for Runway 2-20:
 - o Runway 2-20 RSA overlaps with Runway 6-24

- Runway ROFA includes a portion of the terminal apron and FBO parking lot. When terminal apron in use Runway 2-20 is closed because aircraft are inside the ROFA
- Direct apron to runway connection from the FBO apron to Runway 2, against design standards.
- Runway 2-20 and Taxiway B2 “hotspot”, potential for significant aircraft incursions because of the direct link from an apron to a runway.

No member of the MPAC spoke against the closure. One member asked that the alternatives consider the wind coverage of a crosswind runway, because very small aircraft can't handle strong crosswinds.

- Overview of specific deficiencies include:
 - Runway 13-31 ROFA extends significantly onto the seaplane/barge ramp, limiting the ramp such that aircraft are not able to park
 - Runway 13 ROFA includes a small portion of the airport fence in the northwest section of the runway, along US 1. A Modification to Standards is recommended for this existing condition. This has come up before in previous studies.
 - Runway 13 ROFZ includes a portion of airport fence in the northwest section of the runway, along US 1. This is a design and operational area. Similarly this has come up before, and the airport has zero interest in shortening the runway.
 - Runway 6-24 ROFA presently has two aircraft tie-downs in it, and a portion of the segmented circle. It is recommended that the aircraft not be parked within the ROFA
 - Runway 6-24 and Taxiway “D” are not separated at the appropriate design distance. The taxiway should be offset further from the Runway 6-24 centerline.
- The remainder of the meeting discussed potential development areas to address deficiency areas:
 - North Development includes additional hangars, aprons, potential relocation of an FBO if FBO relocates from west to east side of the airport. If the FBO doesn't relocate potential for aviation use/MRO development. Based on development selected road re-alignment to better access the developable lands. Alternatives will be prepared.
 - South Development includes additional hangars, aprons, maintenance and airport administration, professional office space, no area currently available. Lands are available along US 1 that are highly visible for hotel/retail on US 1. Access from US1 will be considered to address future development needs. Alternatives will be prepared.
 - West (Central) Terminal Area concentrating on having the FDOT identify the area as a Strategic Intermodal System (SIS) facility. SIS facilities are recognized for connecting modes of transportation, and open up funding to build the facilities.
 - Mr Cox (FDOT) suggested talking to FDOT SIS office, include that conversation as part of the Master Plan. Categories and criteria are changing to SIS and Strategic Growth
 - Terminal area signalized intersection with entrance/exit land from US1 to the terminal building
 - Additional automobile parking needed as enplanements grow

- Consideration of a CONRAC dependent on air service. Past seasonal activity demand has been excessive. In the future, as air service continues to grow, consider a CONRAC
- Potential if FBO is relocated to the east side of the airfield, what happens to the development on the apron.
- Should commuter or passenger rail become viable, the airport should be considered in the planning, but airport authority is not a champion of this project.
- Highway Access from US 1 – alternatives will be prepared based on development concepts
 - Consideration to the south development area (Estrella, Indian Bend)
 - Signalized intersection to the terminal building
 - West access to NFR-B (Business), west side of US1, business park
 - North access improvements that make roadways more efficient
- NFR – B
 - West side of US 1
 - Airport has been acquiring small/large parcels of land
 - Small group discussions covering potential development for this undeveloped land. There are no extensive road systems and utilities in this area.
 - Access/Utility Connectivity
 - US 1 via Big Oak Rd to SR313
 - SR 313 to new I-95 interchange
 - I-95 to SR 16
 - Physical development between US 1 and SR 313
 - Consider utilities from both US 1 and SR 313
 - Need for potable water, waste treatment and stormwater throughout
 - Rail
 - Physical ability for a rail spur parallel to FEC railway, breakdown trains in St Augustine
 - Commuter or passenger rail – airport plans to provide ability to have a stop, but no the champion of the project
 - Potential Development
 - From small group meetings
 - Airfield connectivity – old plan showed a bridge over US 1. Alternative will show at grade crossing north of Taxiway B across US1/FEC for limited aviation related development
 - Warehousing – consider ground access/utilities
 - Commercial –support small pockets professional office space
 - Community support
 - Florida Power & Light staging
 - Open space/overflow parking
 - Special events
 - Job Creation

- One on one meetings with Authority Board members interested in employment/job creation. If Authority is investing money, need to answer the question: what is the return on investment?

Concerns received from MPAC members:

- Runup areas needed to alleviate backup along Taxiway B
- NFR-B not being used for aviation related development, like the old plan
- Crosswind runway accommodating the very small aircraft with limited wind capability
- Inclusion of a helipad, or designated helicopter area in the south functional area

Action Items:

- Edit overview report based on comments
- Prepare MPAC meeting minutes #3
- Future small working groups for NFR-B

Next Meeting Topic:

- Alternatives, based on the following evaluation factors:
 - Operational
 - Environmental Impacts
 - Cost
 - Strategic Initiatives of Airport
 - Job Creation
 - Revenue Producing/Return on Investment
 - Intermodal/SIS Connectivity
 - Strategic from business perspective

Submitted by,



Lisa M Cheung
Sr Airport Planner
Passero Associates

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #4

April 25, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Planning Process (Progress)
2. Brief Review of Demand Capacity / Facility Requirement (Deficiencies and Needs)
3. Review of Alternative Evaluation Screening Criteria
4. Review of Alternatives
5. Select preferred alternative (for further development)
6. Next Steps
 - a. Preferred Alternative
 - b. Environmental Overview (preferred alternative)
 - c. Preparation of Airport Layout Plan Drawings
 - d. Preparation of Capital Improvement Program (costs and implementation schedule)

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #4 Minutes

April 25, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

This meeting discussed the development alternatives for the Northeast Florida Regional Airport Master Plan.

Meeting Commenced: 11:14 am

- A.Holesko, Passero Associates, commenced the meeting with a brief overview of where the Master Plan is in the planning process.
 - Where We've Been:

The inventory and forecasts have been prepared. The FAA approved the forecasts September 22, 2017. Over the last several months the facility deficiencies have been analyzed, and small group meetings outside of the MPAC have occurred.
 - Where We're At:

MPAC #4 meeting will present and review all development alternatives identified by facility deficiencies that don't meet FAA design standards.
 - Where We're Going:

Future MPAC #5 meeting will include the Implementation Plan for projects identified by this master plan that will be included in the 5-year CIP. A brief overview of the Airport Layout Plan (ALP) will also be discussed as well. Meeting anticipated to be 120 days from April 25, 2018.
- A.Holesko discussed the evaluation criteria and methodology for each development alternative, and also mentioned that additional evaluation criterion will be added to assess Capacity and Safety standards that aren't being met.
- A.Holesko re-introduced the airport focus areas around SGJ. The areas are now labeled, and will be identified for the remainder of the master plan as follows:
 - East Corporate Area – Located east of Runway 13-31
 - South GA Area – Located on the southern end of the Airport
 - Main Terminal Area – Located on the western portion of the Airport, east of U.S. Highway 1

- West Area – Also referred to as NFR-B, which includes all airport-owned land west of U.S. Highway 1
- A.Holesko presented and reviewed each alternative for the remainder of the meeting, answering questions as they arose. Each of the alternatives and comments are described below.
 - Do-Nothing (No Figure)
 - This Alternative would maintain the Airport in its existing state, with no development proposed.
 - E.Wuellner Comment: Please add a “Do-Nothing” narrative for each alternative.
 - A. Holesko Response: Passero will amend report to provide a “Do-Nothing” scenario for each alternative.

Each number below corresponds to the alternatives in the number they were presented.

1. **Figure 5-1:** Construct Parallel 3,700 foot long Runway 700 feet from Runway 13-31 to improve airport service volume (ASV). Impacts include, but are not limited to:
 - a. RPZ along the northern end is impacted by an existing Northrop Grumman facility;
 - b. Wetlands and drainage impacts; and,
 - c. Impacts to the existing ARFF facility on the southern end of the runway.
2. **Figure 5-2:** Construct Parallel 3,700 foot long Runway 2,000 feet from Runway 13-31 to improve airport service volume (ASV). Impacts include, but are not limited to:
 - a. Acquisition of Gun Club and state land is needed;
 - b. Impacts to wetlands, drainage and existing protected species; and,
 - c. Significant costs associated with additional fill in the saltwater marsh area for the runway and taxiway connection.
3. **Figure 5-3:** Non-Intersecting Runway on Land West of U.S. Highway 1 to improve airport service volume (ASV). Impacts include, but are not limited to:
 - a. Runway cannot be connected to the existing Airport;
 - b. Air Traffic Control Tower cannot manage ground operations at this west location; and,
 - c. Impacts to wetlands and protected species.
4. **Figure 5-4:** Use Alternate Site #1 (Reynold’s Airpark) to improve airport service volume (ASV). Impacts include, but are not limited to:
 - a. Close proximity to the future First Coast Expressway (U.S. 23) which will be located in a portion of the proposed Runway 5 RPZ;
 - b. Environmental impacts and mitigation; and
 - c. Significant challenge in identifying a local municipality to become the sponsor of this Airport.
5. **Figure 5-5:** Use Alternate Site #2 (Terrapointe Site) to improve airport service volume (ASV).

Throughout A.Holesko discussion of the impacts, there were several questions.

The impacts of this alternative included, but are not limited to:

- a. Proposed residential developments may impact Airport Development;
- b. Pedro Hernandez High School located in close proximity south of the site; and,

c. The public acceptance of another airport.

The questions were:

- T.Solano Question: Does FAA fund the construction of a new airport?
- A.Holesko Answer: Yes, but there several steps that will need to be followed, and it will not be an easy process.
- M.Glasgow Question: What is the size of this site?
- A.Holesko Answer: Approximately 500 acres.
- D.Bunnewith Question: Will there be any land use protections for the Airport?
- E.Wuellner Answer: No land use protections, but there will be an agreement with the adjacent property owners. No technical analysis has been performed on this site.
- M.Glasgow Question: How was site derived?
- E.Wuellner Answer: The existing property owner is looking for an option to permit land for residential, or multi-use purposes.
- R.Olson Question: Is the cost to establish a new airport more costly than expanding the existing Airport?
- A.Holesko Answer: These alternative site alternatives will not replace the existing airport.
- P.Nguyen Question: Difference between the Airport West and Terrapointe sites? Why 5-23 Orientation?
- A.Holesko Answer: Airspace capacity issues dictated potential locations. Key difference for Terrapointe site is no land ownership. 5-23 orientation was chosen due to having the best annual wind coverage.
- R.Ludlow Question: It seems that the other sites are for the future. Why aren't we looking at the current Airport for what happens now?
- A.Holesko Answer: We are looking at all possibilities for the future, including the detailed development of the existing airport.
- E.Wuellner Follow-Up: We are looking beyond the planning period, but there were also two previous studies that were looked at and considered in this master plan.
 - I. 1995 Master Plan proposed a parallel Runway 13-31 on Airport West.
 - II. 2005 Master plan proposed a 6,000 foot long runway in 5-23 orientation on Airport West.

Both studies identified significant Tower issues, and we did not own a lot of the land on the west side at the time, but we own more land today.

- M.Glasgow Question: What is the percentage of operations that could use shorter runways?
- T.Albin Answer: There is a significant amount of usage from the flight school.
- E.Wuellner Question: Did Passero look at a parallel Runway 13-31 alternative that is staggered similar to Melbourne where the flight school and tower were moved?
- A.Holesko Answer: We did not but can. Passero to do the following:

- I. Add alternative of a Runway in 13-31 orientation West of U.S. 1 strictly for GA training purposes.
 - II. Review similar 1995 Master Plan alternative.
6. **Figure 5-6:** Runway 2-20, as the Crosswind Alternative, extended to 3,700 feet to accommodate future B-II aircraft operations.
- Prior to getting into the impacts of this alternative, A.Holesko stated that the FAA/FDOT will only fund a primary runway and a secondary runway, leaving one runway with the potential of no funding assistance.

The impacts of this alternative included, but are not limited to:

- a. FAA identified "Hotspot" at Taxiway B2;
 - b. Overlapping Design Standards (existing runway object free area is encroached by FBO apron parking positions; and,
 - c. Environmental and protected species impacts.
7. **Figure 5-7:** Runway 6-24, as the Crosswind Alternative, extended to 3,700 feet to accommodate future B-II aircraft operations. The impacts of this alternative included, but are not limited to:
- a. Environmental and protected species impacts;
 - b. Existing separation of Taxiway D from Runway 6-24 does not meet current design standards for B-I aircraft operations; and
 - c. Overlapping Design Standards (existing runway object free area is encroached by FBO apron parking positions.
8. **Figure 5-8:** New Runway 5-23, as the Crosswind Alternative, extended to 3,700 feet to accommodate future B-II aircraft operations. The impacts of this alternative included, but are not limited to:
- a. Environmental and protected species impacts;
 - b. High cost associated with building a new runway; and,
 - c. Existing Seaplane ramp operations will be impacted by the new orientation (overlay) of the runway.
9. **Figure 5-9:** New Runway 4-22, as the Crosswind Alternative, extended to 3,700 feet to accommodate future B-II aircraft operations. The impacts of this alternative included, but are not limited to:
- a. Environmental and protected species impacts;
 - b. Taxiway D4 will require realignment; and,
 - c. High cost associated with building a new runway.

After A.Holesko presented runway orientation alternatives, there were several questions, which are as follows:

- R.Ludlow Question: Because 2-20 is the crosswind runway for landing now, and 6-24 is not a crosswind runway because it is too parallel, Ed can we go forward with 2-20 as the crosswind?
- E.Wuellner Answer: That is a possibility, but extending the runway will present similar issues (environmentally) to 6-24. The east ends have huge environmental impacts, where the west ends have minimal.

- A.Holesko Follow-Up: West ends of 2-20 and 6-24 cannot be relocated west of the existing locations due to the fact that there will be significant impacts to the Runway protection zones cutting across U.S. Highway 1. Because there are already existing RPZ impacts with U.S. Highway 1, the FAA regulations will allow it; however, you cannot make these RPZ impacts worse or present new impacts.
- E.Wuellner Comment: The existing lengths of these runways vs. extensions would allow for the use of larger aircraft.

10. **Figure 5-10:** South General Aviation Alternative proposes 81 additional T-Hangar units (87 total) and builds off of a current T-Hangar project where 24 of these proposed units will replace six port-a-ports for an initial net gain of 18 units. The impacts of this alternative included, but are not limited to:

- a. Voluntary (long-term) acquisition of five parcels of private property are needed;
- b. Costs associated with the relocation of Araquay Ave. and Indian Bend Rd.; and,
- c. Costs associated with drainage infrastructure relocation and improvement.
 - T. Solano Question: How far away are the land acquisitions and development in this area?
 - E.Wuellner Answer: Development is contingent on land acquisition. Right now, we have a verbal agreement with the property owners. The owner's property is a life estate – ownership for as long the property owner lives. Development in Hangar row J can happen in the next 5-10 years. All other development would happen more than 10 years from now.

12:16 pm: 10 minute Break for Everyone to grab food for working lunch.

12:26 pm: Meeting commences again

- General Comment/Question: Looking out 10 years, drone delivery may be an operation at airports, especially if the contract company operates at the airport and drones start flying humans. Have there been any drone delivery operations considered at SGJ?
- A.Holesko Answer: Commercial delivery from drones are not necessarily happening at Airports. Mainly due to FAA airspace restrictions that do not permit drone usage near airport airspace. Not disagreeing that it's a good idea, just not permissible by the FAA at this time.

11. **Figure 5-11:** Taxiway D and E Alternative proposes relocating Taxiway D 240 feet from Runway 6-24. The impacts of this alternative included, but are not limited to:

- a. Costs for taxilane connectors;
- b. Costs to demolish Taxiway E; and,
- c. Costs to relocate Taxiway D and improve drainage infrastructure.

12. **Figure 5-12:** Conversion of Runway 2-20 to a taxiway to alleviate existing FAA "hotspot" at Taxiway B2, and address the non-standard FBO taxiway connector to the Runway 6 environment. The impacts of this alternative included, but are not limited to:

- a. Cost to demolish the FBO taxilane connector;
- b. Cost to convert Runway 2-20 to a taxiway;
- c. Provides least wind coverage at 0-6 knots (4.3%)

- d. Runway 2-20 has 100 or fewer runway operations;
 - e. Runway 2-20 not eligible for FAA funding for maintenance;
 - f. Cost to re-stripe runway with taxiway striping; and,
 - g. Loss of one of three runways at SGJ.
13. **Figure 5-13:** Runway 2-20 remains a runway, but the FBO taxilane connector and the Taxiway B2 is mitigated by the demolition of pavement adjacent to Taxiway B2. The impacts of this alternative included, but are not limited to:
- a. Cost to demolish FBO taxilane connector pavement;
 - b. Potential impact to the flow of the commercial service aircraft, should more than two be parked at one time; and,
 - c. Existing drainage infrastructure may be impacted.
14. **Figure 5-14:** Runway 2-20 is upgraded to B-II operations which calls for stricter FAA runway requirements (i.e., larger runway object free area). The impacts of this alternative included, but are not limited to:
- a. Cost to demolish FBO taxilane connector pavement;
 - b. Potential impact to the flow of the commercial service aircraft, should more than two be parked at one time; and,
 - c. Existing drainage infrastructure may be impacted.
15. **Figures 5-15A and 5-15B:** This alternative has two parts (A and B). 15A proposes relocating and expanding the FBO within the East Corporate Area, and including enough apron space for transient parking and an area for 12 box hangars. 15B proposes using the existing FBO and adjacent facilities should the FBO be relocated to the East Corporate Area. The impacts for each of these alternatives included, but are not limited to:
- 15A**
- a. Environmental and wetland impacts;
 - b. Cost to install new (extended) access road and utility systems; and,
 - c. Interest and support from FBO to relocate.
- 15B**
- a. Significant cost for conversion of FBO facilities to corporate facilities; and,
 - b. Interest and support from FBO to relocate; and,
16. **Figure 5-16:** Relocating the FBO north of Grumman North 40 within the East Corporate area and constructing 12 box hangars south of Grumman North 40. The impacts of this alternative include, but are not limited to:
- a. Environmental and wetland impacts;
 - b. Cost to build taxilane and apron pavement; and,
 - c. Interest and support from FBO to relocate.
17. **Figure 5-17:** Construct Ground Run-Up Pad adjacent to Runway 2-20 and Taxiway B. The impacts of this alternative include, but are not limited to:
- a. Costs to build run-up area; and,
 - b. Run-up areas are for small aircraft only.
18. **Figure 5-18:** Construct Ground Run-Up Pad adjacent to Taxiway F. The impacts of this alternative include, but are not limited to:

- a. Costs to build run-up area; and,
 - b. Run-up areas for small aircraft only.
 - E.Wuellner Comment: Run-ups could work with the existing airfield with some re-arrangements.
19. **Figure 5-19:** Automobile Parking alternatives where three alternative sites were presented for surface or garage parking options. The impacts of this alternative include, but are not limited to:
- a. Costs associated with re-paving the existing lots;
 - b. Requires an agreement to share usage with Northrop Grumman; and,
 - c. Poor pedestrian distance to end-user locations.
 - T.Solano Question: Was parking on Airport West considered?
 - A.Holesko Answer: We are evaluating that in our airport West alternatives.
20. **Figure 5-20:** East Corporate Ground Transportation alternative entails the relocation of Hawkeye View Ln. and proposed traffic signalization on Gun Club Road. The impacts of this alternative include, but are not limited to:
- a. Cost and grant funding availability;
 - b. Environmental impacts; and,
 - c. Documented need, based on actual users' needs and additional future development in the East Corporate area.
21. **Figure 5-21:** South General Aviation Area Ground Transportation alternative entails relocating Araquay Ave. and Indian Bend Roads to accommodate potential hangar development in this area. The impacts of this alternative include, but are not limited to:
- a. Cost and grant funding availability; and,
 - b. Documented need, based on actual users' needs and additional future development in the East Corporate area.
22. **Figure 5-22:** Main Terminal Area Ground Transportation alternative would provide improved central access point for the Airport tenants and users, along with added safety measures that include proposed traffic signalization on U.S. Highway 1. The impacts of this alternative include, but are not limited to:
- a. Long-term partnership with FDOT in regards to portion of U.S. Highway 1 usage adjacent to the Airport;
 - b. Costs associated with U.S. Highway 1 improvements around the Main Terminal area; and,
 - c. Impact to two existing hangars adjacent to the FBO.

The remaining sections examine alternatives related to westside of US 1, referred to as NFR-B.

23. **Figure 5-23:** Roadway Segment 1 in Airport West area (U.S. Highway 1 to Proposed S.R. 313 via Big Oak Rd). The impacts of this alternative include, but are not limited to:
- a. Cost and availability of funding; and,
 - b. Become a physical divider of developable land area.
24. **Figure 5-24:** Roadway Segment 2 in Airport West area (Proposed S.R. 313 to I-95). The impacts of this alternative include, but are not limited to:

- a. Acceptance and approval from the state of Florida and St. Johns River Water Management District (SJRWMD) to construct a road through the 12-Mile Swamp area;
 - b. Environmental access, approval and permitting; and,
 - c. Cost and availability of funding, including timeframe needed to implement.
 - R.Ludlow Question: How expensive will it be to build a road through the 12-Mile Swamp area and who owns the land?
 - A.Holesko Answer: Yes it will be expensive. Greater than 10 million. The SJRWMD owns the 12-Mile Swamp land.
25. **Figure 5-25:** Roadway Segment 3 in Airport West area (Proposed new access from I-95 to S.R. 16). The impacts of this alternative include, but are not limited to:
- a. Cost and availability of funding, including timeframe needed to implement;
 - b. Acceptance and approval from the state of Florida; and,
 - c. Coordination within local and regional land use and ground access plans.
26. **Figure 5-26:** Proposed Non-Aeronautical Use at Airport West: Commercial/Manufacturing/Warehouse with Rail Access. The impacts of this alternative include, but are not limited to:
- a. Environmental access, permitting and mitigation;
 - b. Infrastructure costs; and,
 - c. Coordination and acceptance with the FEC Rail.
27. **Figure 5-27:** Proposed Aeronautical Use at Airport West: Maintenance-Repair-Overhaul (MRO). The impacts of this alternative include, but are not limited to:
- a. Environmental access, permitting and mitigation;
 - b. Infrastructure costs; and,
 - c. Identification of a major MRO operator, including investment/partnership within the development.
28. **Figure 5-28:** Proposed Non-Aeronautical Use at Airport West: Public/Multi-Use Development. This area could be used for disaster relief, parking and special events. It should be noted that the Airport will not allow this land to be used for free, unless the use is related to a disaster. The impacts of this alternative include, but are not limited to:
- a. Environmental access, permitting and mitigation;
 - b. Infrastructure costs; and,
 - c. Identification of local partnerships and potential uses and users.
29. **Figure 5-29:** Proposed Non-Aeronautical Use at Airport West: Water/Wastewater Plants. The impacts of this alternative include, but are not limited to:
- a. Environmental access, permitting and mitigation;
 - b. Infrastructure costs; and,
 - c. Partnership needed with City of St. Augustine, St. Johns County and/or private facility.
 - R.Ludlow Question: Are Board Members eligible to vote if they have ownership of any of the land?
 - E.Wuellner Answer: The Authority Board members are legally required to vote, unless there is a conflict of interest. Where there is a development

decision to be made on any property that is owned by an Authority member that would present a conflict of interest, that board member would not be eligible to vote.

30. **Figure 5-30:** Proposed Non-Aeronautical Use at Airport West: Passenger Terminal/Rail/Intermodal Center. The impacts of this alternative include, but are not limited to:
- Infrastructure and facility costs;
 - Coordination with the FEC Rail, City of St. Augustine and St. Johns County planning interests; and,
 - Partnership needed with potential operators

After presenting the final alternative, A.Holesko opened up the floor for comments/questions.

- E.Wuellner Question/Comment: Would the MPAC be open to having another meeting to discuss the development alternatives on the west side sometime between now and MPAC meeting #5?
- Answer: The majority of the MPAC members said they would be open to such meeting.
- R.Olson Question: Is it logical to include the west development in the master plan? Master Plans are updated every 10 years and the west development seems more long-term?
- E.Wuellner: We are more-so trying to get the general understanding of the water treatment and infrastructure needs at this time instead of how the land will be developed. Big Picture.
- A.Holesko Follow-Up: It is good to list all potential projects in master plan. Meaning, potential projects that you can do but don't have to do. If something isn't included in the master plan, then it will be very difficult or impossible to propose a project after the master plan is approved by the FAA.
- T.Solano Question: Can the Airport Authority amend the Master Plan?
- E.Wuellner Answer: Only the ALP can be amended.
- M.Glasgow Question: What is the expectation that the lands west of U.S. Highway 1 would be developed in a certain way?
- E.Wuellner Answer: Reason when funding was received was to develop the land over time. As for how, we do not need to specifically say what it will look like.
- T.Solano Question: When is the next meeting?
- A.Holesko and E.Wuellner Answer: Approximately 120 days with one additional meeting within this time period to discuss alternatives for lands west of U.S. Highway 1.
- T.Solano Question: Is there any reason to not put every alternative into Master Plan?
- A.Holesko Answer: Not all alternatives are selected. And the selected alternatives will be included in the CIP for funding consideration.
- D.Bunnewith Question: What are the funding priorities?

- E.Wuellner: Over 90% of funding for aviation related projects comes from the FAA and FDOT. Funding received for upcoming projects within 5 years will be for rehabilitation projects. Monies for runway projects coming in 10+ years.

No further questions.

There will be a follow-up meeting on June 29, 2018 to discuss the preferred airport alternatives.

Meeting Adjourned: 1:20 pm

Submitted by,



Christopher L. Johnson
Airport Planner
Passero Associates

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #5

June 29, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Review of Airport Functional Areas
2. Review of Preferred Alternatives
3. Review of Consolidated Preferred Alternative (NFRA)
4. Review of Consolidated Preferred Alternative (NFRB)
5. Next Steps
 - a. Environmental Overview (preferred alternative)
 - b. Preparation of Airport Layout Plan Drawings
 - c. Preparation of Capital Improvement Program (costs and implementation schedule)

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #5 Minutes

June 29, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

This meeting discussed the preferred development alternatives for the Northeast Florida Regional Airport Master Plan.

Meeting Commenced: 11:37 am

- A.Holesko, Passero Associates, commenced the meeting with a brief overview of Agenda.
- A.Holesko gave a brief overview of the airport focus areas around SGJ, and are as follows:
 - East Corporate Area – Located east of Runway 13-31
 - South GA Area – Located on the southern end of the Airport
 - Main Terminal Area – Located on the western portion of the Airport, east of U.S. Highway 1
 - West Area – Also referred to as NFR-B, which includes all airport-owned land west of U.S. Highway 1
- A.Holesko presented and reviewed each preferred alternative, breaking each down based on the airport focus areas for the remainder of the meeting. Questions were answered as they arose. Each of the alternatives and comments are described below.

Airfield Operating Area

1. **Proposed Runway 13R-31L Alternative:** Construct Parallel 3,200 foot long VFR Runway that will be used in good weather during the day only. The runway will be located approximately 6,000 feet west of Runway 13-31, and may be used for flight training operations by small aircraft only. This proposed runway will use remote tower technologies.
2. **Terrapointe Site (St. Johns County):** Still a reasonable alternative, but will not be considered in the preferred airport alternatives.
3. **Runway 6-24 (Preferred Crosswind) Alternative:** Runway 6-24 selected as the preferred crosswind runway. Future plans to upgrade Runway 6-24 to accommodate B-II aircraft.
4. **Conversion of Runway 2-20 into Taxiway C Alternative:** Convert Runway 2-20 to Taxiway C at some point in the future. In converting the runway into a taxiway, the following deficiencies would be mitigated:
 - a. FAA Documented “Hot Spot” at Taxiway B2;

- b. No FAA/FDOT funding for a third runway;
- c. Significant amount of back-taxi operations on a runway; and,
- d. Overlapping Design Standards (existing runway object free area is encroached by FBO apron parking positions).
 - R.Ludlow Statement: Not in favor of converting Runway 2-20 into Taxiway C.
 - D.Bunnewith Question: When will this occur?
 - A.Holesko Answer: Timing will be determined in the next CIP phase, or as specified need arises.

Main Terminal Area

- 5. **Main Terminal Ground Transportation Access Alternative:** Reconfigure the main roadway leading into terminal area, and implement traffic signalization on U.S. 1 to enhance safety at the intersection.
- 6. **Terminal Expansion and Parking Alternative:** Expand the air carrier terminal in two phases and build an expanded parking lot and/or garage north of the terminal expansion.

South GA Area

- 7. **South GA Alternative:** Same graphic that has been presented at previous meetings, with the following additions to the alternative:
 - a. Site grading will be considered as part of the future development; and,
 - b. Potential development east of Taxiway F.
 - R.Ludlow Question: What is the anticipated time-frame for this alternative?
 - E.Wuellner Answer: This is still two to three years out, but the design phase will more than likely be next year.

East Corporate Area

- 8. **East Corporate Alternative:** This alternative proposes the following:
 - a. Approximately 19 acres of land will be left available for future aviation development north of the hush house area;
 - b. The development of a second MRO (or similar, large-scale development) is proposed south of Grumman "North 40;"
 - c. 12 box hangars are proposed, with the possible relocated FBO location. Additional apron space will be provided; and,
 - d. A new four lane access road is proposed to reach the proposed developments, avoiding a salt marsh to the north.
 - H.Green Question: Does the road go through the Gun Club's property?
 - A.Holesko Answer: Yes, if this project is pursued then a request will need to be made to purchase that portion of land.

West Area (NFR-B)

- 9. **Road Alternatives:** The preferred roadway alternatives on NFR-B will be built in the following 3 phases:
 - a. Big Oak to S.R. 313;

- b. S.R. 313 to I-95; and,
- c. I-95 to S.R. 16
 - H.Green Question: Has there been any talks with the City, and are there any developments that are being encroached on?
 - A.Holesko Answer: Yes, coordination with the City and County. We have the ability to move the road around developments in the areas between U.S. Highway 1 to S.R. 313, and I-95 to S.R. 16. The land area between S.R. 313 to I-95 has a large conservation easement where only roads can be developed.
 - V.Ramos Follow-Up: The County has expressed support for these roadway alternatives.

10. **MRO Alternative:** Aircraft will be tugged at-grade across U.S. Highway 1 to a restricted environment for MRO operations. Three main points were mentioned:

- a. Can this occur? (Yes, we think it can!)
- b. Besides area for MRO use, a large area is left for future aviation development.
- c. This MRO site has to potential to create 1000s of jobs.
 - R.Ludlow Question: Will there be any hangars on the lands west of U.S. 1?
 - A.Holesko Answer: No aircraft hangars, just MRO facilities. But this alternative is years down the road.
 - General Question: Are there examples of aircraft crossing roads?
 - A.Holesko Answer: This is occurring in numerous places. But this is not the first time this alternative was evaluated. The old master plans have proposed:
 - Relocating U.S. 1 and the FEC; and,
 - Building a taxiway bridge across U.S. 1 and the FEC.

These alternatives proposed in previous master plans would cost 100 millions of dollars, whereas the alternative proposed in this master plan would be in the millions. This alternative is also more realistic and feasible.

- General Public Comment: This alternative does not seem unreasonable. This will be no different than trucks that tug oversize loads, and in this case, aircraft will only be tugged over a 200 foot section.
- H.Green Follow-Up: This is already occurring in Orlando FL on John Young Parkway during aviation conferences.
- A.Holesko Follow-Up: We will research and look for videos of aircraft highway crossings.
- *C.Johnson Follow-Up After Meeting:* Below are a couple of other cities that allow aircraft to either be towed by a vehicle or operate under their own power on city roads.

1. **Las Vegas, Nevada:** National Business Aviation Association (NBAA) Business Aviation Convention & Exhibition "Parade of Planes" where aircraft are hauled by trucks overnight from Atlantic Aviation at McCarran International Airport to the Las Vegas Convention Center. Please visit the YouTube link for more information:
https://www.youtube.com/watch?v=XMug-l_D5-s

2. **Orlando, Florida:** National Business Aviation Association (NBAA) Business Aviation Convention & Exhibition “Parade of Planes” where aircraft are hauled by trucks overnight from Atlantic Aviation at Orlando International Airport to the Orange County Convention Center. Please visit the YouTube link for more information:
<https://www.youtube.com/watch?v=wp6ZK5VjRgQ>
3. **Palm Springs, California:** This event also named “Parade of Planes” took place during the Flying Aviation Expo. Please visit the two links below for more information:
<https://www.youtube.com/watch?v=s9KlswCGBY0>
<https://www.desertsun.com/story/news/2017/05/17/parade-planes-not-returning-palm-springs-year/326537001/>

11. **Consolidated Alternative (NFR-B):** Airport owns lands marked B1, B2, B3, B4 and B5. SJRWMD owns lands marked A, B and C, but these are surplus lands that will be available to purchase. The Airport wants to purchase these surplus lands and build the training runway on these lands. Other potential uses that have been discussed include
 - a. Rail distribution;
 - b. Commercial Manufacturing;
 - c. MRO Development;
 - d. Multi-Modal;
 - e. Wastewater/Water Treatment;
 - f. Downtown parking;
 - g. Recreational Events; and,
 - h. Staging area and facilities for FPL during hurricanes in which facilities could be used for outdoor events during other seasons of the year.

It should be known that the Airport Authority plans to be a landlord and ensure that the use is compatible to operations at the Airport. Although FPL can use a portion of the lands west of U.S. 1 during hurricane events, the Airport Authority will charge all uses.

- D.Bunnewith Question: Any drone usage proposed for these lands? Is it allowed near airports?
- A.Holesko Answer: As of right now, drone usage near airports is not allowed without specific FAA permission.
- V.Ramos Follow-Up: City of St. Augustine may be heavily in favor for events to occur on these lands, such as Rhythm and Ribs.

Open Discussion

- General Comment: A public event space could be built on the lands west of U.S. 1 for functions such as St. Augustine high school students who are graduating. Currently, they drive all the way to Jacksonville.
- General Question: Could Northrup Grumman Expand?

- A.Holesko Answer: Yes, either within the East Corporate Area, or on the lands west of U.S. Highway 1.

12:19 pm: Lunch

12:40 pm: Meeting commences again with Open Discussion

- V.Ramos Question: What happened to a convention center alternative?
- A.Holesko Answer: There are a few parameters (waste water and drinking water) that will need to be worked out before this kind of development could be considered.
- General Question: Has there been an alternative for a bus transit center?
- E.Wuellner Answer: there were three studies:
 - 1995 Study
 - 2001 Amtrak driven study; and,
 - 2011 Study that was ultimately vetoed by the Governor.
- R.Ludlow: Will meeting minutes for this meeting be online?
- C.Johnson: Will send minutes out to everyone after they are complete.
- R.Ludlow: Will you ask the board to approve the alternatives for this whole thing?
- A.Holesko Answer: The Board is going to see these alternatives on July 9, 2018.
- R.Ludlow Follow-Up Question: They are going to vote on these alternatives?
- A.Holesko Answer: Yes they will vote on the preferred alternative and give us the guidance that we need to create the CIP.
- V.Ramos Question: Counting the acreage the Airport now has with the acreage that they may have, will that bring the total acreage to a range of 1,500 to 1,600 acres?
- A.Holesko Answer: Much higher than that. 2,500?
- E.Wuellner: 2,200 acres at least, if A, B and C are acquired from the SJRWMD.
- A.Holesko Follow-Up: A, B, C are an additional 600 acres.
- General Question: What is the area right below A?
- A.Holesko Answer: Private land owner that may remain private.

No further questions.

Meeting Adjourned: 12:50 pm

Submitted by,



Christopher L. Johnson
Airport Planner
Passero Associates

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #6

December 13, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Master Plan Process
2. Review of Airport Functional Areas
3. AOA Functional Area Development
4. South GA Functional Area Development
5. Main Terminal Functional Area Development
6. East Corporate Area Functional Area Development
7. West Airport Area (NFR-B) Functional Area Development
8. Airport Grant Funds (FAA, FDOT, SIS, etc.)
9. Next Steps
 - a. Annual Cash Flow Analysis (Years 1-5)
 - b. Final Plan Documentation and Presentations
 - c. Agency Approvals

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #6 Minutes

December 13, 2018

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

This MPAC meeting presented the preferred development alternatives, capital improvement projects and magnitude of costs for improvements within the Northeast Florida Regional Airport (SGJ) Master Plan.

Meeting Commenced: 11:17 am

- Andrew Holesko, Passero Associates, commenced the meeting with introductions and a brief overview of the Agenda.
- A. Holesko gave a brief overview of the airport focus areas around SGJ, as follows:
 - East Corporate Area – Located east of Runway 13-31
 - Airport Operating Area (AOA) – Runways 13-31, 2-20 and 6-24, Taxiways A-B-D-F-G
 - South GA Area – Located on the southern end of the Airport, serving as the main base of general aviation (GA) facilities and operations
 - Main Terminal Area – Located on the western portion of the Airport, east of U.S. Highway 1, serving as the main base of operations for the fixed base operator and airline terminal
 - West Area – Also referred to as NFR-B, which includes airport-owned land (and other land) west of U.S. Highway 1
- A. Holesko presented and reviewed each preferred alternative, by focus area, and provided estimated capital improvement costs of potential projects that may occur throughout the planning period.
- A. Holesko also stated that a full size (24" x 36") draft of the ALP drawings and 11" x 17" draft of the 20-year capital improvement plan (CIP) was available to anyone that wanted to review additional details. Copies of the draft ALP drawings are available upon request.
- Project need vs. project funding
 - a. Projects shown on the ALP are not to be thought of as a required "To-Do List." They should be considered more as an "Opportunity List," where projects may (and will) be developed, as needed.
 - b. Estimated project costs for all conceptual projects as shown on the ALP is almost half a billion dollars (i.e., \$485 million).
 - c. Note: That does not mean that the Airport Authority will commit to spend that amount on airport projects in the next 20 to 30 years. It simply means that there is a

listing of capital improvement opportunities on land owned (and adjacent to) the Airport Authority, if aviation and commercial demand occurs and warrants development. The listing of projects is also highly contingent on the availability of FAA and FDOT grant funding (and other funding) that would be needed to fund the proposed improvements.

- M. Glasgow Question: Is there a list of priorities and will the projects be prioritized?
 - A. Holesko Answer: Yes, there are. The plan will also pay close attention to identifying what projects may occur over the next five years with grant funding and airport authority funding. The plan won't identify exactly what will happen past CIP year 5, but will show many projects on the ALP drawings and CIP to support development in the future, past CIP year 5, when project needs arise.

Airfield Operating Area

1. Different from previous versions of the NFRA master plan, the center sections of the airfield are not expected to significantly change, with the exception of Taxiway D, the extension of Runway 6-24 to the east and the development of additional taxilanes. This may not happen within the next five years. Runway 6-24 extension will occur if there is truly a need for an extension to the crosswind runway in the future.
2. Focus on the CIP in this area is the rehabilitation and improvement of existing facilities.
3. **21 projects were identified with an estimated cost of \$37 million to improve and rehabilitate the existing airfield facilities.**

South GA

1. Development in this area focused on additional hangars and commercial development, extending from the ARFF building, through the t-hangar area and conference center to U.S. 1.
2. **29 total projects were identified in the South GA area with an estimated cost of \$57 million.**

Main Terminal Area

1. Proposed multi-use access improvements are shown, leading to U.S. 1, with signalized intersection and potential development of the airline terminal building, including additional parking.
2. Possible partnering with Northrup Grumman to establish an additional, improved access point through airport lands to U.S. 1.
3. **13 total projects were identified with an estimated cost of \$21 million.**

East Corporate Area

1. Expansion of Northrup Grumman or planning provisions to accommodate another large Maintenance-Repair-Overhaul (MRO) facility.

2. Possibility of relocating the FBO from the west side of the airfield to the east, or support an additional FBO.
3. Additional corporate hangars, with improved and expanded ground access roadway system.
4. **8 total projects were identified with an estimated cost of \$64 million.**

West Area (NFR-B)

This development area is most conceptual in nature, as much of the land in this area is relatively undeveloped. Potential projects identified for this area include:

1. Roadway Improvements: The preferred roadway alternatives that are supported within (or adjacent) to NFR-B lands are proposed in the following 3 areas:
 - a. Construction of new S.R. 313;
 - b. Improvements to Big Oak Rd. with improved access from U.S. 1 to new S.R. 313;
 - c. Extension of Big Oak Road from S.R. 313 to I-95; and,
 - d. New access to I-95 to S.R. 16 from new S.R. 313
 - e. These roadway improvements will serve the Airport (and adjacent development) with significantly better roadway access between U.S. 1, new S.R. 313 and I-95.
2. Additional four tracts of land (792 total acres) owned by the St. Johns River Water Management District (SJRWMD) for potential acquisition.
3. NFR-B Area development break down:
 - a. Area B1: Approximately 316 acres of land for potential Manufacturing/Warehouse with Rail access (5 proposed sidetracks) to the F.E.C. rail line.
 - b. Area B2: Approximately 105 acres of land for MRO development with potential rail access to the F.E.C. system:
 - At-grade taxiway crossing across U.S. 1 from the airfield (north end of Taxiway B) to NFR-B lands, with limited access and assisted crossing over U.S. 1 (possibly at night or in the early mornings). Note: Additional, detailed coordination will be needed on this topic.
 - This proposed MRO development could generate 2,000+ jobs, providing positive economic impact to St. Johns County and the state of Florida.
 - c. Area B3: Approximately 241 total acres of land for Public/Multi-Use Development:
 - Proposed Parallel Runway 13R-31L will be used as a general aviation training runway only, reducing operational demand on the current primary runway 13-31. Note: Previous master plans also proposed additional runways on NFR-B lands, with differing sizes, wind orientation and proposed uses.
 - One area of Big Oak Road is proposed to support a multi-use facility, capable to operate as a hurricane/emergency response staging area for FPL, including buildings and supporting infrastructure (such as emergency power and bathroom / showers facilities). Because FPL will only need this staging area during hurricanes and emergency response periods, this site can be developed to support many other public uses (i.e., outdoor recreational and civic activities) as well.
 - A. Holesko shows proposed video rendering of the FPL site, with narration.

- M. Glasgow Question – Would Authority donate the land for hurricane response and outdoor recreational activity?
 - A.Holesko Response – Authority will not (cannot) donate the land, it will still belong to the Authority. Authority may support FPL with sewer, water and restroom. The extension of sewer and water along Big Oak Rd will assist with any development along Big Oak Rd.
 - A. Masson Comment – I’d like to back up to the B2 area. I didn’t hear any emphasis on drones. This will be a great place to take that on, especially for creating jobs.
 - A.Holesko Response– That use and other special event uses can occur in B3 where you can focus on the use of a small runway area. However, under today’s regulations, drone uses near airports are tightly regulated and discouraged.
 - N. Harwell Comment – Newer drones have fencing software that will protect airport airspace.
 - A. Masson Comment – Drones can fly flight paths.
 - A.Holesko Response– That is correct. But as commercial drone operators licensed by the FAA, we cannot fly our drones at SGJ or near SGJ.
 - A. Masson Comment – Were talking future and I think drones should be something that should be considered. It would be premature to discount them.
 - A.Holesko Response – Understood. I agree and believe drones will be an interactive part of the U.S. aviation system in the future.
 - V. Ramos Question – In that space for FPL, are you thinking more of a land lease to FPL or other corporate development? Will there need to be an agreement with FPL for other uses when not used for hurricane or emergency response?
 - E.Wuellner Response– It is more likely to be user-driven. The agreement will be activated based on need and a shared financial commitment.
 - R. Ludlow Question – How many acres for FPL site?
 - C. Johnson Response – 33 Acres.
- d. Area B4: Approximately 106 acres of land for a potential Water/Waste-water Treatment Site.
 - Potential acquisition of SJRWMD surplus land (244 acres)
- e. Area B5: Approximately 12 acres of land for Multi-Modal Development
 - Site for potential ride share (Uber, Lyft), rental car, commuter and passenger rail.
 - Note: Only a preliminary concept is shown on the ALP to depict the location of this development in relation to the Airport. Again, actual demand, an operator,

and a commitment of funding would be needed before any development of this type would advance.

4. Development on NFR-B will have the highest development costs – **22 possible projects were identified with an estimated cost of \$300 million. The most significant projects would be the new MRO, the taxiway crossing on US1, and the extension of S.R. 313 to I-95.**

Project Funding

1. How will projects be financed?

- a. FAA AIP Program

- Entitlement funding that is provided to the Airport each year.
- Discretionary funding that the Airport can compete for in the state of Florida.
- Standard Project Funding Match: 90% FAA; FDOT 5%; Airport Authority 5%

- b. State Funding

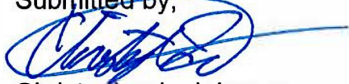
- FDOT Aviation
 - State of Florida offers 5% grant match to FAA-funded projects.
 - Revenue Producing projects (non-FAA projects) can be funded up to a 50%-50% match with the airport.
 - Special programs that can provide up to 100% project funding.
- FDOT Strategic Intermodal Systems (SIS)
 - NFRA is not currently a SIS member facility, but there are a group of airports in Florida that are. There may be a modification to the program to include SGJ in the future, which would make the Airport eligible for SIS funding assistance.
- Other Project Funding
 - Community Development Block Grant (CDBG) helps municipalities with utility projects. Match will be 75%-25%.
 - Private Commercial Funding where private developers fund projects on their own. Some existing hangars at SGJ are 100% privately funded, where land (only) is leased from the authority.
 - Bond/Debt Financing for major projects such as wastewater/water treatment plants and large MRO facilities that could generate jobs in the County. Those types of projects could be eligible for bond financing should there be a need. However, the authority has not traditionally pursued this manner of project finance.

- A. Holesko ended the presentation and opened a general Q & A period.
 - H. Green Question – On the Water Management District Surplus, how would that work? Are they up to selling the land?
 - A.Holesko Response – Our understanding is that the Water Management District's first choice is to sell or transfer the land to another public entity. The second choice may be to sell the land to a private entity.

- E.Wuellner Follow-Up – The property that has been described there has already been declared surplus.
- H. Green Question – Is this environmental sensitive land?
 - A. Holesko Response – A large percentage of the land is wetlands.
 - Ed Wuellner Follow-Up – If the property is conveyed to someone like the Authority, it's fee simple does not include encumbrances such as conservation easements or other restrictions.
 - A.Holesko Follow-Up – The Authority will not buy lands that come with conservation restrictions.
- H. Green – So the Water Management District has said that this land is surplus?
 - E. Wuellner Response– Yes. I think the determination on their part came after looking at what is likely to be the S.R. 313 Corridor, and the fact that it would cut through a piece of the property.

No Further Questions, MPAC meeting 6 ended at approximately 1pm.

Submitted by,



Christopher L. Johnson
Airport Planner II
Passero Associates

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #7

June 26, 2019

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

1. Master Plan Process
2. Review of Functional Areas
3. Master Plan Chapter Overview (Chapter 1-8)
4. Plan Implementation (Chapter 9)
 - a. Historical Revenue, Expenses and CIP
 - b. Projected Revenue, Expenses and CIP
 - c. Other Projects (Partnerships with Others)
 - d. Feasibility Conclusion
5. Next Steps
 - a. Plan Documentation and Presentations
 - b. Agency Review and Approvals

Airport Master Plan Update

Master Plan Advisory Committee (MPAC)

Meeting #7 Minutes

June 26, 2019

Airport Conference Center, 4730 Casa Cola Way, St. Augustine, FL 32095, 2nd Floor

This MPAC meeting presented highlights from the entire master plan document, updated ALP and revised magnitude of costs for improvements within the Northeast Florida Regional Airport (SGJ) Master Plan.

Meeting Commenced: 11:15 am

- Andrew Holesko, Passero Associates, commenced the meeting with introductions and a brief overview of the Agenda and made everyone aware of the availability of hard copies of the draft master plan document. PDFs were provided to each MPAC member via ShareFile prior to the meeting.
- A. Holesko gave a brief overview of the airport focus areas around SGJ, which are as follows:
 - East Corporate Area – Located east of Runway 13-31.
 - Airport Operating Area (AOA) – Runways 13-31, 2-20 and 6-24, Taxiways A-B-D-F-G.
 - South GA Area – Located on the southern end of the Airport, serving as the main base of general aviation (GA) facilities and operations.
 - Main Terminal Area – Located on the western portion of the Airport, east of U.S. Highway 1, serving as the main base of operations for the fixed-based operator and airline terminal.
 - West Area – Also referred to as NFR-B, which includes airport-owned land (and other land) west of U.S. Highway 1.
- A. Holesko presented highlights from each chapter within the master plan. Projects shown on the ALP are not to be thought of as a required “To-Do List.” They should be considered more as an “Opportunity List,” where projects may be developed, as needed.
 - Chapter 1 Introduction, Goals and Objectives
 - SGJ, like most GA airports in the U.S., was once used by the military during WWII, before returning to a civil use airport.
 - Goals were established with the MPAC and were used as a guide throughout the project. These goals were as follows:
 1. Provide a **safe** airport facility by meeting design standards;
 2. Provide a **secure** airfield, especially along the east side of the Airport;
 3. Provide **sufficient capacity** to accommodate aircraft users and development;
 4. Provide for **multi-modal considerations** tying the Airport to lands west of U.S. Highway 1, and;

5. Ensure that Airport development is **financially sound**.

- Chapter 2 Inventory of Existing Conditions
 - This chapter provides an overview of the existing facilities at the Airport.
 - Overall, the Airport is in very good shape.
 - Runway 13-31 will remain at approximately 8,001 feet. This length is sufficient for existing airport operations.
- Chapter 3 Forecast of Aeronautical Demand
 - Forecast concluded that there is a potential for 100 additional based aircraft at the Airport with 50,000 additional GA Operations. The forecast also concluded that there is a potential for 60,000 additional enplanements.
- Chapter 4 Demand/Capacity Analysis & Facility Requirements
 - Annual Service Volume (ASV) measures airfield capacity where in the event that capacity reaches 70% (approximately 200,000 operations), an additional runway to relieve the capacity needs to be explored. Based on analysis, the Airport (SGJ) has an ASV above 70% and therefore is operating at its practical capacity.
Solution: Explore additional runway alternatives on NFR-B.
 - Taxiway D needs to be relocated further from Runway 6-24 to meet standards.
 - FAA identified “Hot Spot” at intersection of Runway 2-20 and Taxiway B2 needs to be addressed.
 - Easements need to be acquired on lands west of U.S. 1 that are within the Runways 2 and 6 RPZs where trees and non-conforming land uses are present.
 - Implementing a non-precision instrument approach if demand permits on Runway 6-24.
 - Provide technological security measures (i.e., surveillance radar to identify people, vehicles or animals entering the airfield environment) to secure the eastern portion of the Airport near the Tolomato River. This environment is too corrosive for fencing.
 - Future ARFF equipment and facilities as needed.
 - GA Facilities Plan shows the ability to develop an additional 70 T-Hangars and 11 Conventional Hangars in the South GA area, and 12 Conventional Hangars in the East Corporate area.
 - Ground access improvements in the East Corporate and South GA areas, and aircraft parking improvements in the South GA, East Corporate and Main Terminal areas.
 - Proposal to fix apron pavement in front of the Main Terminal area.
 - Proposal to implement signalization equipment at the intersection of U.S. 1 so arriving and departing passengers from the terminal, FBO and Northrup Grumman can have new and improved access to U.S. 1.
 - H.Green Question: How do you define Conventional Hangar?
 - A.Holesko Answer: Box/Corporate Conventional Hangar. Typically a hangar the size of 60' x 60' or 100' x 100'. It really depends on what someone wants to put inside the hangar. It also depends on the constraints associated with land development.
 - Numerous multi-modal opportunities on NFR-B, on west of U.S. 1. It is important for the Airport to become a Strategic Intermodal System (SIS) facility. FDOT is able

to provide funding for airports that are classified as SIS facilities. The Airport is not eligible to become a SIS facility today, however there is an opportunity for the Airport to become a SIS facility in the future. This will provide additional funding opportunities for the Airport.

- V. Ramos Question: What is a SIS?
- A.Holesko Answer: SIS is the Strategic Intermodal System of the state of Florida. Inside of this program, the DOT identifies each specific facility. I-95 is one of those facilities, for example. SGJ is not a SIS facility yet because there is not enough cargo tonnage or passenger enplanements to meet the needs of the basic SIS facility criteria.

- Chapter 5: Airport Development Alternatives

- Many alternatives were presented in previous meetings. It should be noted that the preferred alternative presented to the MPAC members was conceptual.
- The preferred alternative shows the following:
 - a. conceptual runway extension to Runway 6.
 - b. Taxiway D reconstruction.
 - c. ARFF expansion.
 - d. Non-Aviation development along U.S. 1, and adjacent to existing flight school.
 - e. Second FBO, or relocated FBO within the East Corporate Area.
 - f. Second MRO within the East Corporate Area.
 - g. T-Hangars, Box Hangars within the South GA and East Corporate Areas
 - h. Taxiway crossover U.S. 1.
 - i. Parallel tracks along the F.E.C. rail line. This is conceptual, and the Airport is not going to build tracks along the F.E.C. unless there is someone who would like to partner with the Airport that needs additional infrastructure along U.S. 1.
 - j. Big Oak corridor connecting to S.R. 313, and extended out to I-95 and S.R. 16.

- Chapter 6: Sustainability

- Six sustainable goals and initiatives were identified. These goals are as follows:
 - 1. Energy Conservation;
 - 2. Air Quality;
 - 3. Natural Resource Management;
 - 4. Water Quality and Conservation;
 - 5. Materials and Waste Management, and;
 - 6. Airport Connectivity.
- The Sustainability Plan in place was established prior to this master plan update.
- This master plan update revisited the sustainability plan to identify which goals were met, ongoing, or no longer a goal of the Airport.
- Airport has met a lot of the goals established in the Sustainability Plan.
- The Airport has an agreement with Republic Services for their recycling program (i.e., single-stream).

- Chapter 7: Environmental Overview

- This chapter looks at potential environmental hazard areas where mitigation measures need to be identified. This is not an Environmental Assessment (EA).

- The biggest challenge that the Airport faces with development is water (i.e., flood plains, wetlands). Being sensitive to wetlands and floodplains is a normal part of future projects.
- Chapter 8: Airport Layout Plans
 - Illustrates all potential projects identified in the master plan.
 - FAA requirement that the ALP be kept up-to-date with potential projects in order to receive funding assistance.
 - One large ALP set was made available during the meeting for the MPAC members to view.
- Chapter 9: Implementation Plan
 - The Plan identifies the feasibility of the implementation of capital improvements at the Airport.
 - How the Airport has funded improvements in the past, and how they may fund improvements in the future.
 - Airport financials from the last five years (2014-2018):
 - a. The Airport had between \$4.5 - \$4.9 Million in revenue.
 - b. The Airport spent between \$3.1 - \$3.6 Million on operations only.
 - c. This left a cash balance ranging from \$1.0 - \$1.5 Million.
 - Because of how projects are funded by the FAA, \$1.0 Million from the Airport has the ability to fund a project because the Airport will only pay a 5% share of a grant from the FAA.
 - H.Green Question: How big is the Federal Pot?
 - A.Holesko Answer: The Federal pot this year is \$3.9 Billion.
 - C.Blow Question: With the Army Corps of Engineers, they will take a chunk of money and split up for small harbors and small sized needs so to speak. Does the FAA have a category for different types of airports?
 - A.Holesko Answer: They break it up in four ways:
 1. Small entitlement funding to General Aviation airports that is \$150,000 per year.
 2. Entitlement funding to commercial services airports depending on passenger levels that range from \$1 Million – \$20 Million+ per year.
 3. Discretionary funding that all airports (i.e., GA, Commercial) can compete for.
 4. Small Discretionary (Apportionment) funding for GA airports only.
 - E.Wuellner Follow-Up: Projects don't always fit in fiscal years. Some projects are funded over multiple years, and in some cases we have borrowed from reserves and replenished the money in later years.
 - A.Holesko Follow-Up: We will also look at multiple grant opportunities for funding projects that are not just FAA or FDOT grants.
 - Looking at projected revenue and expenses, we looked at the five year trend out into the future (2020-2026):
 - a. Operating Revenue of \$4.8 - \$5.3 Million.
 - b. Expenses tracking between \$3.5 - \$3.9 Million.
 - c. Which generates a cash balance between \$1.2 - \$1.4 Million each year for Capital Improvements within the short-term.
 - Projects underway in 2019 include:

- a. Construction of T-Hangar units where there will be 47 units occupied by 2020 (23 this year and 24 to follow).
 - b. Transient (FBO) Apron, T-Hangars B, C, D and E.
 - c. Security and Access improvements (i.e., fencing and gates) occurring on Estrella, in which the Airport Surveillance Radar project will follow in the near future.
 - d. Taxiway D Reconstruction project will get started by 2020. The Airport will receive a FAA grant soon for this project.
 - e. There is about \$11 Million in active improvements at the Airport right now.
 - Feasibility: CIP in the first 6 years is \$34 Million, which appears to be a big number, but the airport has exceeded \$5 - \$10 Million each year with projects. In the sixth year revenue and expense analysis, there was a negative balance of \$3 Million.
 - Within the first five years, the projects listed in the CIP include typical maintenance projects that need to occur at the Airport.
 - \$51.6 Million for the intermediate period within the CIP. This is conceptual, as future projects can change between now and then. The projects listed within the intermediate period will get done, whether they move forward or backwards, or we get additional funds.
 - Looking long term, even though we say the Airport Master Plan is a 20 year plan, the things we show extend well beyond 20 years. This comes out to be \$109 Million.
 - Supporting projects (partnership with others) has a price of \$500 Million. That is for a potential new FBO and MRO within the East Corporate area, crossover taxiway over U.S. 1 to a new potential facility similar to a MRO; and potential I-95 Connector (Big Oak extension). These are big dollar items that need to be listed, but the Airport is not going to program or spend \$500 Million without partnership with other entities.
- A. Holesko ended the presentation and started the Q & A period.
 - C.Blow Question: If you had a great project and the grant opportunities don't line up, could you borrow money?
 - E.Wuellner Response: We haven't borrowed in a long time. Primary reason is when managing cash this would be lost money.
 - R.Olson Question – Why wouldn't Terminal Access road be funded through the FAA?
 - A.Holesko Response – It should be funded through the FAA.
 - E.Wuellner Follow-Up – We have to do the exercise with the FAA to prove that the project is fundable to receive a grant for the project.
 - R.Olson Follow-Up: So all the projects listed have been confirmed to be fundable by the FAA?
 - E.Wuellner Response: In the short-term, yes. Terminal buildings and access roads are difficult. It depends on how they are used.
 - H.Green Question: What determines project funding at this Airport versus another airport.
 - E.Wuellner Response: It has to do with the characteristics of the airport.

- R.Olson Question: Can we further discuss funding the Multi-Use Facility Phase 1? Is that infrastructure for the site?
 - A.Holesko Answer: That project is still a conceptual project that we looked at to figure out how an emergency response agency, such as FPL, can operate on Airport-owned property along Big Oak Road, with infrastructure. The Airport will be in partnership with whoever occupies the property.

No Further Questions or comments, MPAC meeting 7 ended at approximately 12:10 pm.

Submitted by,



Christopher L. Johnson
Airport Planner II
Passero Associates

ST. AUGUSTINE - ST. JOHNS COUNTY AIRPORT AUTHORITY

Regular Meeting

held in The Conference Center, Meeting Room B

4730 Casa Cola Way

St. Augustine, Florida

on Monday, June 8, 2020

from 4:00 p.m. to 5:32 p.m.

* * * * *

BOARD MEMBERS PRESENT:

SUZANNE GREEN, Chairman
STEVE KIRA
JUSTIN MIRGEAUX

BOARD MEMBERS ABSENT:

RANDY BRUNSON
BRUCE MAGUIRE

* * * * *

ALSO PRESENT:

DOUGLAS N. BURNETT, Esquire, St. Johns Law Group,
104 Sea Grove Main Street, St. Augustine, FL, 32080,
Attorney for Airport Authority.

EDWARD WUELLNER, A.A.E., Executive Director.

* * * * *

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1 CHAIRMAN GREEN: No.

2 MR. WUELLNER: Thank you.

3 AIRPORT MASTER PLAN ADOPTION

4 MR. WUELLNER: We -- the next item we've
5 already addressed and --

6 CHAIRMAN GREEN: We have Mr. Holesko.

7 MR. WUELLNER: Mr. Holesko.

8 MR. HOLESKO: Good afternoon, everybody.

9 Two things. First of all, glad to be back to
10 work and see everybody here back to work. Even
11 though we were down to our skeleton crew here down
12 to as low as one during the last few months, we did
13 stay open and the airport did a great job
14 supporting us, even though we just had one or two
15 people here working for the past few months. So
16 that makes us happy.

17 The second thing is simply to be here making
18 the final master plan presentation, we want to jump
19 up and down because it's taken us -- taken us a
20 long time to get here.

21 Ed's been -- Ed's been honest and as well as
22 the FAA and the DOT. We're -- you know, Chris
23 Johnson and I were -- Chris was your primary
24 planner in the back.

25 We submitted the final documents to the FAA

1 June of 2019. So it's taken us exactly one year to
2 get the final i's dotted, t's crossed, and some
3 comments with the FAA to get to where we need to
4 be. But we are here at the end.

5 Not a whole lot to talk about. We're here at
6 the final -- the final process. We met with our
7 advisory committee numerous times. We have written
8 correspondence with both the FAA and DOT. We're
9 ready to get ourselves final.

10 But we are going to review -- quick review of
11 the forecast a little bit about the airport
12 capacity, which is important for the airport; look
13 a little bit at the projects, talk about the CIP a
14 little bit, and then get any questions and comments
15 from you so we can bang the gavel and be done and
16 submit the final document to the FAA and the DOT.

17 I just want to talk about the forecast. We
18 show based aircraft increasing from 216 to 322
19 going way out past the year 2035, operations at
20 141,000 back in 2016 out to just about 200,000 in
21 2036, and passenger enplanements back in 2016
22 28,000 going up to around 94,000.

23 We all know that there is not commercial
24 service here today, but one of the things that we
25 want you to know is that the terminal building the

1 way it is right now can easily handle and
2 officially handle 100,000 passengers per year.
3 That's -- that's it sits today. So if the time
4 comes when passenger service resumes, the terminal
5 is ready to do that. Cindy, could you go back one
6 slide? Thank you.

7 One other thing that I want to note is on the
8 operations page. We have our ASV, which is our
9 annual service volume, which is really the
10 practical capacity of the airport in a 365-day
11 period to accommodate operations.

12 In the year 2016, it was at 71 percent. In
13 the year 2036, it's at 100 percent. That simply
14 means that something's got to happen between now
15 and the year 2036 to make the airfield more
16 efficient and make it so I can -- it can take
17 additional aircraft, and we'll look at some of
18 those in a second.

19 We broke down the operational areas of the
20 east corporate, the actual airfield itself, MRO
21 obviously, the main terminal area, and South GA.
22 That's how we described everything in the planning
23 process.

24 The proposed improvements primarily in the
25 South GA, first of all, Runway 13/31 is pretty much

1 going to stay the way it is for the -- for the
2 planning period. It doesn't need to be extended.
3 It meets design standards. It's in good shape.
4 It's been rehabilitated and it has full parallel
5 Taxiway Bravo now. So there's not a lot to be done
6 with the primary runway.

7 Runway 6/24, there's actually a proposed
8 extension shown to the east, and I want to talk
9 about that for a second because we aren't saying
10 that 6/24 is going to extend to the east.

11 All the projects shown on the airport
12 master plan are basically shown in case the
13 Airport Authority ever wants to do them, they're on
14 the plan. It doesn't mean that you will do them.
15 But if they're not shown on the plan, then you
16 can't get money from the FAA or FDOT to do them.
17 So you show them in case the true demand ever comes
18 and you want to do it.

19 Extending Runway 6/24 to the east would be one
20 of those projects. It is not being proposed yet,
21 but some day you might want to extend 6/24 because
22 that could take aircraft operations off of 13/31
23 and put more of them onto 6/24.

24 The actual terminal area is very active. D
25 and E are already in place. B and C are being

1 proposed. There's lots more hangars. There's the
2 addition of the conference center. There's
3 commercial development on U.S. 1. There's actually
4 a multimodal center, if it ever came to fruition,
5 across from the commercial terminal, and there is
6 additional aircraft parking and terminal
7 improvements shown in the terminal area adjacent to
8 the building.

9 Over in east corporate, you were talking
10 earlier today about this exact parcel which is
11 undeveloped between the Grumman hangar and the hush
12 house. There is the ability for a large-scale
13 hangar development. There's additional ability for
14 corporate hangars or a new FBO or a relocated FBO
15 and large-scale corporate hangar development and
16 ground access improvements. All that could happen.

17 Crossing over U.S. 1 is something we looked at
18 just conceptually. If the time ever came and there
19 was an interest for another large-scale MRO, you
20 could actually go to the other side of U.S. 1, very
21 very limited crossing over U.S. 1, to move aircraft
22 over to the west side. Nothing related to taxi
23 operations, but just simply being able to use
24 airport land over there if there was a demand and
25 an interest in doing something really big on the

1 other side of U.S. 1.

2 This is how much land the airport owns on the
3 west side of U.S. 1 right now. So you already have
4 a lot of land over there and there is opportunity
5 to do development on the west. You see how small
6 the airfield is compared to the green areas on the
7 west.

8 This graphic shows primarily ground access
9 improvements all the way out to I-95. A lot of the
10 improvements are very ground access focused.
11 Here's the airport and the runway. This is
12 Big Oak Road, which would be improved between
13 obviously U.S. 1 and future 313.

14 This is the 313 corridor, and there's a
15 corridor that goes all the way out through state
16 land which can go and access I-95. It does fit in
17 between the World Golf Village and the State Route
18 16 exit.

19 The other thing that is important to note on
20 this graphic is this little guy right here
21 (indicating). Previous master plans have shown an
22 additional runway being planned for the airport.

23 We had shown a parallel Runway 13/31 all the
24 way over here west of U.S. 1 to operate as an
25 independent runway just to take flight training

1 operations basically from the area where we're
2 sitting right now, get them off of the big runway
3 on 13/31, and get them way over there to the west.
4 That's one of the ways to make the capacity ratios
5 at the airport better, because you have a little
6 training runway over there to the west.

7 We looked at three different types of terms
8 for the CIP. It was basically \$33.9 million of
9 projects in the first six years, \$51.6 in the five
10 years after that, and \$109 million which makes the
11 total CIP about \$195 million or \$10 million a year.
12 That sounds like a lot of funds, but I was just
13 sitting there in the back adding up how much
14 projects you have underway at the airport right
15 now.

16 With the terminal apron, Hangars B and C and
17 Taxiway D, you have \$7 to \$8 million under
18 construction simultaneously right now. It's not an
19 unrealistic amount at all to think that the airport
20 could construct somewhere between \$5 and \$10
21 million. But you'll only do it if the demand is
22 there to support the projects.

23 The airport generates between \$1.1 and \$1.5
24 million a year for its CIP match. There's lots of
25 other areas where grant funds would come; FAA,

1 FDOT, and other ways to implement the master plan.
2 And the supporting projects, the partnership with
3 others, if the things happened that are shown on
4 the master plan, we're talking big MRO development,
5 corridor extensions all the way out to I-95, you're
6 looking at \$500 million in funds from other sources
7 not Airport Authority.

8 So that summary is just simply that the CIP is
9 feasible and has things on it that the airport does
10 need and you'll take them when actual demand
11 warrants that they get built.

12 In terms of the final approval, here we are
13 today. We're going to submit the final documents
14 to FAA and FDOT, provide copies to your web site
15 for public access, and the process will be complete
16 unless you have some other questions for me today.

17 CHAIRMAN GREEN: Okay. Thank you. Board
18 comments?

19 MR. KIRA: What's the date for that last line
20 there?

21 CHAIRMAN GREEN: After submission to...

22 MR. HOLESKO: Chris? I know Chris is going to
23 jump up and down. He wants the process to be
24 complete, too.

25 June of 2020, that's for sure. But literally

1 I think that we'd get everything signed up and gone
2 within -- within a week. It will be live and be
3 complete in a week.

4 MR. WUELLNER: It does not require additional
5 approval at this point --

6 MR. HOLESKO: Correct. Yes.

7 MR. WUELLNER: -- it's just simply submittal.

8 MR. HOLESKO: Exactly. It's just getting
9 things signed and sent. The truth is, when you
10 bang the gavel today, in essence the
11 master planning process is done.

12 MR. KIRA: And we get a copy of -- we get a
13 book?

14 MR. HOLESKO: You're going -- you're going to
15 get two books. There's a Volume 1 and Volume 2.
16 It's just simply the technical report is one -- is
17 one document and the appendices are the other.
18 That's it.

19 MR. WUELLNER: The drafts are on the web site
20 as of -- Friday?

21 MR. HOLESKO: Friday.

22 MR. WUELLNER: Thursday or Friday.

23 MR. HOLESKO: And it's a big book. It's 449
24 pages.

25 MR. WUELLNER: Yeah.

1 MR. HOLESKO: That's with all --

2 MR. WUELLNER: Don't hit "Print" unless you're
3 serious about it.

4 MR. HOLESKO: That's right.

5 MR. WUELLNER: It just keeps going.

6 MR. HOLESKO: Don't print unless you choose
7 double-sided and you're ready to do something with
8 the big book, which is why we're separating into
9 the two volumes.

10 MR. WUELLNER: It will remain on the web site.

11 MR. KIRA: If we -- if we track to the last
12 master plan, which is in my estimation very very
13 well done and tracked extremely close to the
14 numbers -- I think it's like 80, 90 percent
15 complete, okay -- this is a very good
16 forward-looking master plan. I just hope that
17 it -- we can accomplish this plan.

18 MR. HOLESKO: Thank you. You know, it's
19 interesting that some of the projects that are
20 actually -- are shown conceptual from two years
21 ago, they're actually underway.

22 Taxiway D is one of them. We, "we" being the
23 Authority and Passero, didn't know necessarily know
24 that the FAA would fund that relocation and
25 widening of Taxiway D. So it's shown as a future

1 project on the master plan, yet it's under contract
2 or it's going to be shortly and by 2020-2021, we're
3 going to be using Taxiway D relocated and widened.

4 MR. KIRA: Right.

5 MR. WUELLNER: Well, and conversely, you've
6 just got to remember, too, projects aren't eligible
7 unless they're in the master plan. So that it's
8 designed to track reasonably well in the big
9 picture.

10 CHAIRMAN GREEN: Any further board comment?

11 (None.)

12 CHAIRMAN GREEN: Public comment? Reba?

13 MS. LUDLOW: No. I asked Chris if we got
14 updates for our binders and he said yes.

15 CHAIRMAN GREEN: Oh, good. Mr. Tucker?

16 (None.)

17 CHAIRMAN GREEN: All right. Back to the
18 board. Those of us that attended those master plan
19 meetings, very well done.

20 MR. HOLESKO: Thank you.

21 CHAIRMAN GREEN: All right. So I guess we
22 need a motion to allow Passero to go forward to
23 submit our final documents, correct?

24 MR. WUELLNER: We need to adopt the
25 master plan, yes, and then that will trigger the --

1 CHAIRMAN GREEN: Submission?

2 MR. WUELLNER: -- submissions.

3 CHAIRMAN GREEN: Okay. Motion?

4 MR. KIRA: I move we adopt the master plan.

5 MR. MIRGEAUX: Second.

6 CHAIRMAN GREEN: Any further board discussion?

7 (None.)

8 CHAIRMAN GREEN: All in favor?

9 MR. KIRA: Aye.

10 MR. MIRGEAUX: Aye.

11 CHAIRMAN GREEN: Aye. Any opposed?

12 (None.)

13 CHAIRMAN GREEN: No? All right. A lot of
14 work.

15 MR. KIRA: Took a while.

16 CHAIRMAN GREEN: A lot of work.

17 PUBLIC COMMENT - GENERAL

18 CHAIRMAN GREEN: Okay. Any other public
19 comment? That's where I am, right?

20 MR. WUELLNER: Uh-huh.

21 CHAIRMAN GREEN: Any other public comment?

22 MS. LUDLOW: Is this the end?

23 CHAIRMAN GREEN: This is the end.

24 MS. LUDLOW: Got it. Wait, Sam.

25 MR. BARRESI: No, I'm leaving.

Appendix B

Grant History

Fiscal Year	Service	State	Location	Airport	Grant	State AIP	Federal AIP	Work Description
2006	R	FL	SGJ	Northeast	I21		\$4,407,865	Construct Apron , Construct Taxiway
2008	R	FL	SGJ	Northeast	I22		\$111,240	Widen Taxiway
2008	R	FL	SGJ	Northeast	I23		\$703,000	Conduct Environmental Study
2009	P	FL	SGJ	Northeast	I26		\$218,200	Identify the airport's environmental footprint
2009	P	FL	SGJ	Northeast	I25		\$675,379	Construct Aircraft Rescue & Fire Fighting Building , Rehabilitate Runway - 13/31
2009	P	FL	SGJ	Northeast	I24		\$2,576,975	Rehabilitate Taxiway
2010	P	FL	SGJ	Northeast	I28		\$68,252	Wildlife Hazard Assessments
2010	P	FL	SGJ	Northeast	I29		\$889,066	Construct Aircraft Rescue & Fire Fighting Building
2010	P	FL	SGJ	Northeast	I30		\$4,403,205	Construct Runway Safety Area - 13/31
2010	P	FL	SGJ	Northeast	I27		\$6,488,125	Rehabilitate Runway - 13/31
2011	GA	FL	SGJ	Northeast	I31		\$6,353,692	Improve Runway Safety Area - 13/31
2012	GA	FL	SGJ	Northeast	I32		\$231,750	Conduct Miscellaneous Study , Rehabilitate Taxiway
2013	GA	FL	SGJ	Northeast	I33		\$1,205,222	Improve Airport Drainage , Widen Taxiway
2014	GA	FL	SGJ	Northeast	I34		\$331,839	Acquire Aircraft Rescue & Fire Fighting Vehicle
2014	GA	FL	SGJ	Northeast	I35		\$2,662,974	Rehabilitate Taxiway
2015	GA	FL	SGJ	Northeast	I36		\$150,000	Rehabilitate Runway - 13/31
2015	GA	FL	SGJ	Northeast	I37		\$1,146,301	Install Runway Vertical/Visual Guidance System - 13/31
2016	P	FL	SGJ	Northeast	I39		\$768,253	Conduct Airport Master Plan Study
2016	P	FL	SGJ	Northeast	I38		\$180,000	Rehabilitate Apron

Notes about the Data

The grant data are generated at the end of each fiscal year and will not reflect subsequent grant amendments.

This data will not reflect any funding or project amendments. Airport locations that received funds as part of a

State Block Grant Program (SBGP) may have also received grants directly from the FAA prior to inclusion into the SBGP---specifically during periods when the airport was designated as a primary airport and/or opted out of the SBGP. Because of this the data available from this tool may not necessarily be complete for States participating in the SBGP.

Appendix C

Approach Plates and Departure Procedures

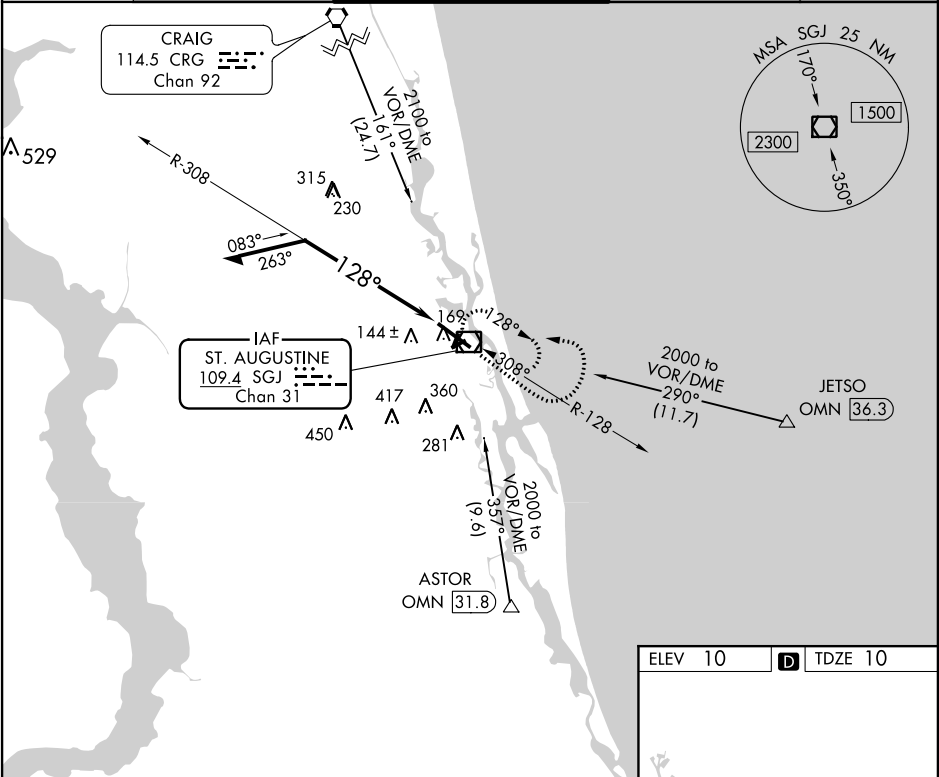
VOR/DME SGJ	APP CRS	Rwy Idg	6144
109.4	128°	TDZE	10
Chan 31		Apt Elev	10

VOR RWY 13
NORTHEAST FLORIDA RGNL (SGJ)

⚠ When local altimeter not received, use Jacksonville NAS (Towers Field) altimeter setting and increase all MDA 60 feet and S-13 visibility Cat C/D and Circling Cat C ½ mile. Helicopter visibility reduction below ¾ SM NA.

MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 direct SGJ VOR/DME and hold.

ATIS 119.625	JACKSONVILLE APP CON 120.75	ST AUGUSTINE TOWER ★ 127.625 (CTAF) 269.475	GND CON 121.175 251.125	UNICOM 122.95
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Remain within 10 NM		SGJ VOR/DME		1000	2000	SGJ
1600		308°		↑	↶	☐
		128°				
CATEGORY	A	B	C	D		
S-13	620-1	610 (700-1)	620-1¾	610 (700-1¾)		
CIRCLING	620-1	610 (700-1)	620-1¾	620-2		
			610 (700-1¾)	610 (700-2)		

ELEV 10 TDZE 10

128° to SGJ VOR/DME

3002 X 150

2701 X 60

TWR 99 ±

MIRL Rwy 2-20 and 6-24

HIRL Rwy 13-31

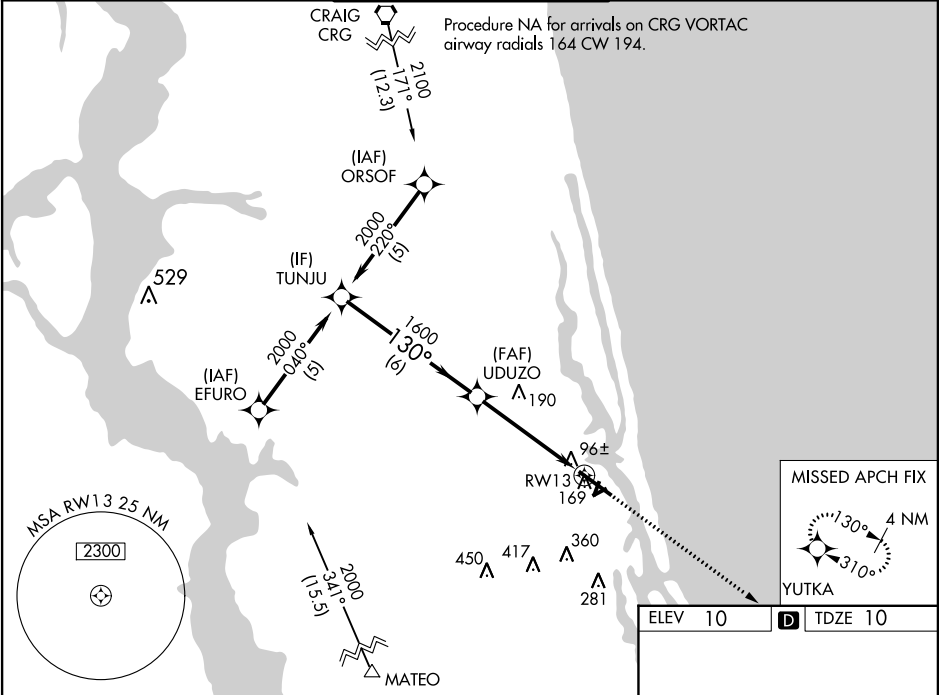
WAAS CH 77711	APP CRS 130°	Rwy Idg TDZE Apt Elev	6144 10 10
W13A			

RNAV (GPS) RWY 13
NORTHEAST FLORIDA RGNL (SGJ)

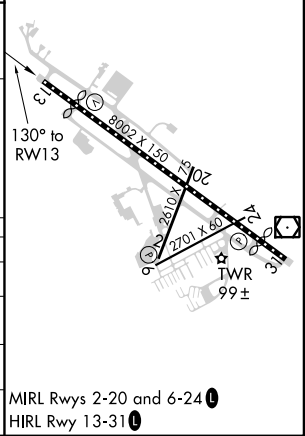
▼ Baro-VNAV NA when using Jacksonville NAS/Towers Field altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). DME/DME RNP-0.3 NA. Helicopter visibility reduction below ¾ SM NA. When local altimeter setting not received, use Jacksonville NAS (Towers Field) altimeter setting and increase all DA 57 feet and all MDA 60 feet; increase LPV and LNAV/VNAV all Cats and LNAV Cat C and Circling Cat C visibility ¼ mile.

MISSED APPROACH:
Climb to 2000 direct YUTKA and hold.

ATIS 119.625	JACKSONVILLE APP CON 120.75	ST AUGUSTINE TOWER ★ 127.625 (CTAF) 269.475	GND CON 121.175 251.125	UNICOM 122.95
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Procedure Turn NA	TUNJU	VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 44).		2000 YUTKA
		UDUZO	RW13	
GP 3.00° TCH 58	2000	130°	1600	
	6 NM		4.8 NM	
CATEGORY	A	B	C	D
LPV DA		357-1¼	347 (400-1¼)	
LNAV/ VNAV DA		391-1¼	381 (400-1¼)	
LNAV MDA	460-1	450 (500-1)	460-1¼ 450 (500-1¼)	460-1½ 450 (500-1½)
CIRCLING	480-1 470 (500-1)	580-1 570 (600-1)	580-1½ 570 (600-1½)	580-2 570 (600-2)



SE-3, 08 DEC 2016 to 05 JAN 2017

SE-3, 08 DEC 2016 to 05 JAN 2017

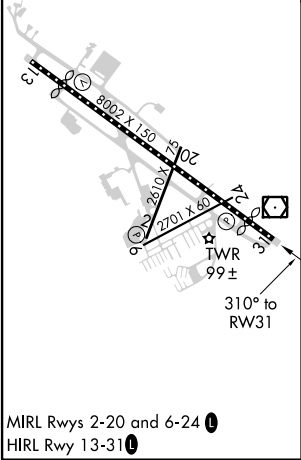
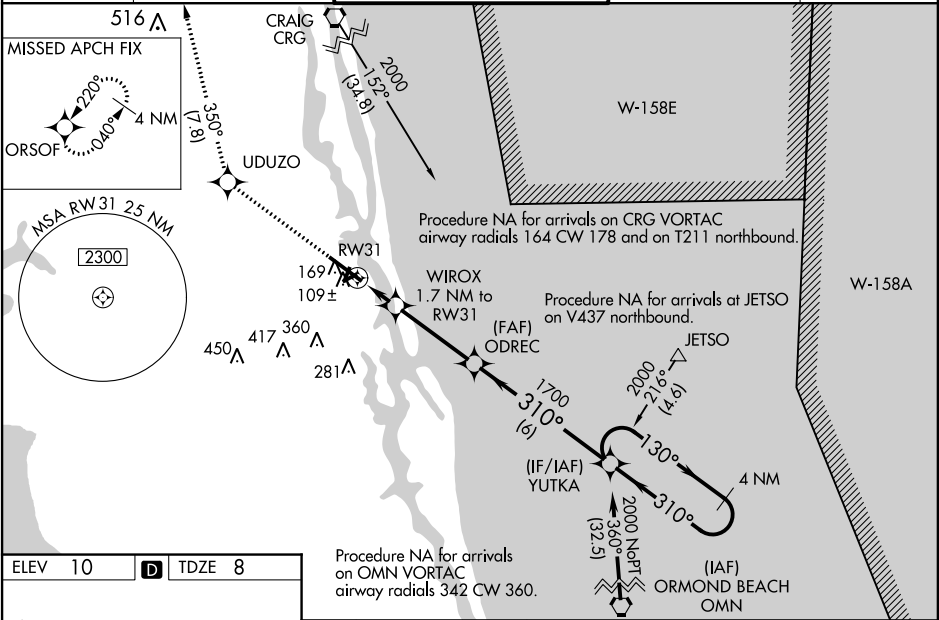
WAAS CH 77727 W31A	APP CRS 310°	Rwy Idg TDZE Apt Elev	5925 8 10
----------------------------------------	------------------------	-----------------------------	--------------------------------------

RNAV (GPS) RWY 31
NORTHEAST FLORIDA RGNL (SGJ)

⚠ Baro-VNAV and VDP NA when using Jacksonville NAS (Towers Field) altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). DME/DME RNP-0.3 NA. When local altimeter setting not received, use Jacksonville NAS (Towers Field) altimeter setting and increase all DA 57 feet and all MDA 60 feet; increase LPV all Cats visibility 1/8 mile and increase LNAV/VNAV all Cats and LNAV Cats C/D and Circling Cat C visibility 1/4 mile.

MISSED APPROACH: Climb to 2000 direct UDUZO and on track 350° to ORSOFO and hold.

ATIS 119.625	JACKSONVILLE APP CON 120.75	ST AUGUSTINE TOWER ★ 127.625 (CTAF) 269.475	GND CON 121.175 251.125	UNICOM 122.95
------------------------	---------------------------------------	-------------------------------------------------------	-----------------------------------	-------------------------



2000	UDUZO	tr	ORSOFO	VGSI and RNAV glidepath not coincident (VGSI Angle 3.00°/ TCH 54).	4 NM Holding Pattern
*LNAV only	WIROX 1.7 NM to RW31	ODREC	YUTKA	GP 3.00° TCH 42	
*1.4 NM to RW31	*580	1700			
1.4 NM	0.3	3.5 NM	6 NM		
CATEGORY	A	B	C	D	
LPV DA		258-7/8	250 (300-7/8)		
LNAV/VNAV DA		292-7/8	284 (300-7/8)		
LNAV MDA	520-1	512 (600-1)	520-1 3/8	512 (600-1 3/8)	
CIRCLING	520-1 510 (600-1)	580-1 570 (600-1)	580-1 1/2 570 (600-1 1/2)	580-2 570 (600-2)	

SE-3, 08 DEC 2016 to 05 JAN 2017

SE-3, 08 DEC 2016 to 05 JAN 2017

LOC/DME	I-GUH	APP CRS	Rwy Idg	5925
111.1	312°	TDZE	8	
Chan 48		Apt Elev	10	

ILS or LOC/DME RWY 31

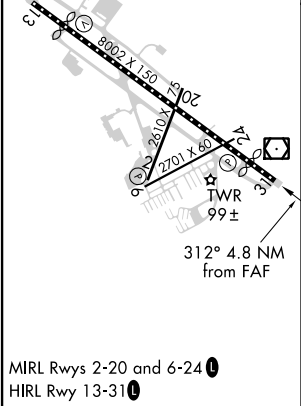
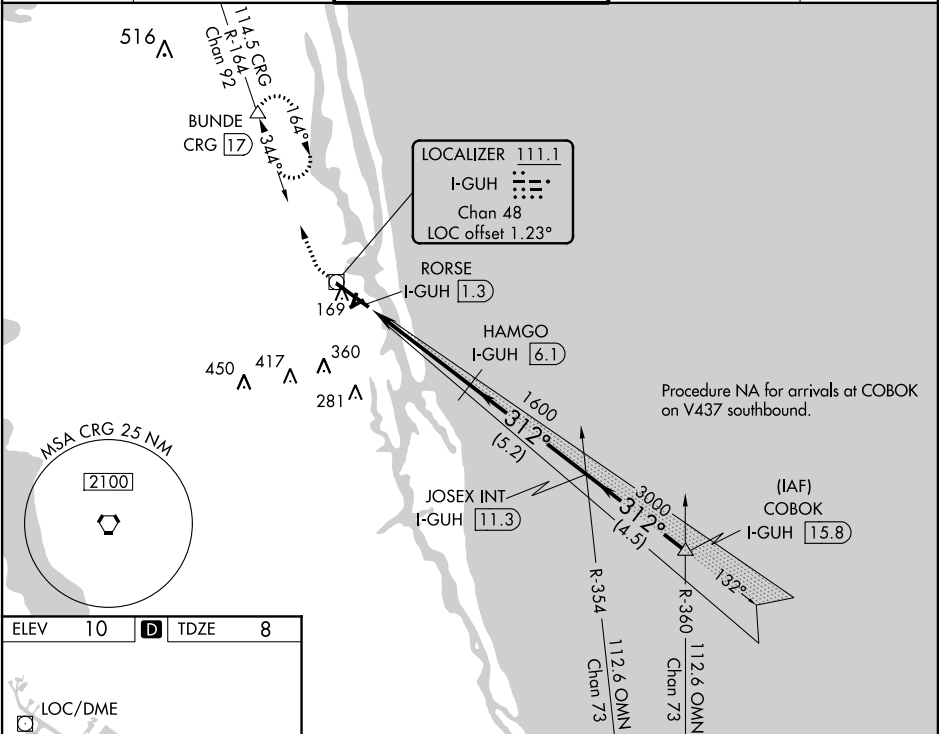
NORTHEAST FLORIDA RGNL (SGJ)

▼ DME REQUIRED. When local altimeter setting not received, use Jacksonville NAS (Towers Field) altimeter setting and increase all DA 57 feet and all MDA 60 feet, and increase S-ILS 31 all Cats and Circling Cat C visibility ¼ mile. VDP NA with Jacksonville NAS (Towers Field) altimeter setting.

▲ NA

MISSED APPROACH: Climb to 3000 on heading 312° and CRG R-164 to BUNDE/CRG 17 DME and hold, continue climb-in-hold to 3000.

ATIS 119.625	JACKSONVILLE APP CON 120.75	ST AUGUSTINE TOWER ★ 127.625 (CTAF) 269.475	GND CON 121.175 251.125	UNICOM 122.95
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ELEV 10	TDZE 8
LOC/DME	
3000	CRG R-164
hdg 312°	
*LOC only.	
RORSE I-GUH 1.3	HAMGO I-GUH 6.1
JOSEX INT I-GUH 11.3	COBOK I-GUH 15.8
312° 4.8 NM from FAF	
MIRL Rwy 2-20 and 6-24	
HIRL Rwy 13-31	



M5



17061

M5





TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)



ST. AUGUSTINE, FL

NORTHEAST FLORIDA RGNL (SGJ)
TAKEOFF MINIMUMS AND (OBSTACLE)
DEPARTURE PROCEDURES
ORIG 07298 (FAA)

NOTE: **Rwy 2**, trees 1355' from DER, 314' right of centerline, 100' AGL/104' MSL. **Rwy 20**, aircraft on ramp abeam DER, 158' right of centerline, up to 32' AGL/41' MSL. Aircraft on taxiway 182' from DER, on centerline, up to 32' AGL/42' MSL. Buildings beginning 220' from DER, 402' right of centerline, up to 34' AGL/44' MSL. Hangars beginning 174' from DER, 180' left of centerline, up to 16' AGL/26' MSL. Vehicles on road and train on railroad beginning 419' from DER, 599' right of centerline, up to 23' AGL/37' MSL. Numerous trees beginning 589' from DER, 652' right of centerline, up to 100' AGL/114' MSL. Numerous trees beginning 754' from DER, 586' left of centerline, up to 100' AGL/109' MSL. **Rwy 24**, hangars beginning abeam DER, 400' left of centerline, up to 16' AGL/26' MSL. Aircraft on ramp 55' from DER, 119' right of centerline up to 32' AGL/41' MSL. Buildings beginning 150' from DER, 191' right of centerline, up to 34' AGL/44' MSL. Vehicles on road and train on railroad beginning 571' from DER, on centerline, up to 23' AGL/37' MSL. Numerous trees beginning 742' from DER, left and right of centerline, up to 100' AGL/114' MSL. **Rwy 31**, numerous trees beginning 87' from DER, 418' left of centerline, up to 89' AGL/98' MSL. Vehicles on road and train on railroad beginning at DER, 237' left of centerline, up to 23' AGL/37' MSL. Numerous trees beginning 242' from DER, 2' right of centerline, up to 85' AGL/99' MSL.

ST. PETERSBURG, FL

ALBERT WHITTED (SPG)
TAKEOFF MINIMUMS AND (OBSTACLE)
DEPARTURE PROCEDURES
AMDT 2 01163 (FAA)

TAKEOFF MINIMUMS: **Rwy 36**, 300-1 or std. with a min. climb of 320' per NM until 500.
DEPARTURE PROCEDURE: **Rwys 18,25**, climb runway heading to 500 before turning right. **Rwys 7,36**, climb runway heading to 500 before turning left.
NOTE: **Rwy 25**, 70' MSL/63' AGL building 350' from DER, 375' left of runway centerline.

ST. PETERSBURG-CLEARWATER, FL

ST PETE-CLEARWATER INTL (PIE)
TAKEOFF MINIMUMS AND (OBSTACLE)
DEPARTURE PROCEDURES
AMDT 3A 14093 (FAA)

TAKEOFF MINIMUMS: **Rwys 18R, 36L**, NA - VFR runway. **Rwy 22**, 200-1¼ or std. w/min. climb of 230' per NM to 300, or alternatively, with standard takeoff minimums and a normal 200' per NM climb gradient, takeoff must occur no later than 1700' prior to DER.
DEPARTURE PROCEDURE: **Rwy 9**, climb heading 093° to 500 before proceeding southbound.
NOTE: **Rwy 4**, trees beginning 174' from DER, 279' right of centerline, up to 61' AGL/65' MSL. Bush 495' from DER, 258' right of centerline, 27' AGL/31' MSL. Bush 511' from DER, 326' left of centerline, 17' AGL/21' MSL. Trees beginning 523' from DER, 225' left of centerline, up to 17' AGL/21' MSL. Boats beginning 775' from DER, on centerline, up to 25' AGL/25' MSL. **Rwy 9**, trees beginning 805' from DER, 470' right of centerline, up to 47' AGL/51' MSL. Tree 1617' from DER, 816' left of centerline, 60' AGL/64' MSL. **Rwy 18L**, building 689' from DER, 418' right of centerline, 34' AGL/44' MSL. Signs beginning 909' from DER, 98' right of centerline, up to 50' AGL/58' MSL. Poles beginning 970' from DER, 114' right of centerline, up to 51' AGL/58' MSL. Poles beginning 1015' from DER, 103' left of centerline, up to 40' AGL/47' MSL. Sign 1336' from DER, 198' left of centerline, 46' AGL/53' MSL. Tree 2100' from DER, 996' right of centerline, 96' AGL/105' MSL. Antenna on hopper 2583' from DER, 801' right of centerline, 76' AGL/89' MSL. **Rwy 22**, tower 123' from DER, 359' left of centerline, 24' AGL/33' MSL. Trees beginning 1235' from DER, 270' left of centerline, up to 65' AGL/70' MSL. Tree 1629' from DER, 88' right of centerline, 61' AGL/70' MSL. Tower 5591' from DER, 266' right of centerline, 153' AGL/168' MSL. **Rwy 27**, poles beginning 188' from DER, 138' right of centerline, up to 69' AGL/75' MSL. Vehicles on road 200' from DER, 418' right of centerline, 10' AGL/24' MSL. Building 552' from DER, 450' right of centerline, 26' AGL/34' MSL. Poles beginning 605' from DER, 179' left of centerline, up to 40' AGL/49' MSL. Trees beginning 1540' from DER, 224' left of centerline, up to 57' AGL/66' MSL. Antenna on tank 2188' from DER, 712' left of centerline, 70' AGL/80' MSL. **Rwy 36R**, boats beginning 646' from DER, 655' left of centerline, up to 25' AGL/25' MSL.

30 MAR 2017 to 27 APR 2017

30 MAR 2017 to 27 APR 2017



Appendix D

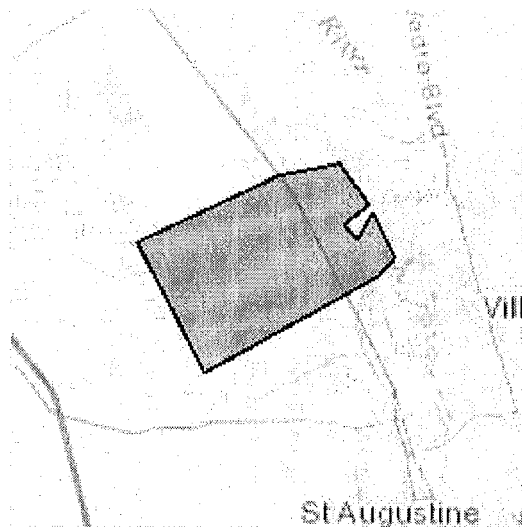
Environmental Information

IPaC Information for Planning and Conservation U.S. Fish & Wildlife !

IPaC resource list

Location

St. Johns County, Florida



Local office

North Florida Ecological Services Field Office

☎ (904) 731-3336

📠 (904) 731-3045

7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517

Endangered species

This resource list is for informational purposes only and should not be used for planning or analyzing project level impacts.

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 either from the Regulatory Review section in IPaC 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 creating a project and making a request from the Regulatory Review section.

Listed species¹ are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

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.

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

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/1864	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/7614	Endangered
Wood Stork <i>Mycteria americana</i> No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/8477	Threatened

Mammals

NAME

STATUS

Anastasia Island Beach Mouse *Peromyscus polionotus*
phasma

Endangered

No critical habitat has been designated for this species.

<http://ecos.fws.gov/ecp/species/5522>

West Indian Manatee *Trichechus manatus*

Endangered

There is a final critical habitat designated for this species.

Your location is outside the designated critical habitat.

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

Reptiles

NAME

STATUS

Eastern Indigo Snake *Drymarchon corais couperi*

Threatened

No critical habitat has been designated for this species.

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

Hawksbill Sea Turtle *Eretmochelys imbricata*

Endangered

There is a final critical habitat designated for this species.

Your location is outside the designated critical habitat.

<http://ecos.fws.gov/ecp/species/3656>

Leatherback Sea Turtle *Dermochelys coriacea*

Endangered

There is a final critical habitat designated for this species.

Your location is outside the designated critical habitat.

<http://ecos.fws.gov/ecp/species/1493>

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.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data <http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location, not a list of every bird species you may find in this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources.

NAME	SEASON(S)
American Bittern <i>Botaurus lentiginosus</i> http://ecos.fws.gov/ecp/species/6582	Wintering
American Kestrel <i>Falco sparverius paulus</i>	Year-round

 American Oystercatcher <i>Haematopus palliatus</i> http://ecos.fws.gov/ecp/species/8935	Year-round
Bachman's Sparrow <i>Aimophila aestivalis</i> http://ecos.fws.gov/ecp/species/6177	Year-round
Bald Eagle <i>Haliaeetus leucocephalus</i> http://ecos.fws.gov/ecp/species/1626	Year-round
Black Rail <i>Laterallus jamaicensis</i> http://ecos.fws.gov/ecp/species/7717	Breeding
Black Skimmer <i>Rynchops niger</i> http://ecos.fws.gov/ecp/species/5234	Year-round
Brown Booby <i>Sula leucogaster</i>	Wintering
 Brown-headed Nuthatch <i>Sitta pusilla</i>	Year-round
Chuck-will's-widow <i>Caprimulgus carolinensis</i>	Breeding
Common Ground-dove <i>Columbina passerina exigua</i>	Year-round
Gull-billed Tern <i>Gelochelidon nilotica</i> http://ecos.fws.gov/ecp/species/9501	Breeding
Henslow's Sparrow <i>Ammodramus henslowii</i> http://ecos.fws.gov/ecp/species/3941	Wintering
Le Conte's Sparrow <i>Ammodramus leconteii</i>	Wintering
Least Bittern <i>Ixobrychus exilis</i> http://ecos.fws.gov/ecp/species/6175	Breeding
 Least Tern <i>Sterna antillarum</i>	Breeding

Lesser Yellowlegs <i>Tringa flavipes</i> http://ecos.fws.gov/ecp/species/9679	Wintering	
Loggerhead Shrike <i>Lanius ludovicianus</i> http://ecos.fws.gov/ecp/species/8833	Year-round	
Marbled Godwit <i>Limosa fedoa</i> http://ecos.fws.gov/ecp/species/9481	Wintering	
Nelson's Sparrow <i>Ammodramus nelsoni</i>	Wintering	
Painted Bunting <i>Passerina ciris</i>	Breeding	
Peregrine Falcon <i>Falco peregrinus</i> http://ecos.fws.gov/ecp/species/8831	Wintering	
Prairie Warbler <i>Dendroica discolor</i>	Year-round	
Prothonotary Warbler <i>Protonotaria citrea</i>	Breeding	
Red Knot <i>Calidris canutus rufa</i> http://ecos.fws.gov/ecp/species/1864	Wintering	
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>	Year-round	
Reddish Egret <i>Egretta rufescens</i> http://ecos.fws.gov/ecp/species/7617	Year-round	
Rusty Blackbird <i>Euphagus carolinus</i>	Wintering	
Saltmarsh Sparrow <i>Ammodramus caudacutus</i>	Wintering	
Seaside Sparrow <i>Ammodramus maritimus</i>	Year-round	

Short-billed Dowitcher <i>Limnodromus griseus</i> http://ecos.fws.gov/ecp/species/9480	Wintering
Short-eared Owl <i>Asio flammeus</i> http://ecos.fws.gov/ecp/species/9295	Wintering
Swainson's Warbler <i>Limnothlypis swainsonii</i>	Migrating
Swallow-tailed Kite <i>Elanoides forficatus</i> http://ecos.fws.gov/ecp/species/8938	Breeding
Whimbrel <i>Numenius phaeopus</i> http://ecos.fws.gov/ecp/species/9483	Wintering
Wilson's Plover <i>Charadrius wilsonia</i>	Year-round
Wood Thrush <i>Hylocichla mustelina</i>	Breeding
Worm Eating Warbler <i>Helminthophila vermivora</i>	Migrating
Yellow Rail <i>Coturnicops noveboracensis</i> http://ecos.fws.gov/ecp/species/9476	Wintering

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAA/NCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAA/NCCOS models: the models were developed as part of the NOAA/NCCOS project: [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#). The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the [Northeast Ocean Data Portal](#), which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The [Avian Knowledge Network \(AKN\)](#) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the [Migratory Bird Programs AKN Histogram Tools](#) webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

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 [NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage](#).

Facilities

Wildlife refuges

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

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is

unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

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.

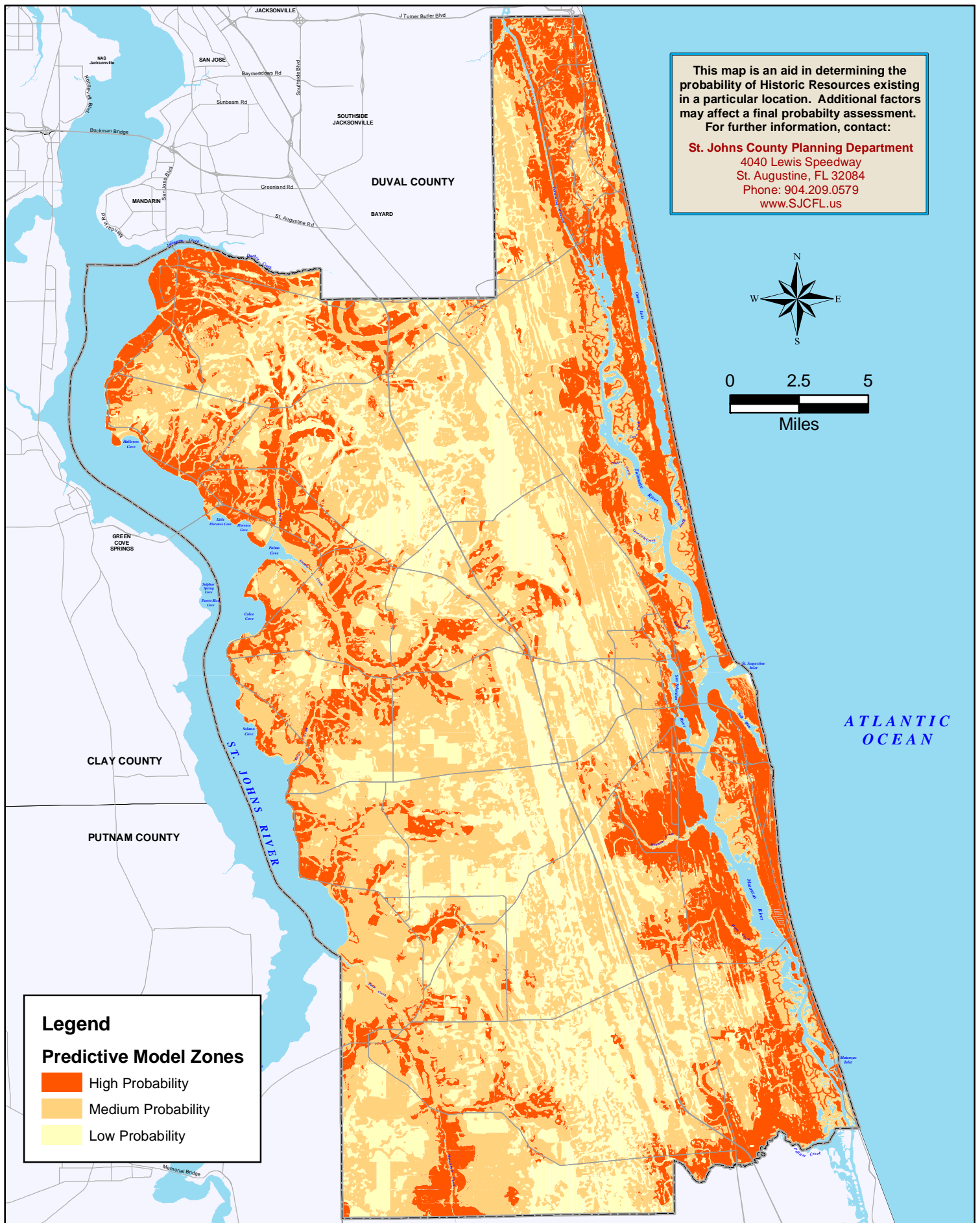
Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

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

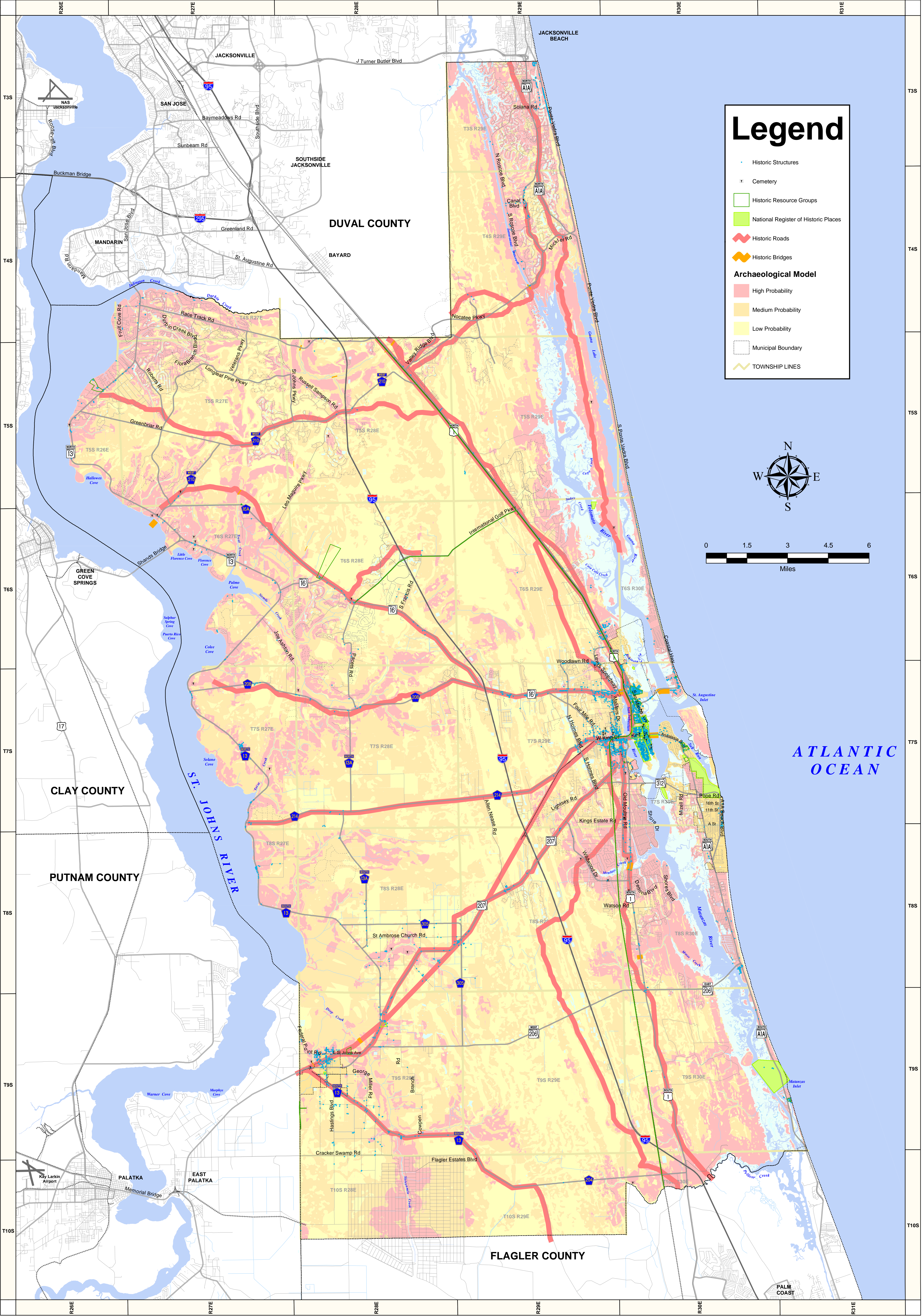
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, 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.



DISCLAIMER: This map is for reference use only. Data provided are derived from multiple sources with varying levels of accuracy. The St. Johns County GIS Division disclaims all responsibility for the accuracy or completeness of the data shown hereon.

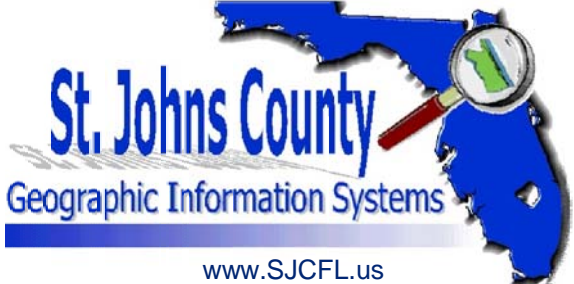
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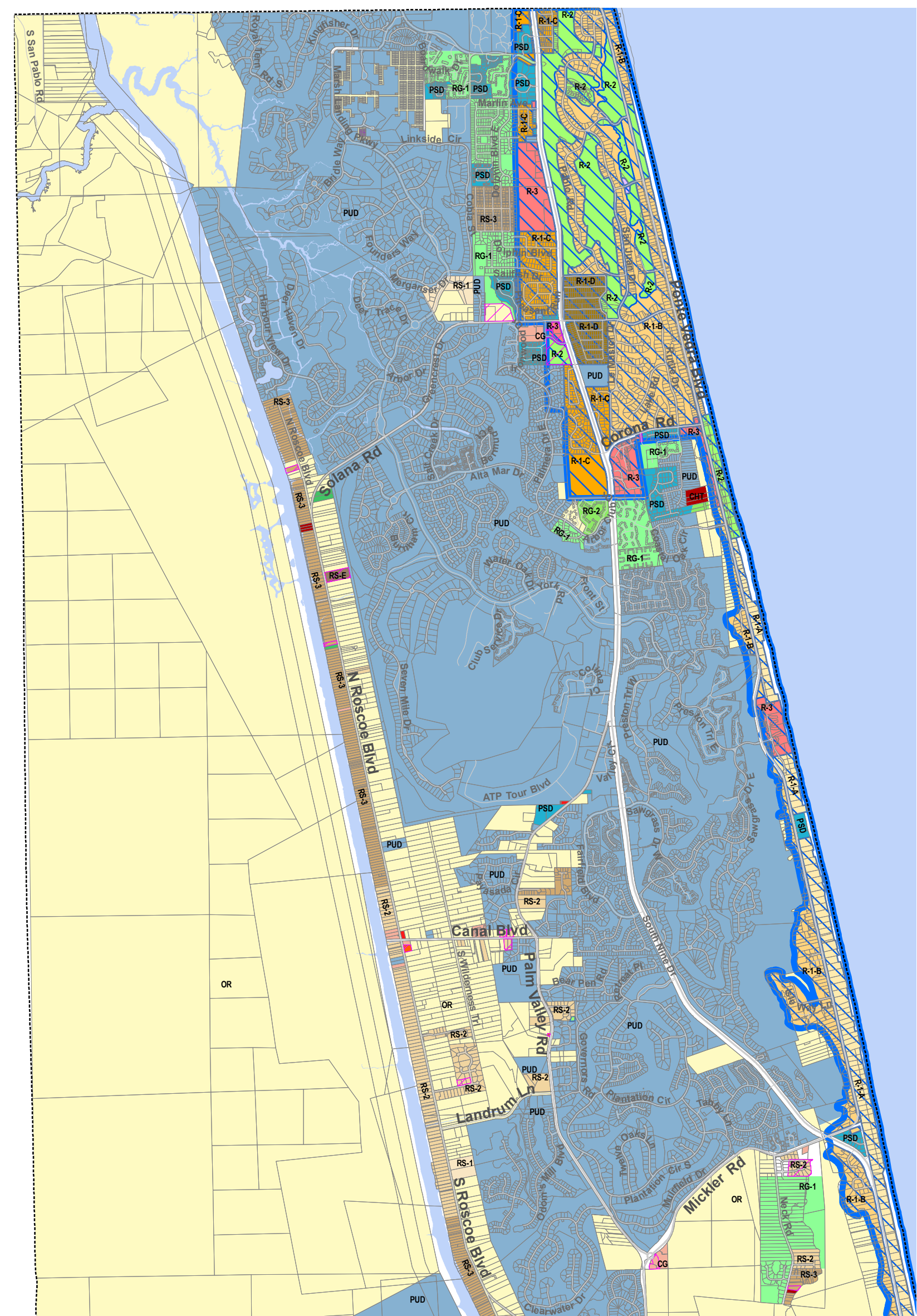
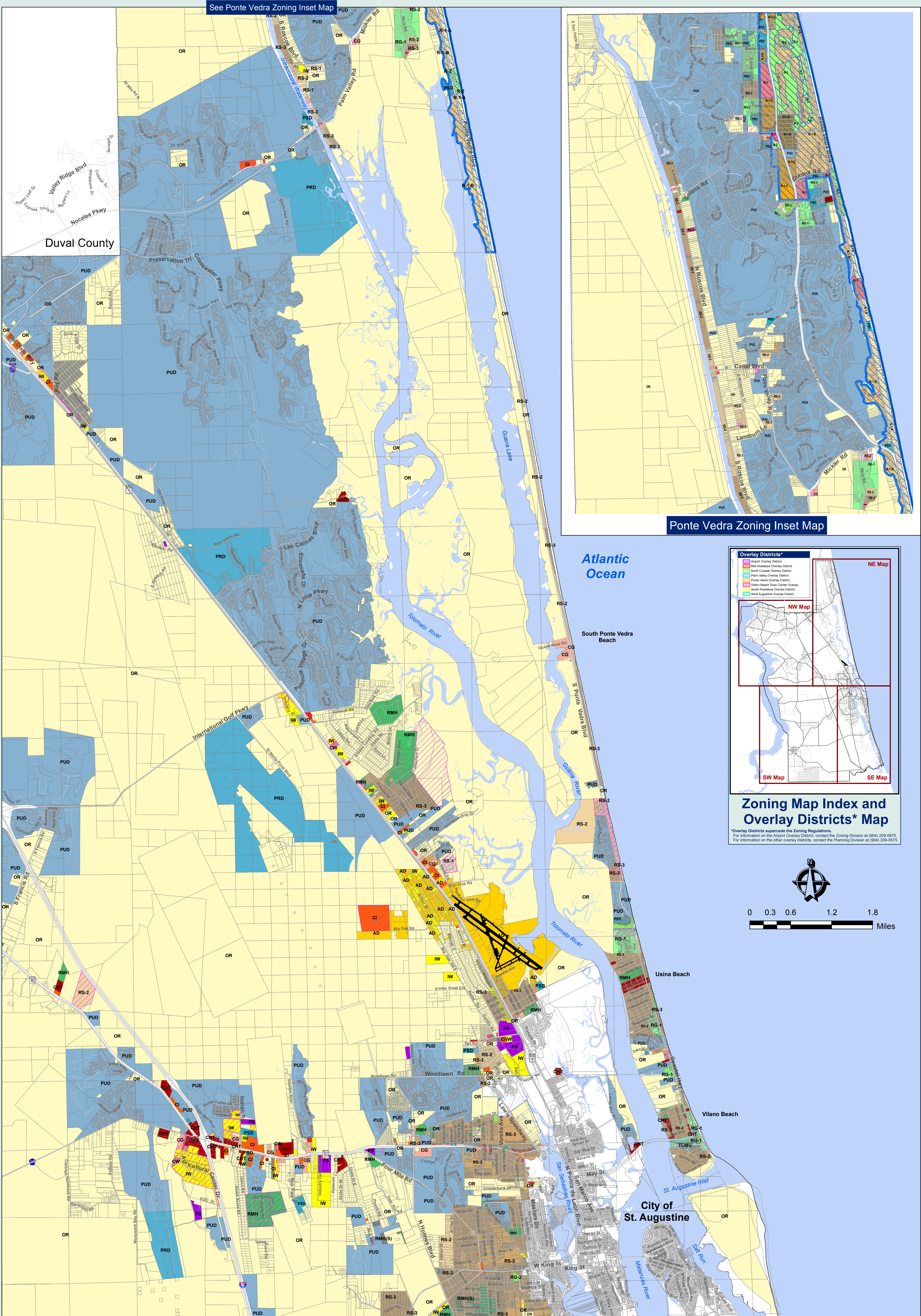


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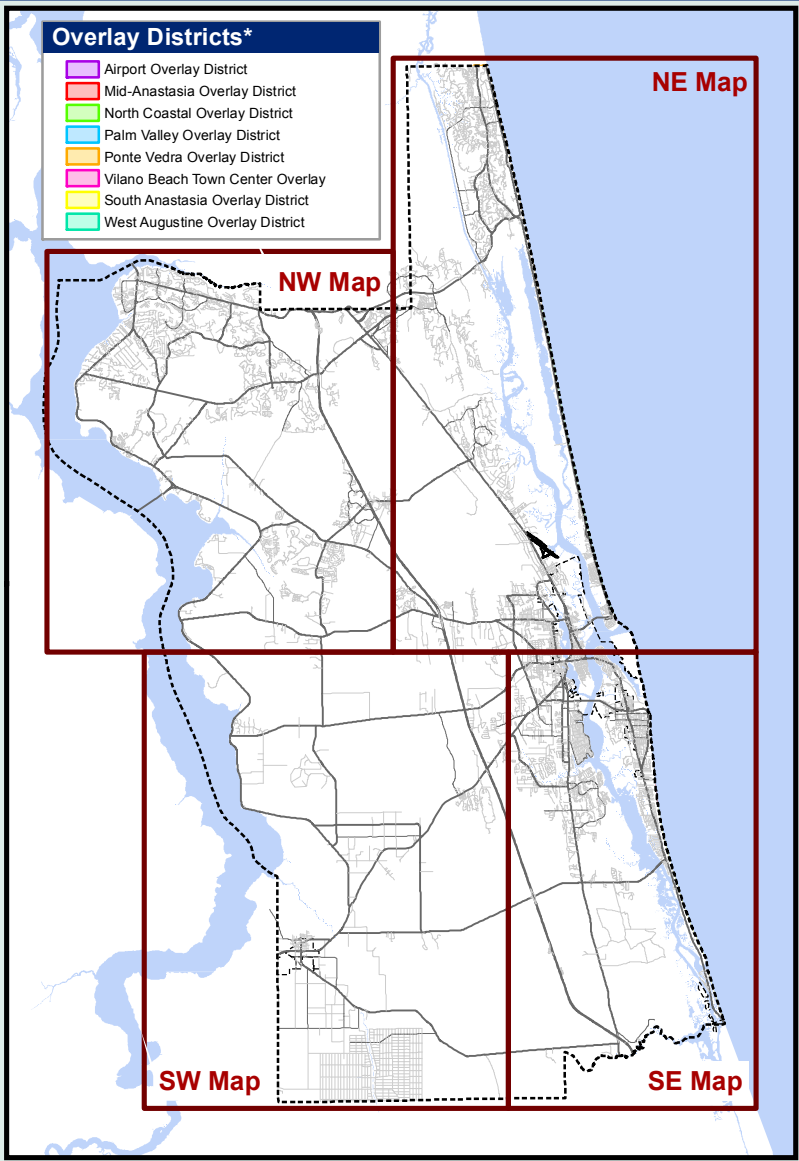
IDENTIFIED HISTORIC RESOURCES



See Ponte Vedra Zoning Inset Map

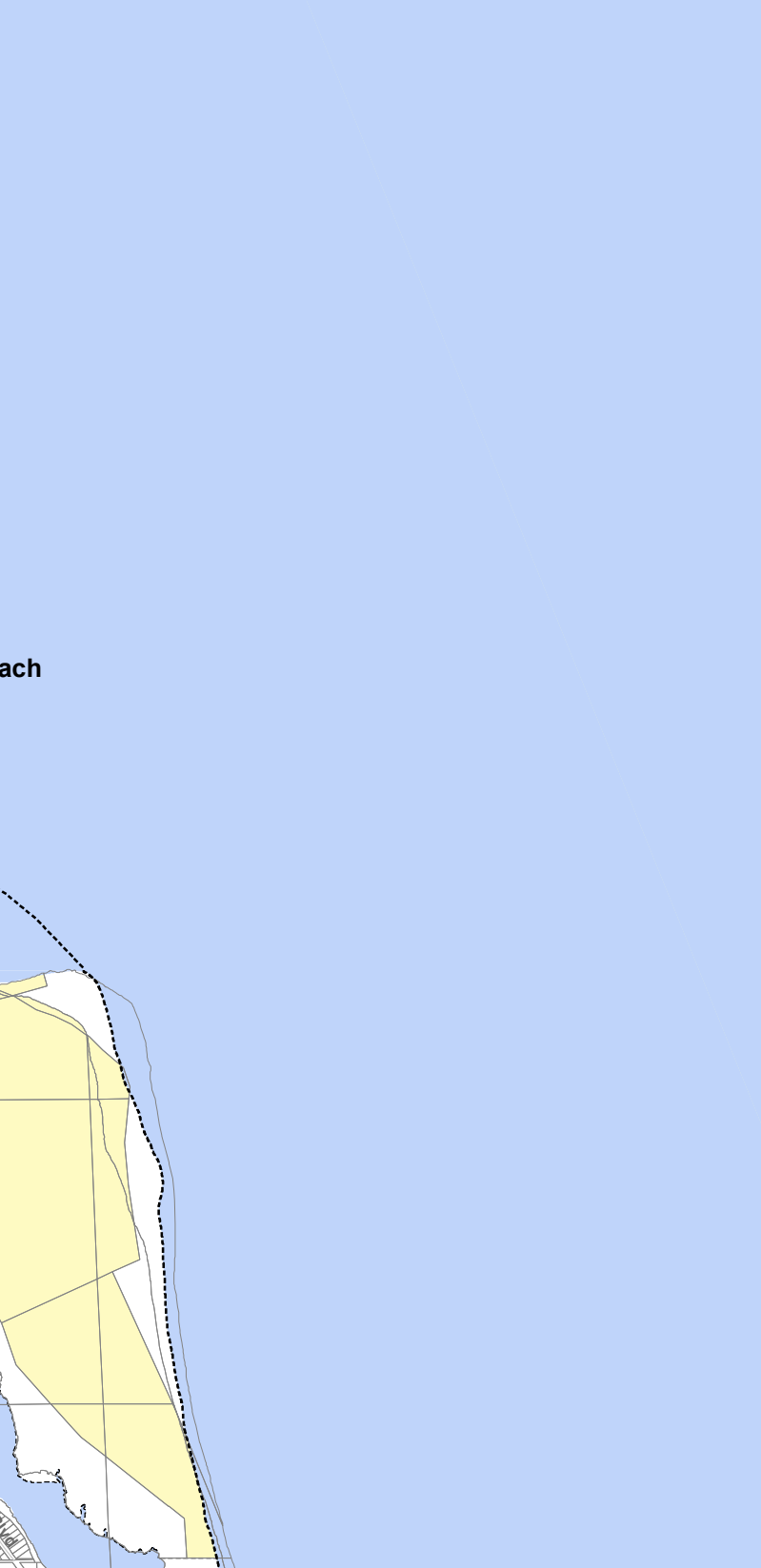
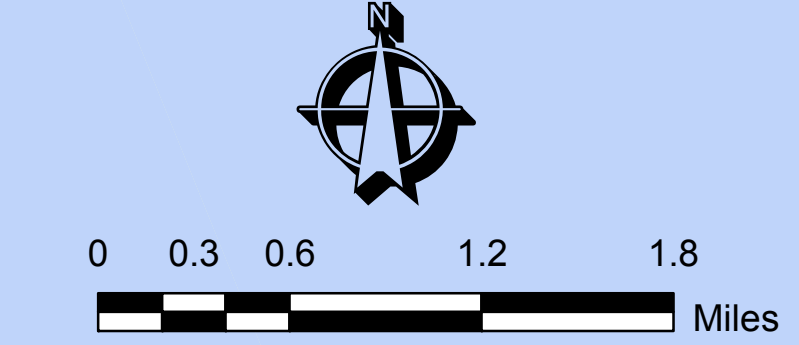


Ponte Vedra Zoning Inset Map



Zoning Map Index and Overlay Districts* Map

*Overlay Districts supersede the Zoning Regulations. For information on the Airport Overlay District, contact the Zoning Division at (904) 209-0675. For information on the other overlay districts, contact the Planning Division at (904) 209-0575.



Disclaimer: (1) This map is for reference use only. Data provided are derived from multiple sources with varying levels of accuracy. The St. Johns County GIS Division disclaims all responsibility for the accuracy or completeness of the data shown hereon. (2) Recently approved rezonings may not be reflected in the current zoning dataset. (3) Areas that are white are parcels that do not have complete property owner or zoning information. (4) Zoning classifications depicted are for convenience only and should be confirmed by the St. Johns County Zoning Division prior to legal use. Please call 904-209-0675, Fax 904-209-0576 or contact via email through listing available at www.SJCFL.us.

Zoning Classifications (Districts)

Residential, Single Family 1 (RS-1)	Commercial, Highway Tourist (CHT)
Residential, Single Family 2 (RS-2)	Commercial, High Intensity (CHI)
Residential, Single Family 3 (RS-3)	Commercial, Intensive (CI)
Residential, Single Family E (RS-E)	Commercial, Neighborhood (CN)
Residential, General 1 (RG-1)	Commercial, Warehouse (CW)
Residential, General 2 (RG-2)	Commercial, Rural (CR)
Residential, Manufactured/Mobile Home (RMH)	Office & Professional (OP)
Residential, Manufactured/Mobile Home or Single Family (RMH(S))	Airport Development (AD)
Planned Rural Development (PRD)	Heavy Industrial (HI)
Planned Special Development (PSD)	Industrial, Warehousing (IW)
Planned Unit Development (PUD)	Public Service (PS)
Town Center Mixed Use (TCMU)	Open Rural (OR)
Commercial, General (CG)	

Ponte Vedra Zoning District

Ponte Vedra Zoning District
The following zoning designations are limited to the Ponte Vedra Zoning District.
Single Family Residential (R-1-A)
Single Family Residential (R-1-B)
Single Family Residential (R-1-C)
Single Family Residential (R-1-D)
Multiple Family Residential (R-2)
Multiple Family Residential (R-2-A)
Commercial (R-3)
Recreational (R-4)
Utility (R-5)

Conditional Ordinances

Contact the Zoning Division for regulations

Map Prepared: December 8, 2016



Appendix E

FAA Approval of Aeronautical Forecast



U.S. Department
of Transportation
**Federal Aviation
Administration**

ORLANDO AIRPORTS DISTRICT OFFICE

5950 Hazeltine National Dr., Suite 400
Orlando, Florida 32822-5003
Phone: (407) 812-6331 Fax: (407) 812-6978

September 22, 2017

Mr. Edward R. Wuellner, AAE
Executive Director
Northeast Florida Regional Airport
4900 US Highway 1, North
St. Augustine, FL 32095

Dear Mr. Wuellner:

RE: Master Plan/Aviation Demand Forecast
Northeast Florida Regional Airport (SGJ)

We have reviewed the Master Plan Forecast of Aeronautical Demand received August 25, 2017 and find it consistent with the 2016 Federal Aviation Administration (FAA) Terminal Area Forecast (TAF). Based on this finding the Northeast Florida Regional Airport Preferred Master Plan Forecast is approved for use.

Should you have any questions, please feel free to contact me at (407) 812-6331, X-140.

Sincerely,

“Original Signed By Stephen Wilson”

Stephen Wilson
Community Planner

cc:
Lisa Cheung, Passero Associates

Appendix F

Runway Length Analysis

Runway Length Analysis

AC 150/5325-4A, *Runway Length Requirements for Airport Design* was used to determine the recommended runway length for SGJ's runways. The five steps and rationale outlined in the AC follows:

- Step 1- Identify the list of critical aircraft that have substantial use (i.e., 500 or more itinerant) of the runway for an established planning period of five years.
- Step 2 – Identify the aircraft that will require the longest runway lengths based on the highest maximum takeoff weight (MTOW). When the MTOW of listed aircraft is 60,000 lbs. or less, the recommended runway length is determined according to a family grouping of aircraft that have similar performance characteristics and operating weights. Regional jets are an exception to this due to their long-range capability, and the interchange of regional jet models based on passenger demand. When aircraft have a MTOW greater than 60,000 lbs., the runway length is determined by individual aircraft. In the latter case, the most critical aircraft is identified by the maximum MTOW, and also depends on wing flap settings, airport elevation and temperature, runway surface conditions (due to July being within hurricane season, the conditions will be wet and slippery) and effective runway gradient. This procedure also assumes there are no obstructions and the full length of the runway is available for takeoff, which is the case at SGJ.
- Step 3 – Refer to Table 1-1 in the AC and the airplanes identified in the previous step to determine the method that will be used for establishing the recommended runway length. This table categorizes potential design aircraft according to their MTOWs.
- Step 4 – Select the recommended runway lengths from those runway lengths identified in Step 3. This step will also prompt the use of processes identified in Chapters 2, 3 or 4, of AC 150/5325-4 as applicable
- Step 5 – Apply the necessary adjustment to the obtained runway length, based on the processes identified in Chapters 2, of AC 150/5325-43 or 4.

Applying these steps, individual analyses were conducted for the various operational categories at the airport, namely military operations, commercial operations and general aviation operations, as shown in Chapter 4.

Below are the curves from AC 150/5325-4A.

Figure 2-1. Small Airplanes with Fewer than 10 Passenger Seats
(Excludes Pilot and Co-pilot)

Example:

Temperature (mean day max hot month): 59° F (15° C)
Airport Elevation: Mean Sea Level

Note: Dashed lines shown in the table are mid values of adjacent solid lines.

Recommended Runway Length:

For 95% = 2,700 feet (823 m)
For 100% = 3,200 feet (975 m)

SGJ ELE = 9.9'
TEMP = 91.9°

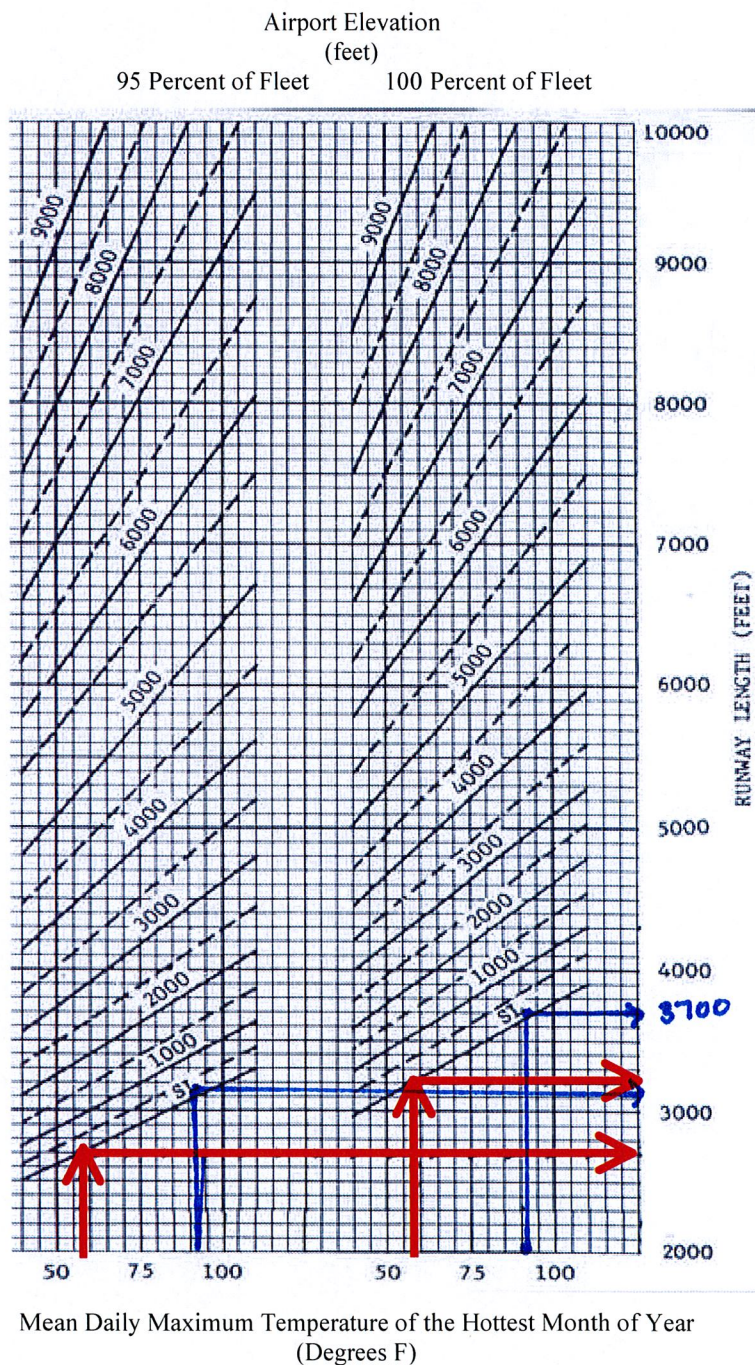


Figure 2-2. Small Airplanes Having 10 or More Passenger Seats
(Excludes Pilot and Co-pilot)

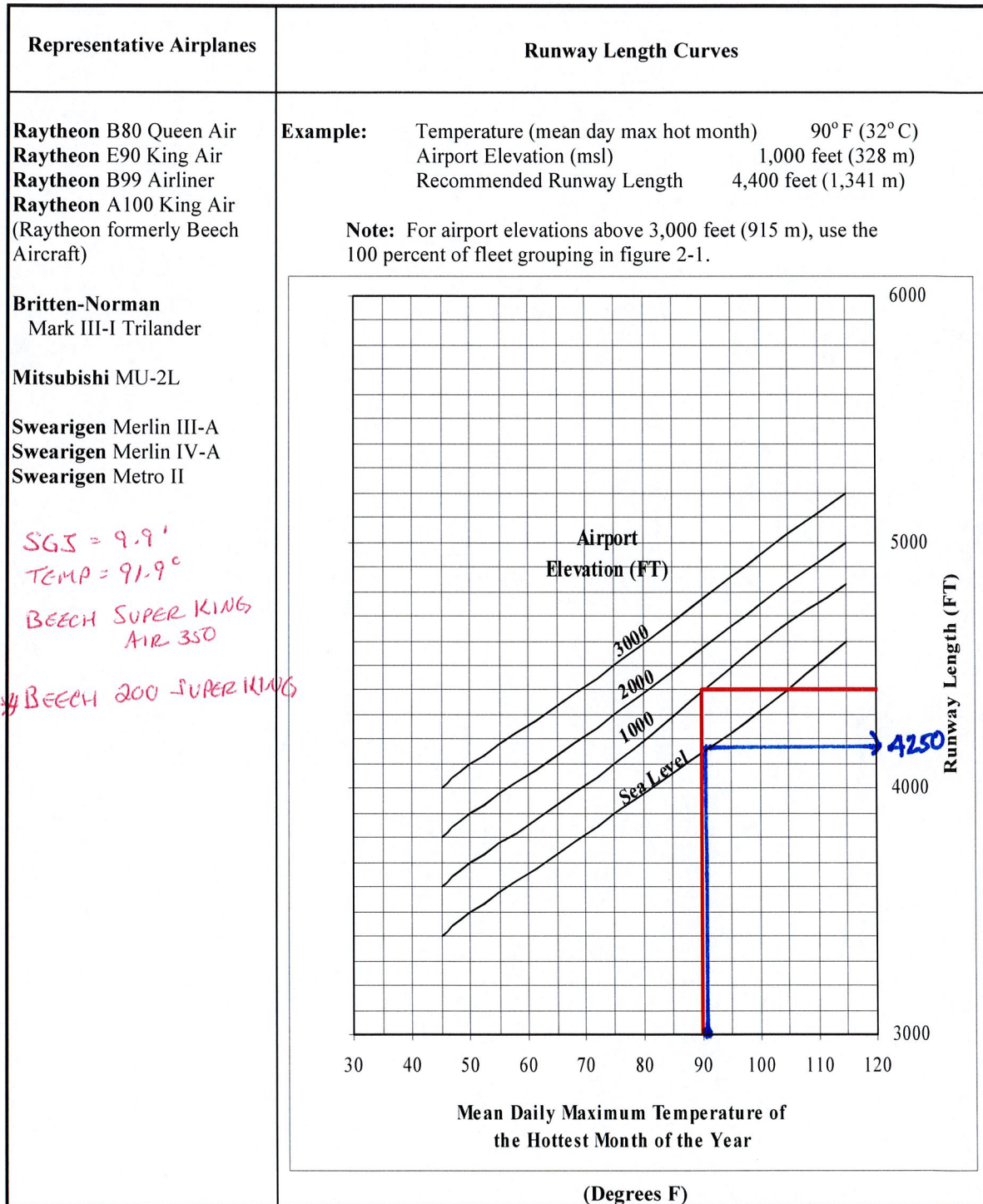


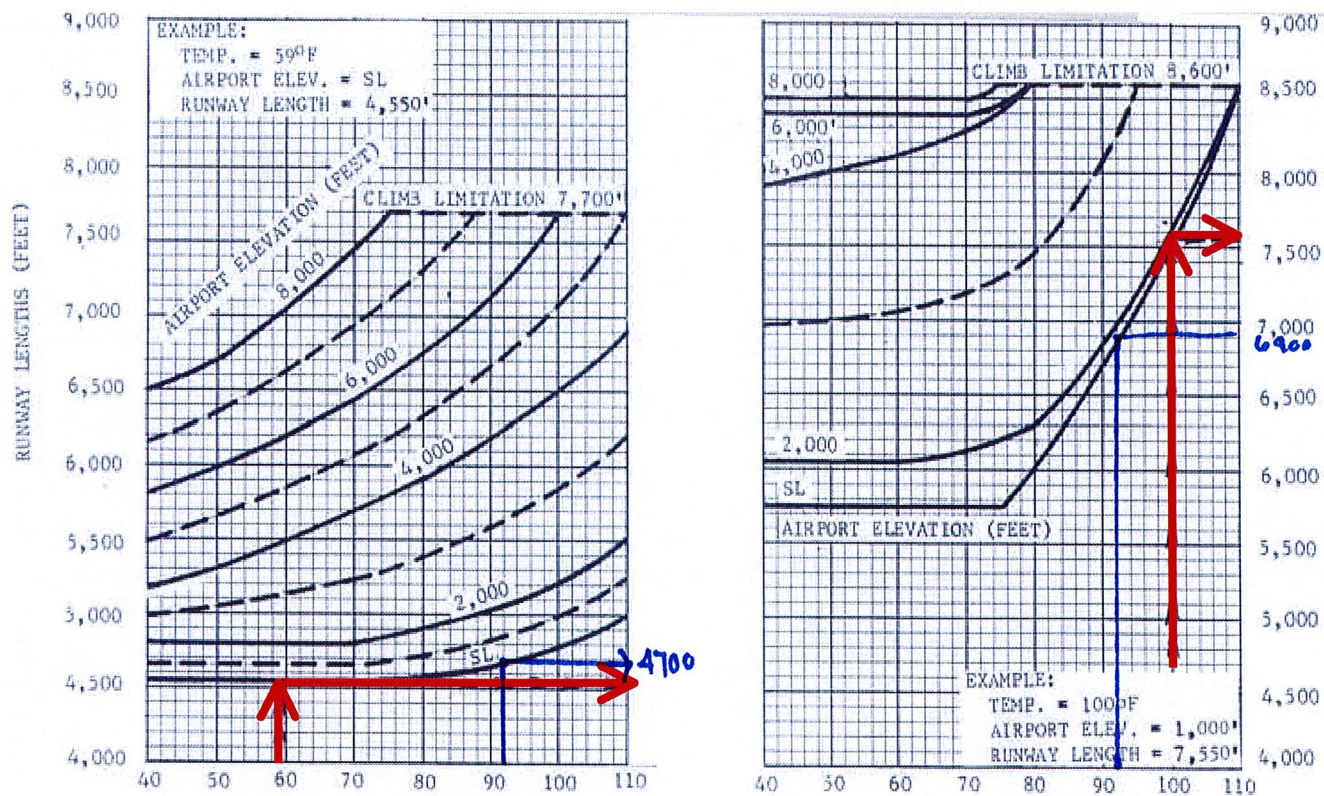
Table 3-1. Airplanes that Make Up 75 Percent of the Fleet

Manufacturer	Model
Aerospatiale	Sn-601 Corvette
Bae	125-700
Beech Jet	400A
Beech Jet	Premier I
Beech Jet	2000 Starship
Bombardier	Challenger 300
Cessna	500 Citation/501Citation Sp
Cessna	Citation I/II/III
Cessna	525A Citation II (CJ-2)
Cessna	550 Citation Bravo
Cessna	550 Citation II
Cessna	551 Citation II/Special
Cessna	552 Citation
Cessna	560 Citation Encore
Cessna	560/560 XL Citation Excel
Cessna	560 Citation V Ultra
Cessna	650 Citation VII
Cessna	680 Citation Sovereign

Manufacturer	Model
Dassault	Falcon 10
Dassault	Falcon 20
Dassault	Falcon 50/50 EX
Dassault	Falcon 900/900B
Israel Aircraft Industries (IAI)	Jet Commander 1121
IAI	Westwind 1123/1124
Learjet	20 Series
Learjet	31/31A/31A ER
Learjet	35/35A/36/36A
Learjet	40/45
Mitsubishi	Mu-300 Diamond
Raytheon	390 Premier
Raytheon Hawker	400/400 XP
Raytheon Hawker	600
Sabreliner	40/60
Sabreliner	75A
Sabreliner	80
Sabreliner	T-39

SGS TFMSC Data 2016

Figure 3-1. 75 Percent of Fleet at 60 or 90 Percent Useful Load

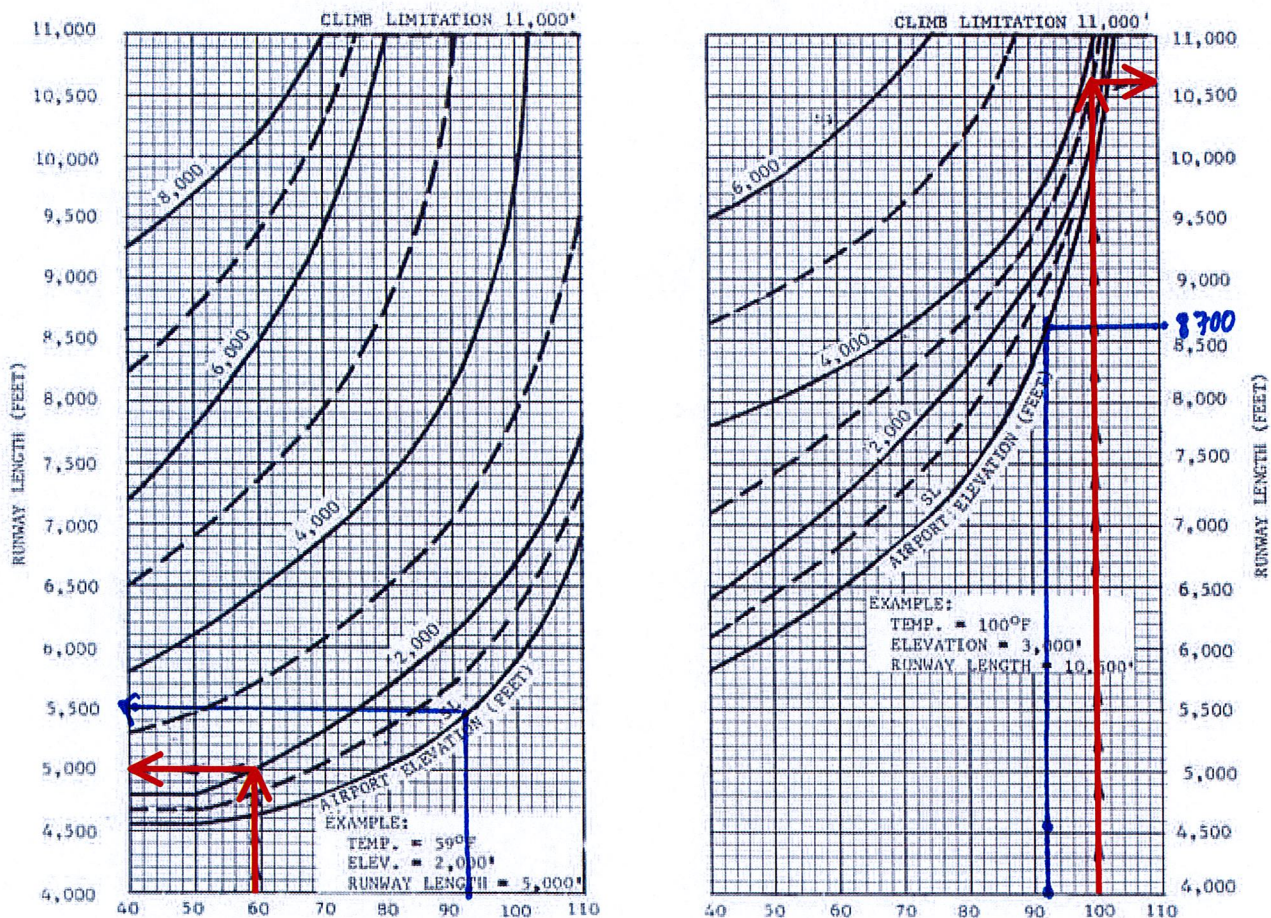


Mean Daily Maximum Temperature of Hottest Month of the Year in Degrees Fahrenheit

75 percent of feet at 60 percent useful load

75 percent of feet at 90 percent useful load

Figure 3-2. 100 Percent of Fleet at 60 or 90 Percent Useful Load



Mean Daily Maximum Temperature of Hottest Month of the Year in Degrees Fahrenheit

100 percent of feet at 60 percent useful load

$$\text{RWY } 13-31 \approx 4' \times 10 = 40'$$

$$\text{TAKEOFF: } 5500 + 48 = 5548 \approx 5600$$

$$\text{LANDING } 5500 \times 1.15 = 6325$$

BY AC ADJUST TO 5500

100 percent of feet at 90 percent useful load

$$\text{TAKEOFF: } 8700 + 48 = 8748$$

$$\text{LANDING: } 8700 \times 1.15 = 10,005$$

BY AC ADJUSTED TO 7000'

Table 3-2. Remaining 25 Percent of Airplanes that Make Up 100 Percent of Fleet

Manufacturer	Model
Bae	Corporate 800/1000
Bombardier	600 Challenger
Bombardier	601/601-3A/3ER Challenger
Bombardier	604 Challenger
Bombardier	BD-100 Continental
Cessna	S550 Citation S/II
Cessna	650 Citation III/IV
Cessna	750 Citation X
Dassault	Falcon 900C/900EX
Dassault	Falcon 2000/2000EX
Israel Aircraft Industries (IAI)	Astra 1125
IAI	Galaxy 1126
Learjet	45 XR
Learjet	55/55B/55C
Learjet	60
Raytheon/Hawker	Horizon
Raytheon/Hawker	800/800 XP
Raytheon/Hawker	1000
Sabreliner	65/75

Note: Airplanes in tables 3-1 and 3-2 combine to comprise 100% of the fleet.

SGS TFMISC Data, 2016

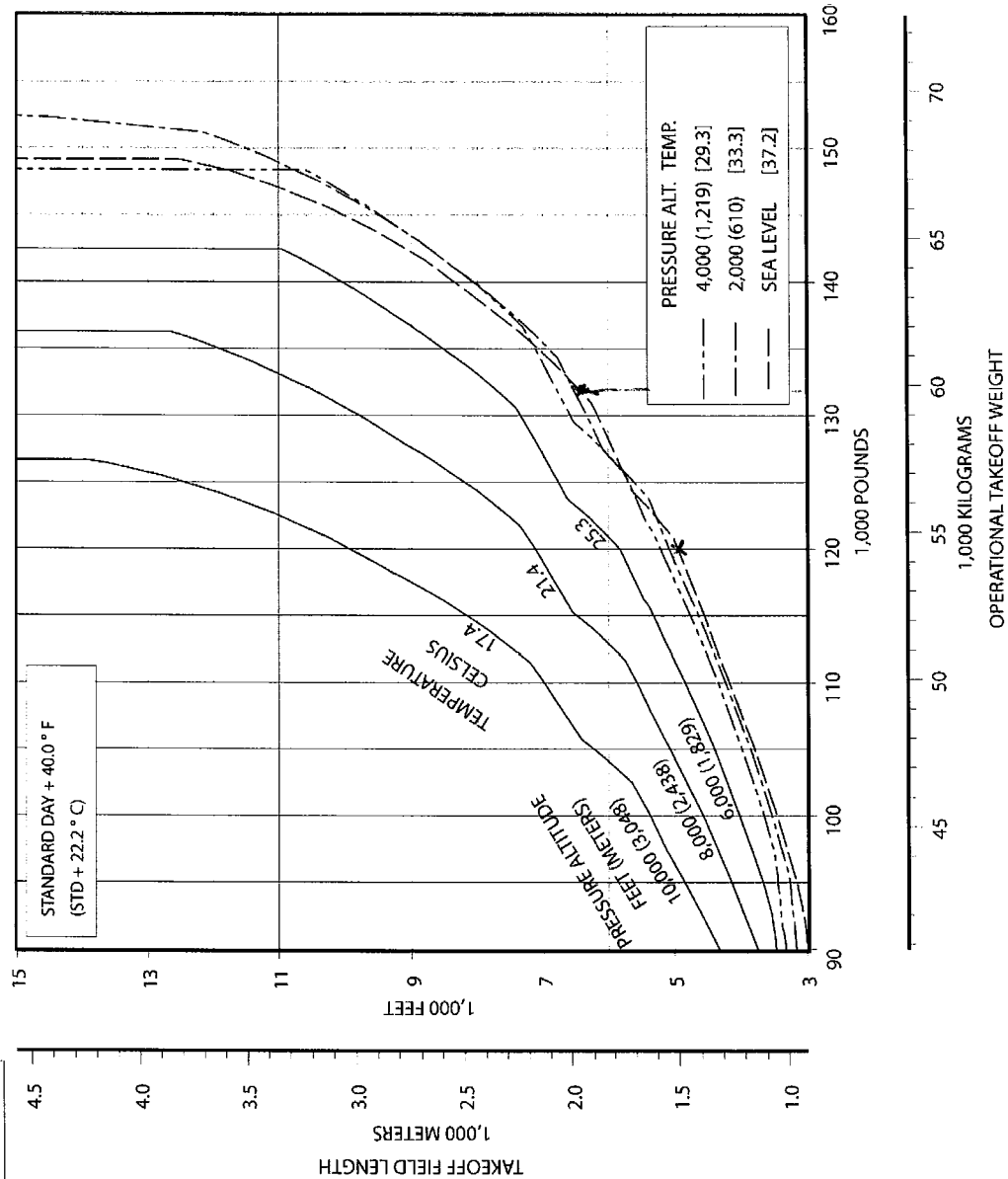
DO NOT USE FOR DISPATCH

Takeoff Runway Length Requirements

737-700/-700W (CFM56-7B20/-7B22/-7B24)

DRY RUNWAY
ZERO WIND
ZERO RUNWAY GRADIENT
AIR CONDITIONING OFF
OPTIMUM FLAP SETTING

- NON-WINGLET PERFORMANCE SHOWN. WINGLET AIRCRAFT WILL HAVE SLIGHTLY IMPROVED PERFORMANCE.
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN.



3.3.33

F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

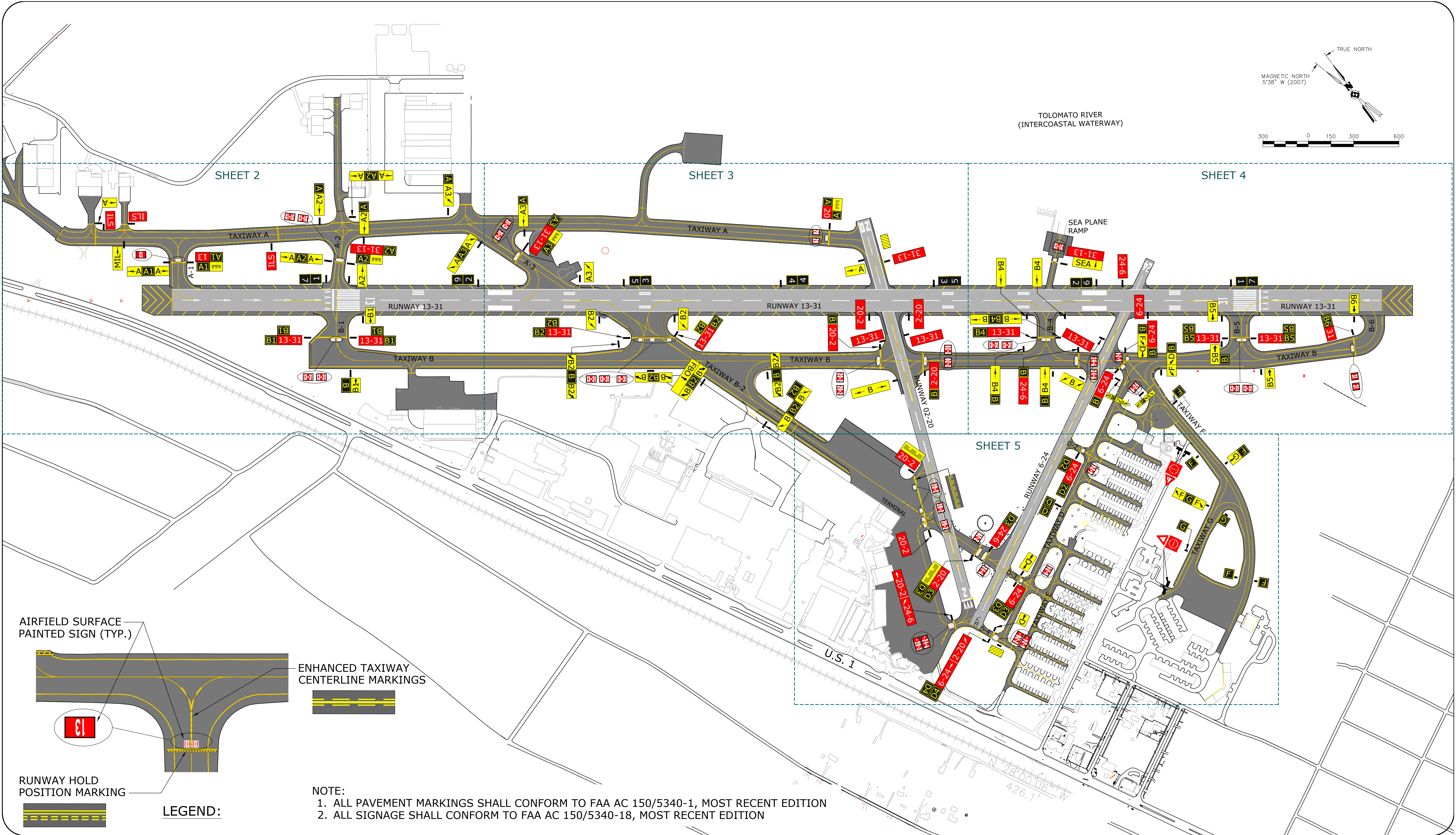
STANDARD DAY +40°F (STD + 22.2°C), DRY RUNWAY

MODEL 737-700 (CFM56-7B20/-7B22/-7B24 ENGINES AT 20,000 LB SLST)

D6-58325-6

Appendix G

Airport Signage Plan



Revisions

No.	Date	By	Revision

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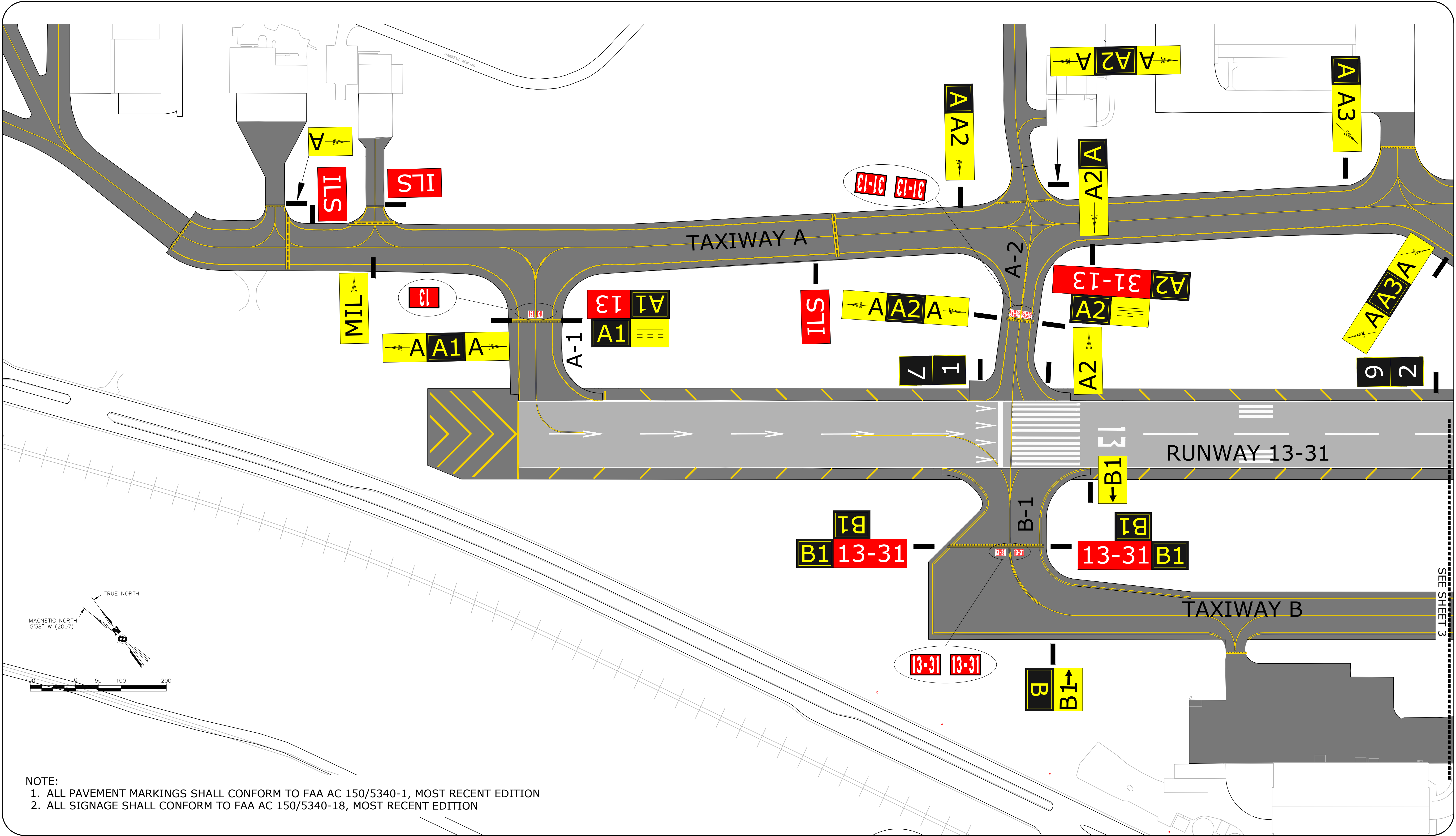
Scale
As Shown

Principal-in-Charge
Andrew M. Holesko, C.M.
Project Manager
Designer

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Jacksonville, FL 32218
904-757-6106 Fax: 904-757-6107
Certificate of Authorization # 3428
PA
PASSERO ASSOCIATES
engineering architecture

Drawing **AIRFIELD SIGNAGE AND MARKING PLAN**
Project
Airfield Signage & Marking Update
Northeast Florida Regional Airport
St. Augustine, Florida
Owner **St. Augustine-St. Johns County Airport Authority**
4796 US 1 North, St. Augustine, Florida 32095

Project No.
23081.32
Drawing No.
1
Date
December, 2016



Revisions			
No.	Date	By	Revision
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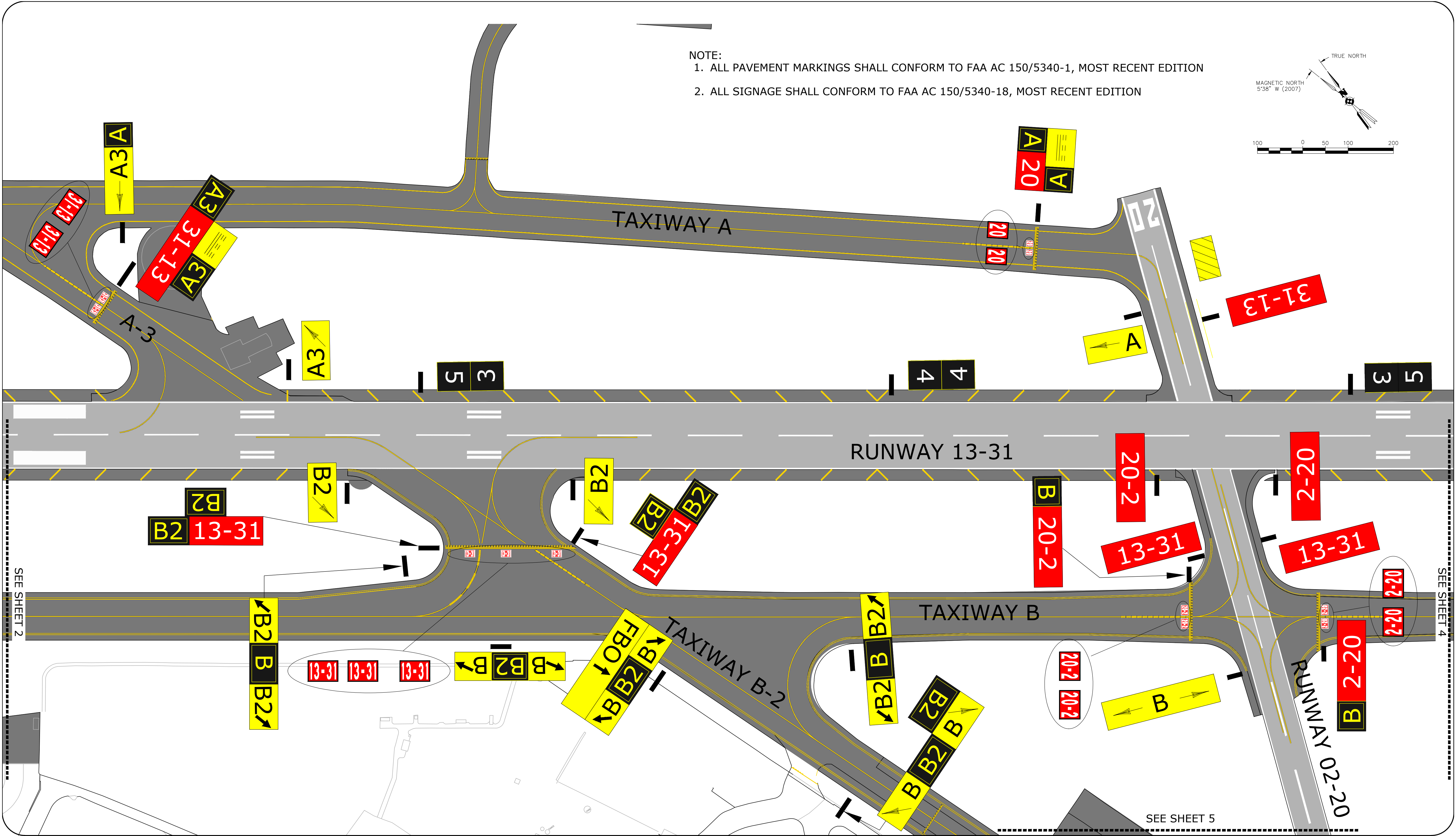
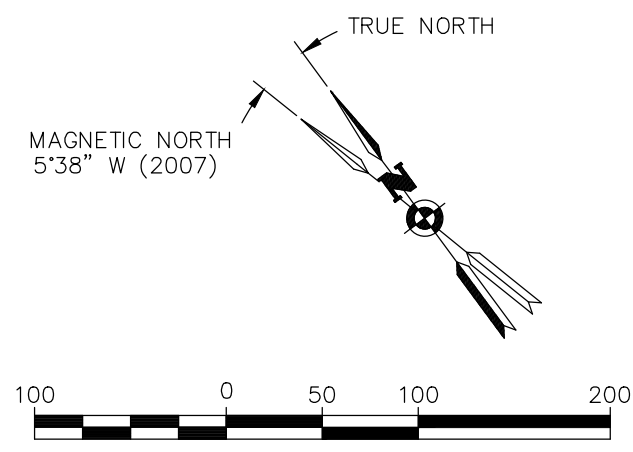
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Project
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Northeast Florida Regional Airport
St. Augustine, Florida
Owner **St. Augustine-St. Johns County Airport Authority**
4796 US 1 North, St. Augustine, Florida 32095

Project No.
23081.32
Drawing No.
2
Date
December, 2016

- NOTE:
- 1. ALL PAVEMENT MARKINGS SHALL CONFORM TO FAA AC 150/5340-1, MOST RECENT EDITION
 - 2. ALL SIGNAGE SHALL CONFORM TO FAA AC 150/5340-18, MOST RECENT EDITION



Revisions				
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Drawing AIRFIELD SIGNAGE AND MARKING PLAN

Project

Airfield Signage & Marking Update
Northeast Florida Regional Airport
St. Augustine, Florida

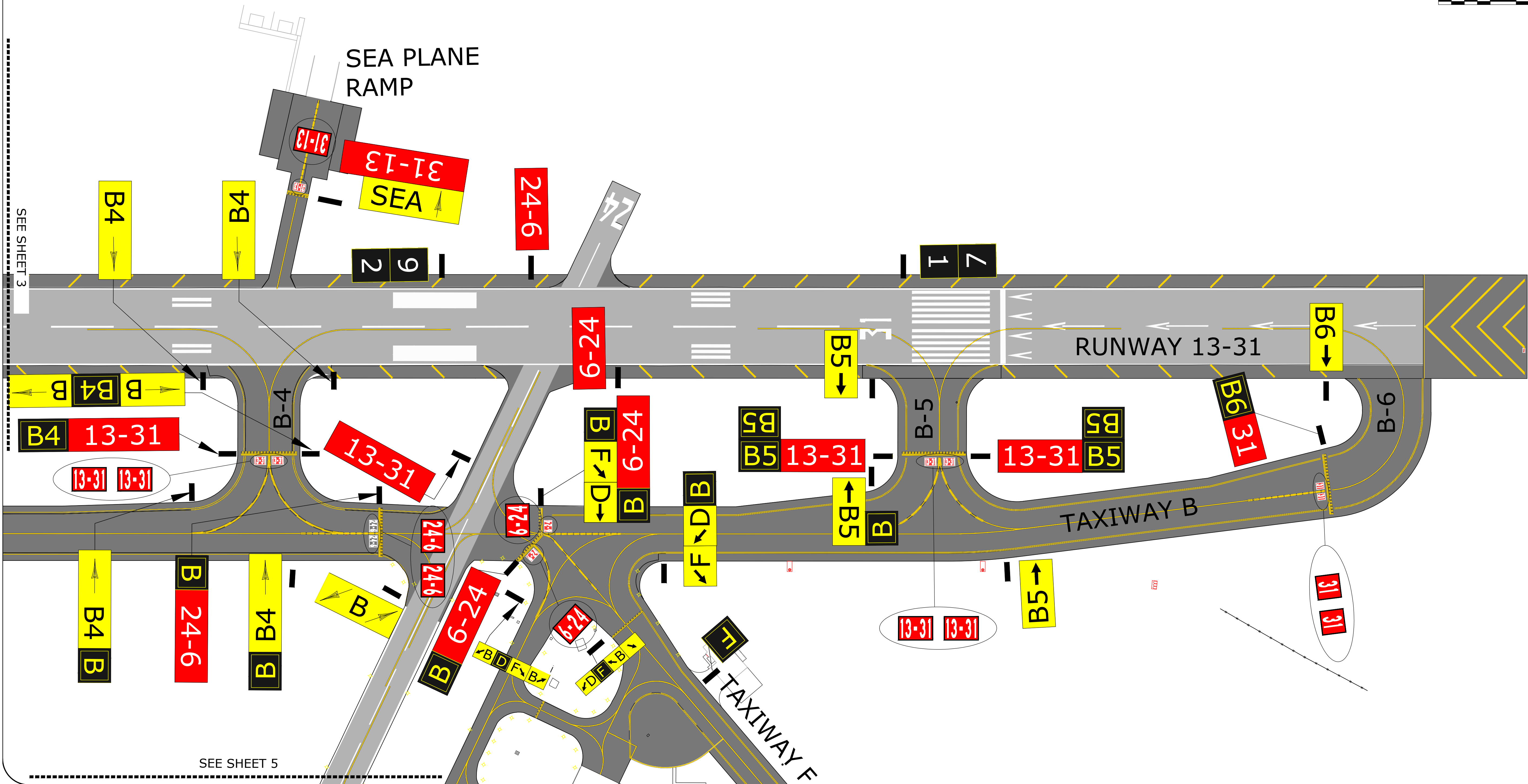
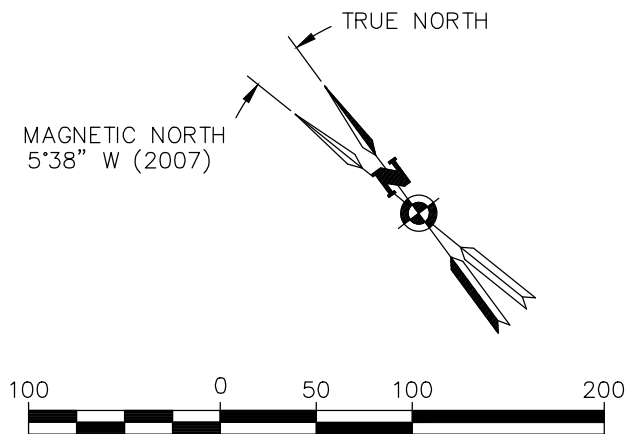
Owner St. Augustine-St. Johns County Airport Authority
4796 US 1 North, St. Augustine, Florida 32095

Project No.
23081.32

Drawing No.
3

Date
December, 2016

- NOTE:
- 1. ALL PAVEMENT MARKINGS SHALL CONFORM TO FAA AC 150/5340-1, MOST RECENT EDITION
 - 2. ALL SIGNAGE SHALL CONFORM TO FAA AC 150/5340-18, MOST RECENT EDITION



SEE SHEET 5

SEE SHEET 3



Revisions			
No.	Date	By	Revision
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Drawing AIRFIELD SIGNAGE AND MARKING PLAN
Project
Airfield Signage & Marking Update
Northeast Florida Regional Airport
St. Augustine, Florida
Owner St. Augustine-St. Johns County Airport Authority
4796 US 1 North, St. Augustine, Florida 32095

Project No. 23081.32
Drawing No. 4
Date December, 2016

Appendix H

Preliminary Environmental Assessment

13 September 2017

Ms. Lisa M. Cheung, Sr. Airport Planner
Passero Associates
242 West Main Street, Suite 100
Rochester, NY 14614



**RE: Northeast Florida Regional Airport
Preliminary Assessment – Airport-Owned Parcels East of U.S. Highway 1
St. Johns County, Florida
ERS Job No. 16136**

Dear Ms. Cheung:

Environmental Resource Solutions Inc. (ERS) has completed a preliminary remote wetland and wildlife assessment and general ecological constraints analysis on several parcels owned by the St. Augustine-St. Johns County Airport Authority, totaling 709.59 acres±, on the eastern side of U.S. Highway 1. This report details our findings.

The project assessment area includes airport-owned parcels near Northeast Florida Regional Airport in Sections 50, 51, 53, and 54, Township 6 South, Range 29 East, St. Johns County, Florida (Exhibit 1).

The purpose of the assessment and constraints analysis is to approximate the extent of jurisdictional wetlands and surface waters [as regulated by St. Johns River Water Management District (SJRWMD) and the U.S. Army Corps of Engineers (USACE)], identify any documented occurrences of federally-listed or state-listed protected species, and identify any other potential ecological constraints that should be taken into consideration during master planning efforts.

Various resources were consulted for this assessment, including, but not limited to, the following:

- *Soil Survey of St. Johns County, Florida* [U.S. Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS)]
- U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping
- SJRWMD land use/land cover Geographic Information System (GIS) mapping data (2009, 2004, 2000)
- SJRWMD infrared aerial photography (2009, 2004, 2000, 1984)
- ArcGIS Online true color aerial photography
- SJRWMD regulatory conservation easement locations (SJRWMD, June 2016)

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According to the *Soil Survey of St. Johns County, Florida* (USDA-NRCS), eighteen soil types are present in the assessment area. Soil survey mapping is depicted on Exhibit 2. Mapped soil types and their numeric Soil Identification Numbers are listed below:

- Myakka-Myakka, wet, fine sands (3)
- St. Johns fine sand, depressional (5)
- Immokalee fine sand (7)
- St. Johns fine sand (13)
- Cassia fine sand (14)
- Pomello fine sand (15)
- Floridana fine sand, frequently flooded (18)
- Pellicer silty clay loam, frequently flooded (24)
- Parkwood fine sandy loam, frequently flooded (25)
- Riviera fine sand, frequently flooded (36)
- Pottsburg fine sand (40)
- St. Augustine fine sand, clayey substratum (45)
- Holopaw fine sand, frequently flooded (47)
- Winder fine sand, frequently flooded (48)
- Moultrie fine sand, frequently flooded (49)
- St. Augustine-Urban land complex (51)
- Durbin muck, frequently flooded (52)
- Adamsville variant fine sand (57)

The approximate boundaries of wetlands jurisdictional to SJRWMD and USACE were estimated for this report using various sources, including historic aerial photography, published soil survey mapping, SJRWMD land use/land cover habitat mapping, and aerial interpretation. No field work was conducted for this assessment. All wetland boundaries and acreages given in this report are estimates and are subject to change upon wetland delineation, agency verification of flagged wetland lines, and subsequent survey.

On-site communities were classified using the Florida Department of Transportation (FDOT) *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, 1999), as shown on Exhibit 3 and the below table.

Table 1. Estimated upland, wetland, and surface water acreages.				
FLUCFCS Code	Community Description	Uplands (acres)	Wetlands (acres)	Surface Waters (acres)
Uplands				
110	Low Density Residential	10.90		
141	Retail Sales and Services	4.42		
190	Open Land	6.93		
411	Pine Flatwoods	4.48		
434	Hardwood-Coniferous Mixed	42.64		
743	Spoil Areas	3.00		
811	Airport-Related Development	410.59		
814	Roads and Highways	0.29		
Wetlands				
617	Mixed Wetland Hardwoods		3.71	
630	Wetland Forested Mixed		47.81	
642	Saltwater Marshes		166.70	
Surface Waters				
510	Streams and Waterways			0.40
511	Upland Cut Ditches			0.25
534	Reservoirs Less Than 10 Acres in Size			7.47
TOTALS		483.25	218.22	8.12

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Significant non-natural land uses within the assessment area include Low Density Residential (FLUCFCS Code 110), Retail Sales and Services (141), Open Land (190), Spoil Areas (743), Airport-Related Development (811), and Roads and Highways (814).

Two natural upland habitat types occur on the site: Pine Flatwoods (411) and Hardwood-Coniferous Mixed (434). The Pine Flatwoods (411) is dominated by slash pine (*Pinus elliottii*) in the canopy layer, accompanied by saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), broom sedge (*Andropogon virginicus*), and bracken fern (*Pteridium aquilinum*) in the understory and groundcover strata. The Hardwood-Coniferous Mixed (434) community contains a similar vegetative composition in the lower vegetative strata, but the canopy layer is characterized by a mixture of hardwood and coniferous canopy species including slash pine, loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), and laurel oak (*Quercus laurifolia*).

On-site forested wetland habitats include Mixed Wetland Hardwoods (617), Wetland Forested Mixed (630), and Saltwater Marshes (642). Mixed Wetland Hardwoods (617) are generally dominated by cypress (*Taxodium* spp.), red maple (*Acer rubrum*), tupelo (*Nyssa sylvatica* var. *biflora*), sweetgum (*Liquidambar styraciflua*), laurel oak, wax myrtle (*Myrica cerifera*), fetterbush (*Lyonia lucida*), Virginia chain fern (*Woodwardia virginica*), and royal fern (*Osmunda regalis*).

Wetland Forested Mixed (630) communities have a similar vegetative composition, with the addition of slash pine and loblolly pine, in the canopy layer, yielding a mixture of coniferous and hardwood species in which neither achieves dominance. Saltwater Marshes (642) are herbaceous wetlands dominated by smooth cordgrass (*Spartina alterniflora*), black needlerush (*Juncus roemerianus*), and saltmeadow cordgrass (*Spartina patens*).

Several surface water classifications occur within the assessment area. The Streams and Waterways (510) classification is used to describe an open-water area that occurs in the southeastern portion of the site, east of the airport. One Upland Cut Ditch (511) is located near the southern assessment area boundary. The classification of Reservoirs Less Than Ten Acres in Size (534) is used to describe stormwater ponds that exist throughout the site.

On-site wetlands appear to vary in quality and composition based on habitat type and adjacent land uses. All on-site wetlands were given preliminary scores using the Uniform Mitigation Assessment Method (UMAM). Preliminary estimated UMAM scores (out of 1.0) for each community type are as follows: 617 – 0.80, 630 – 0.70, and 642 – 0.90. These scores are provisional and are subject to change.

The functional loss for wetland impact is calculated by multiplying the estimated score by the proposed wetland acreage. The functional loss equals the approximate amount of mitigation credits that would need to be purchased to offset the wetland impact. Final mitigation bank purchase amount is subject to change based on agency approval of UMAM scores and assessment of secondary impacts to remaining wetlands.

Surface waters (such as Streams and Waterways, Upland Cut Ditches, and Reservoirs less than Ten Acres in Size) do not generally require mitigation for their impact, so they are not taken into account in the calculation of functional loss.

The assessment area is located in SJRWMD Basin 6 (Tolomato River & Intracoastal Nested). Several mitigation banks serve this basin. St. Marks Pond Mitigation Bank (SMPMB) offers forested freshwater and herbaceous freshwater wetland mitigation credits, and North Florida Saltwater Marsh Mitigation Bank (NFSMMB) offers saltwater wetland mitigation credits. The price per credit varies widely based how many credits are needed, the type of credits needed, and when they are required. Based on recent projects in the area, we estimate that mitigation will cost approximately \$175,000.00 per freshwater wetland credit from SMPMB, and \$400,000 per saltwater wetland mitigation credit from NFSMMB.

A Geographic Information System (GIS) database search and map review were conducted for the assessment area to identify documented occurrences of protected species or their habitat (Exhibits 4 and 5). Data compiled by the Florida Natural Areas Inventory (FNAI), which contains documented occurrences of species listed by the U.S. Fish and Wildlife Service (FWS, 50 CFR 17.11-12) and/or the Florida Fish and Wildlife Conservation Commission (FWC, Chapter 68A-27, Florida Administrative Code), were reviewed. The data used to search for documented occurrences listed by FWC and FWS is updated regularly to ensure accuracy. Wildlife species that may be affected by proposed development are discussed in detail below.

PROTECTED BIRD SPECIES

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is no longer a protected species under the Endangered Species Act, but it remains protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and state regulations. Adherence to the FWS 2007 Bald Eagle Monitoring Guidelines is recommended. FWC data shows a documented nest within the project boundary, along the western edge of the marsh (Exhibits 2 and 5). This nest, identified as FWC Nest ID #SJ013, was last documented as active in 1997.

In accordance with existing laws, regulations apply when construction takes place within 660' of an active eagle nest during the bald eagle nesting season (October 1st through May 15th).

If external construction can take place outside of the nesting season (May 15th through September 30th), no permits or monitoring are required. Interior construction can take place any time during the year without any issues regarding the nest.

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However, if external construction takes place during nesting season, a permit will be required from FWC, which will include (at a minimum) the following monitoring specifications:

- First, the nest is monitored once a week for four hours at a time to see if the nest is occupied.
- If the nest is determined to be occupied, monitoring is required (again in four-hour blocks) three days a week while construction is ongoing. These monitoring iterations are only required when construction is active (i.e., not on weekends, holidays, or construction “off” days), and as long as the birds are actively nesting.
- When the eaglets are five weeks old, monitoring goes back to one day a week.
- Once the eaglets leave the nest, all monitoring efforts can stop. If the eaglets leave the nest prior to May 15th, nesting season is declared to be officially ended and construction can begin.

In summary, all monitoring/permitting requirements surrounding the eagle nest can be avoided if construction only takes place outside of the nesting season. The nesting season is from October 1st through May 15th, so exterior construction would have to be completed between May 16th and September 30th.

American Oystercatcher and Black Skimmer

The American oystercatcher (*Haematopus palliatus*) is a large shorebird with a black head and bright red bill. Oystercatchers require large areas of beach, sandbar, mud flat, and shellfish beds for foraging. The black skimmer (*Rynchops niger*), a coastal waterbird with a red, black-tipped bill and red legs, is found in coastal waters. It nests primarily on sandy beaches, small coastal islands, and dredge spoil islands. Both species are listed as Threatened by FWC.

An FNAI-documented occurrence of these two species lies approximately 4.2 miles southeast of the site. However, since the habitat type required by these species does not occur within the assessment area, no adverse effects are expected for the American oystercatcher or black skimmer.

Wading Birds

The site contains a considerable amount of forested wetlands that may serve as suitable habitat for listed avian species. Some habitats within the project area could potentially provide habitat for protected wading birds such as little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), and least tern (*Sternula antillarum*). All three of these species are listed as Threatened by FWC. The closest documented wading bird rookery is located approximately 3.2 miles northwest of the site, and was last documented as active in the 1970s FWC rookery survey. All of these species may utilize on-site wetlands, but are highly mobile and therefore unlikely to be adversely affected by future development projects.

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Wood Stork

The wood stork (*Mycteria americana*) is listed as Endangered by FWS and FWC. The FWS considers wetlands that are suitable foraging habitat for storks within 13 miles of a wood stork colony in northern Florida to be part of that colony's Core Foraging Area (CFA). While wood storks may or may not be observed during field visits, all on-site wetlands will likely be considered suitable foraging habitat. If impact to a CFA is proposed, FWS requires that mitigation takes place within the CFA and consists of suitable foraging habitat.

The project area lies within the CFA of a wood stork nesting colony located at the St. Augustine Alligator Farm, approximately 5.4 miles southeast of the project area (Exhibit 4).

Given the distance between the assessment area and the documented wood stork nesting colony, and the high level of development in the intervening area, it is not expected that future development will have a negative effect on wood storks.

PROTECTED REPTILE SPECIES

Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*) occurs throughout Florida. It is listed as Threatened by FWC and FWS. This snake can be found in mangrove swamps, wet prairies, xeric pinelands, and scrubs. In the winter, the indigo snake will use gopher tortoise burrows for shelter. During warmer months, the indigo snake is commonly found closer to aquatic environments. Its range is usually less than 25 acres in the winter and can range from 150-250 acres during the spring and summer. The indigo snake is often found hunting in wetlands because of the large amount of available prey. The closest FNAI-documented occurrence of this species is 1.6 miles north of the assessment area, observed prior to 1982. The likelihood of occurrence of this species within any areas proposed for development will be assessed following completion of a gopher tortoise burrow survey.

Florida Pine Snake

The Florida pine snake (*Pituophis melanoleucus mugitus*), listed as Threatened by FWC, is a large, stocky, tan or rusty colored snake with an indistinct pattern of large blotches on a lighter background. It inhabits areas with relatively open canopies and dry sandy soils, including oldfields and pastures, but also sand pine scrub and scrubby flatwoods. It often coexists with gopher tortoises. The closest FNAI-documented occurrence of this species is 2.8 miles southeast of the assessment area, with no observation date given. The likelihood of occurrence of this species within any areas proposed for development will be assessed following completion of a gopher tortoise burrow survey.

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is listed as Threatened by FWC and as a candidate species for federal listing by FWS. Permitting and relocation are required for any gopher tortoises or burrows that are impacted. The closest FNAI-documented gopher tortoise occurrence is approximately 3.9 miles southeast of the project area. If any work is proposed in on-site uplands, a complete survey for tortoises should be completed in accordance with FWC regulations. A permit would have to be obtained from FWC to relocate any tortoises that would be impacted by the proposed work.

PROTECTED MAMMAL SPECIES

West Indian Manatee

The West Indian manatee (*Trichechus manatus*) is a large gray, nearly hairless, aquatic mammal. Its habitat includes coastal waters, bays, and rivers, and it requires water-water refugia such as springs or cooling effluent during cold weather.

The closest FWC-documented manatee mortality location is approximately 0.1 mile from the assessment area boundary, documented in 1977. In addition, an FNAI-documented manatee occurrence from 1994 lies 3.5 miles± southeast of the site. Any in-water work proposed along the eastern assessment boundary would require assessment of the proposed development's impact on this species, through coordination with FWC.

GIS data published by SJRWMD was reviewed to determine if the project area contains any conservation easements granted to St. Johns River Water Management District (SJRWMD) for regulatory mitigation purposes. While no regulatory conservation easements were identified within the project area, a full title search will be required in order to identify all existing encumbrances.

The results of this assessment are estimated based on referenced information and are subject to change. ERS did not perform field work or seek agency verification of any of our findings. Please contact me if you have any questions or require additional information.

Sincerely,

ENVIRONMENTAL RESOURCE SOLUTIONS, INC.



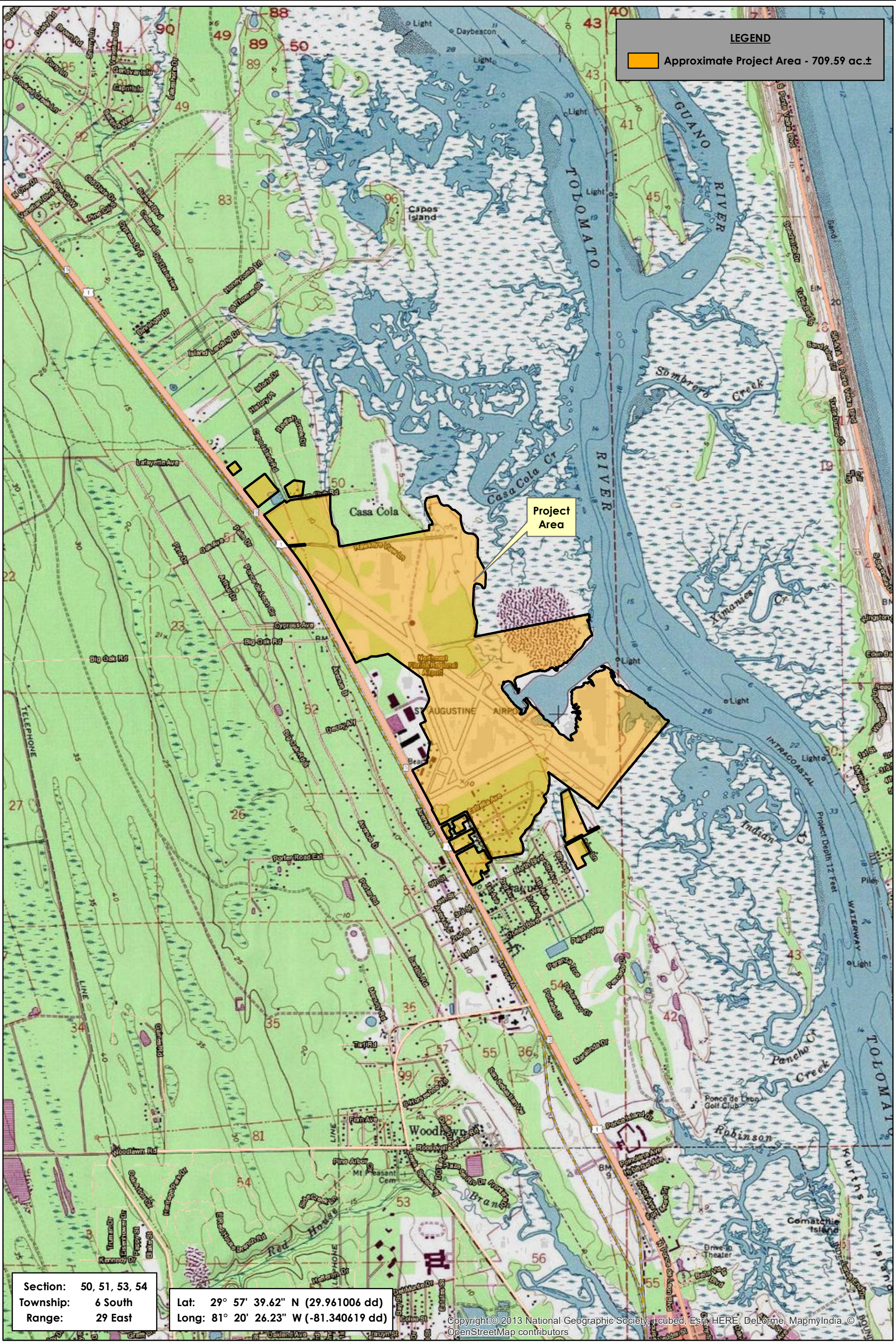
Jaime Northrup
Project Manager/Senior Environmental Scientist

JKN/16136_PrelimReport_EastOfUS1_9-13-17

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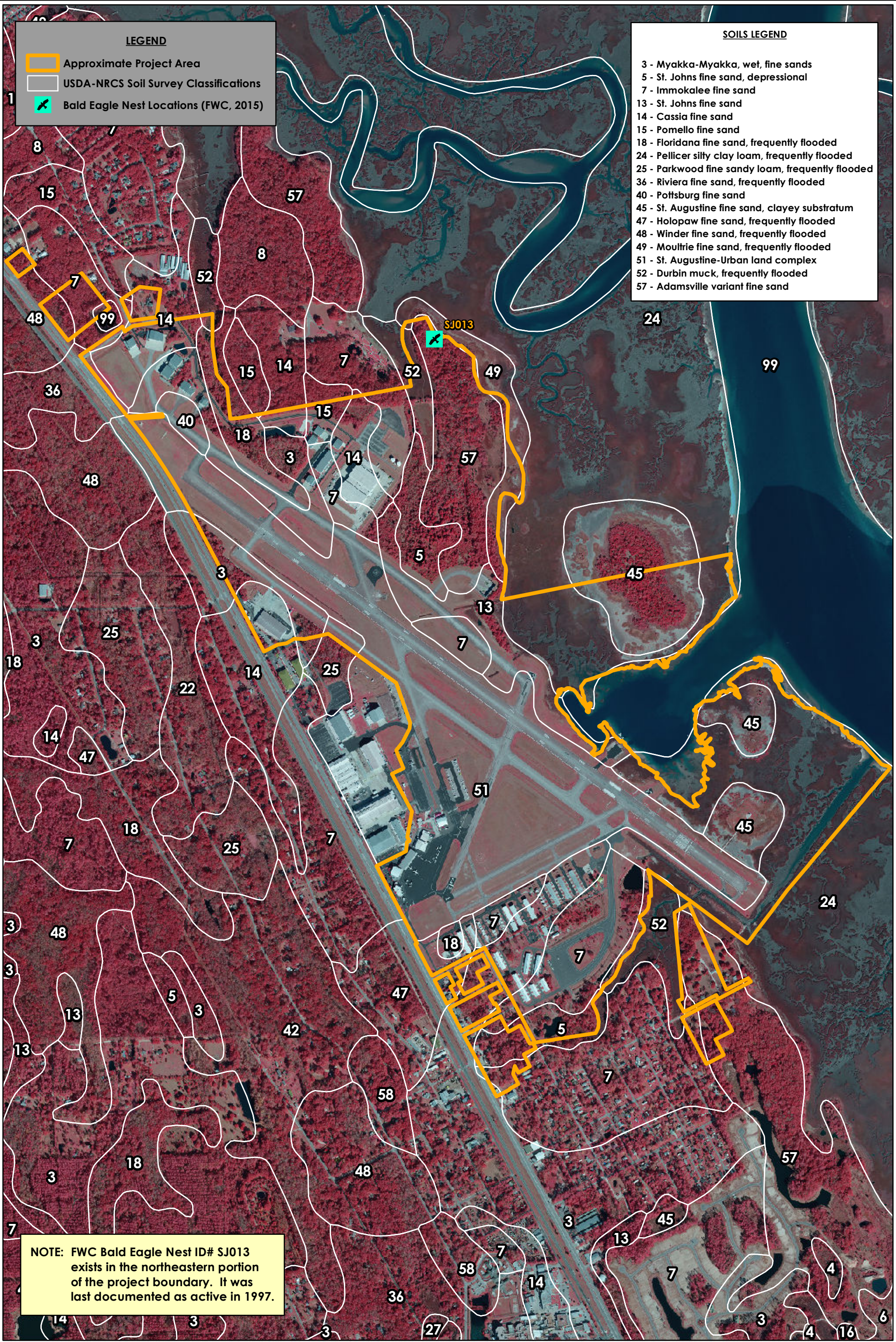


Section: 50, 51, 53, 54
Township: 6 South
Range: 29 East
Lat: 29° 57' 39.62" N (29.961006 dd)
Long: 81° 20' 26.23" W (-81.340619 dd)

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	 <p>Environmental Resource Solutions Our Science. Your Success.</p>	8711 Perimeter Park Blvd. Suite 1 Jacksonville, FL 32216 (904) 285-1397 mail@ersenvironmental.com	Northeast FL Regional Airport USGS Topographic Quadrangle Map St. Johns County, Florida		Project No.: 16136	
					Exhibit No.: 1	
			By: DF	Date: 8-18-17	Rev. Date:	

Source: 7.5' USGS St. Augustine, FL Topographic Quadrangle; ArcGIS Online (USA Topo Maps) X:\GIS Projects\2016\16136\mxd\East_of_US1\16136_location_8-18-17.mxd



LEGEND

Approximate Project Area

USDA-NRCS Soil Survey Classifications

Bald Eagle Nest Locations (FWC, 2015)

- SOILS LEGEND
- 3

 - Myakka-Myakka, wet, fine sands
- 5

 - St. Johns fine sand, depressional
- 7

 - Immokalee fine sand
- 13

 - St. Johns fine sand
- 14

 - Cassia fine sand
- 15

 - Pomello fine sand
- 18

 - Floridana fine sand, frequently flooded
- 24

 - Pellicer silty clay loam, frequently flooded
- 25

 - Parkwood fine sandy loam, frequently flooded
- 36

 - Riviera fine sand, frequently flooded
- 40

 - Pottsburg fine sand
- 45

 - St. Augustine fine sand, clayey substratum
- 47

 - Holopaw fine sand, frequently flooded
- 48

 - Winder fine sand, frequently flooded
- 49

 - Moultrie fine sand, frequently flooded
- 51

 - St. Augustine-Urban land complex
- 52

 - Durbin muck, frequently flooded
- 57

 - Adamsville variant fine sand

NOTE: FWC Bald Eagle Nest ID# SJ013 exists in the northeastern portion of the project boundary. It was last documented as active in 1997.



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Northeast FL Regional Airport
Soils Map & On-Site Bald Eagle
Nest Location

St. Johns County, Florida

By: DF

Project No.:	16136
Exhibit No.:	2
Date:	8-18-17
Rev. Date:	

Source: ArcGIS Online Imagery, USDA-NRCS soil survey classifications (data obtained from NRCS)

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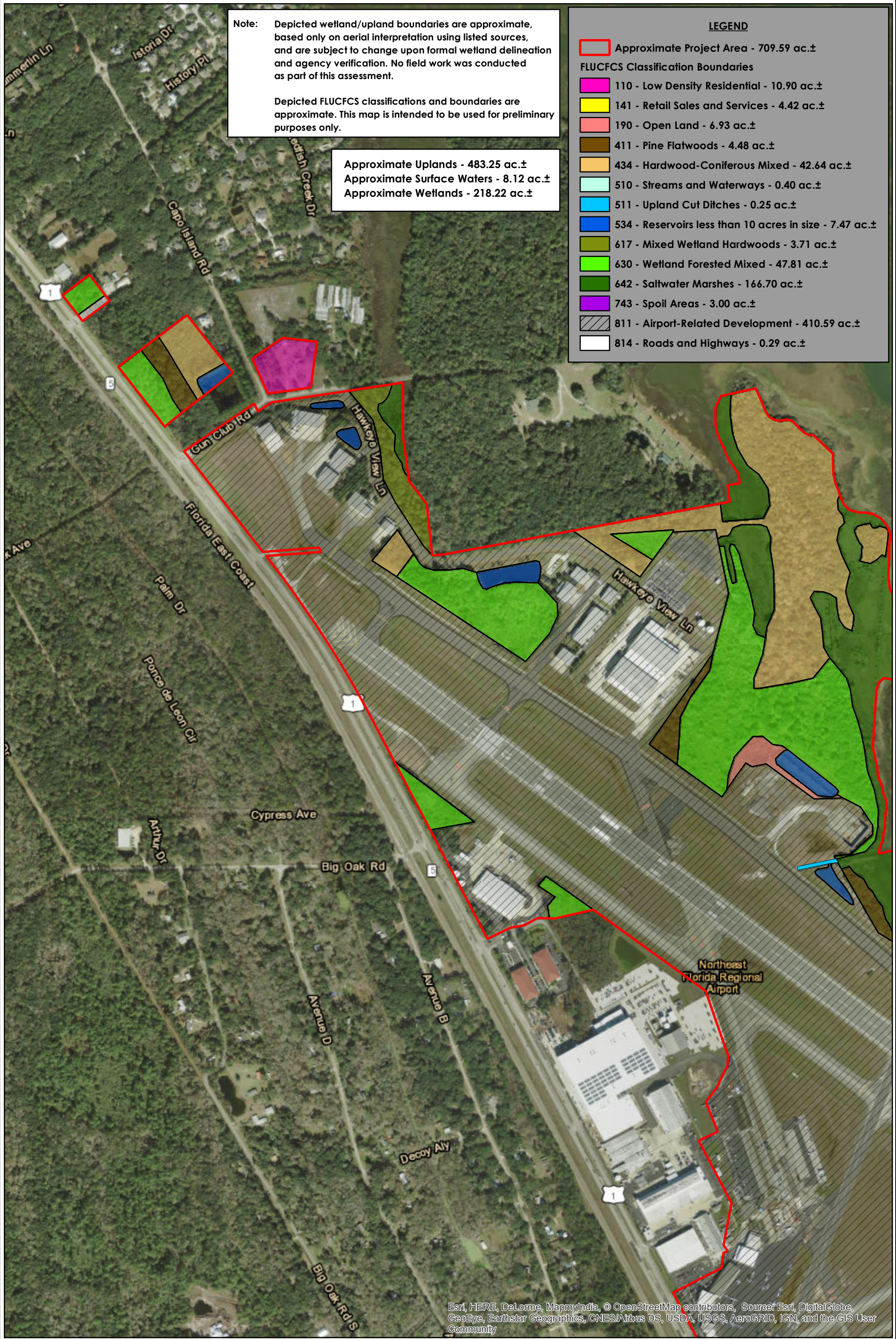
Note: Depicted wetland/upland boundaries are approximate, based only on aerial interpretation using listed sources, and are subject to change upon formal wetland delineation and agency verification. No field work was conducted as part of this assessment.

Depicted FLUCFCS classifications and boundaries are approximate. This map is intended to be used for preliminary purposes only.

Approximate Uplands - 483.25 ac.±
Approximate Surface Waters - 8.12 ac.±
Approximate Wetlands - 218.22 ac.±

LEGEND

- Approximate Project Area - 709.59 ac.±
- FLUCFCS Classification Boundaries
 - 110 - Low Density Residential - 10.90 ac.±
 - 141 - Retail Sales and Services - 4.42 ac.±
 - 190 - Open Land - 6.93 ac.±
 - 411 - Pine Flatwoods - 4.48 ac.±
 - 434 - Hardwood-Coniferous Mixed - 42.64 ac.±
 - 510 - Streams and Waterways - 0.40 ac.±
 - 511 - Upland Cut Ditches - 0.25 ac.±
 - 534 - Reservoirs less than 10 acres in size - 7.47 ac.±
 - 617 - Mixed Wetland Hardwoods - 3.71 ac.±
 - 630 - Wetland Forested Mixed - 47.81 ac.±
 - 642 - Saltwater Marshes - 166.70 ac.±
 - 743 - Spoil Areas - 3.00 ac.±
 - 811 - Airport-Related Development - 410.59 ac.±
 - 814 - Roads and Highways - 0.29 ac.±



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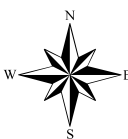


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Source: ArcGIS Online Imagery

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**Northeast FL Regional Airport
FLUCFCS Map A**

Project No.:	16136
Exhibit No.:	3-A
Date:	8-18-17
By: DF	Rev. Date:



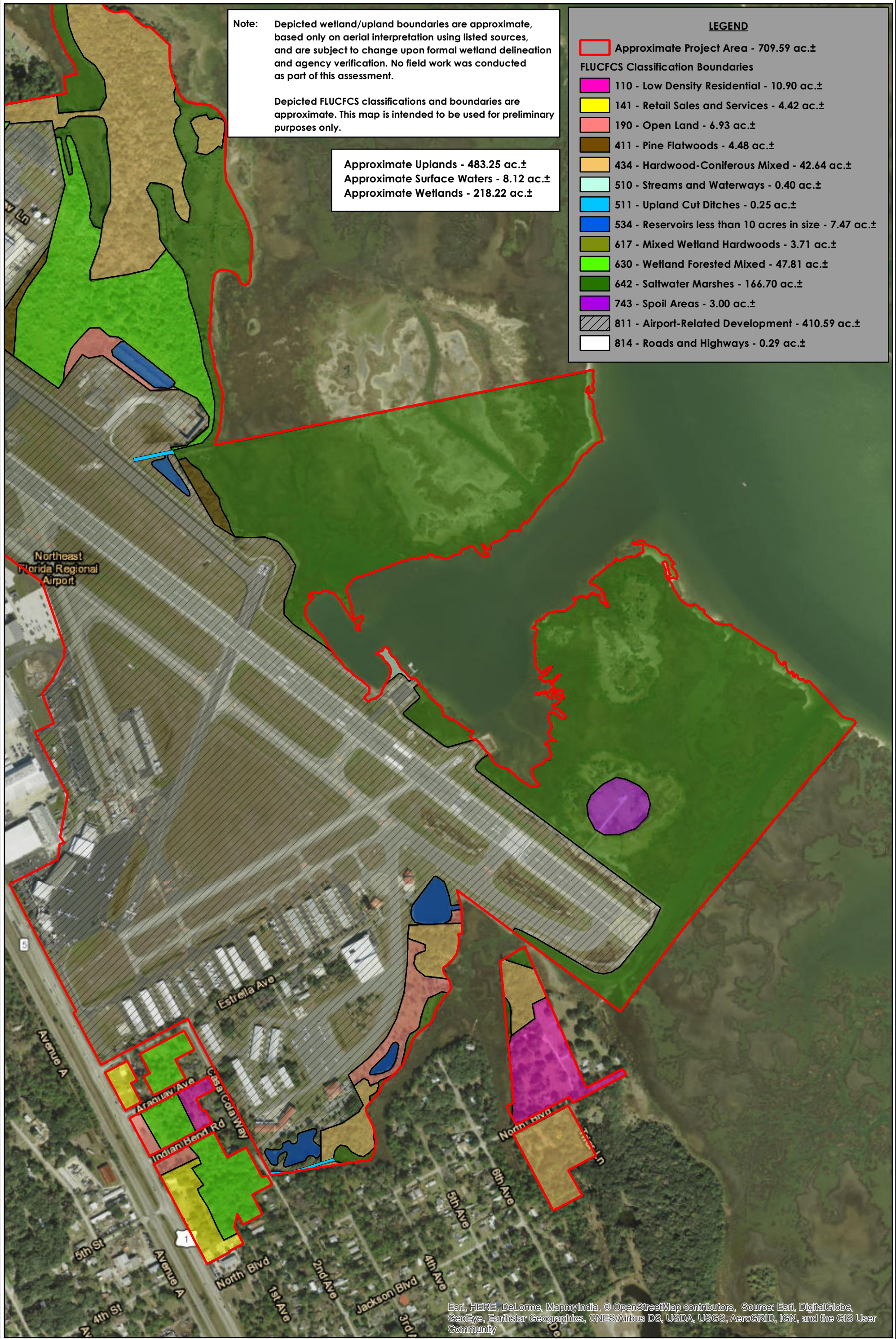
Note: Depicted wetland/upland boundaries are approximate, based only on aerial interpretation using listed sources, and are subject to change upon formal wetland delineation and agency verification. No field work was conducted as part of this assessment.

Depicted FLUCFCS classifications and boundaries are approximate. This map is intended to be used for preliminary purposes only.

Approximate Uplands - 483.25 ac.±
Approximate Surface Waters - 8.12 ac.±
Approximate Wetlands - 218.22 ac.±

LEGEND

- Approximate Project Area - 709.59 ac.±
- FLUCFCS Classification Boundaries
 - 110 - Low Density Residential - 10.90 ac.±
 - 141 - Retail Sales and Services - 4.42 ac.±
 - 190 - Open Land - 6.93 ac.±
 - 411 - Pine Flatwoods - 4.48 ac.±
 - 434 - Hardwood-Coniferous Mixed - 42.64 ac.±
 - 510 - Streams and Waterways - 0.40 ac.±
 - 511 - Upland Cut Ditches - 0.25 ac.±
 - 534 - Reservoirs less than 10 acres in size - 7.47 ac.±
 - 617 - Mixed Wetland Hardwoods - 3.71 ac.±
 - 630 - Wetland Forested Mixed - 47.81 ac.±
 - 642 - Saltwater Marshes - 166.70 ac.±
 - 743 - Spoil Areas - 3.00 ac.±
 - 811 - Airport-Related Development - 410.59 ac.±
 - 814 - Roads and Highways - 0.29 ac.±



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Northeast FL Regional Airport
FLUCFCS Map B

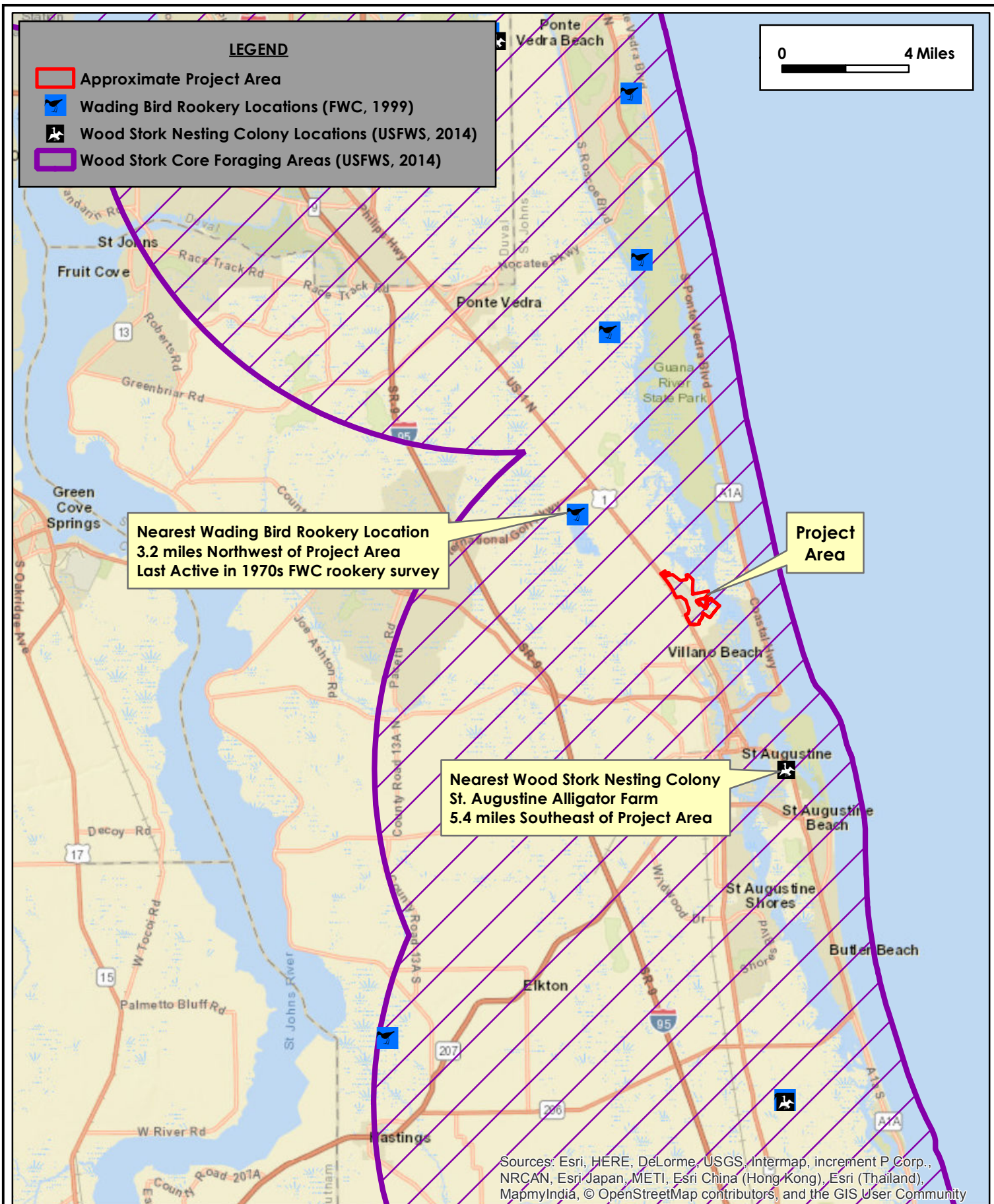
Project No.:	16136
Exhibit No.:	3-B
Date:	8-18-17
Rev. Date:	

By: DF



Source: ArcGIS Online Imagery

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LEGEND

- Approximate Project Area
- 5 Mile Radius of Project Area
- ✂ Bald Eagle Nest Locations (FWC, 2015)
- ☠ Manatee Mortality Locations (FWC, 2008)
- Manatee Consultation Areas (USFWS, 2003)

- FNAI Occurrences of Protected Wildlife (October 2014)**
(Documented Occurrence Date; Approximate Distance From Site)
- 🐦 American Oystercatcher, Black Skimmer (1993; 4.2 miles)
 - 🐍 Eastern Indigo Snake (pre-1982; 1.6 miles)
 - 🐍 Florida Pine Snake (No Date Given; 2.8 miles)
 - 🐢 Gopher Tortoise (1991; 3.9 miles)
 - 🐦 Least Tern (1993; 3.5 miles)
 - 🦅 Little Blue Heron, Tricolored Heron (1976; 2.5 miles)
 - 🐬 Manatee (1994; 3.5 miles)

0 2 Miles

Closest documented bald eagle nest is FWC Nest ID#SJ013, is on-site and last documented as active in 1997.

Closest documented manatee mortality location is 0.1 mile from site in 1977 (FWC, 2008).

Note: The following databases showed no documented occurrences and/or coverage within the 5-mile radius:

1. Red Cockaded Woodpecker Occurrences (FWC, 2005)
2. Scrub Jay Occurrences (FWC, 1994)
3. Scrub Jay Habitat (FWC, 2004)

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Northeast FL Regional Airport Documented Occurrences of Protected Wildlife Within 5 Miles

By: NEE

Project No.:	16136
Exhibit No.:	5
Date:	8-18-17
Rev. Date:	



22 November 2017

Ms. Lisa M. Cheung, Sr. Airport Planner
Passero Associates
242 West Main Street, Suite 100
Rochester, NY 14614



**RE: Northeast Florida Regional Airport
REVISED Preliminary Assessment – Airport-Owned Parcels West of U.S. Highway 1
ERS Job No. 16136**

Dear Ms. Cheung:

Environmental Resource Solutions Inc. (ERS) has completed a preliminary remote wetland and wildlife assessment and general ecological constraints analysis on several parcels owned by the St. Augustine-St. Johns County Airport Authority, totaling 968.88 acres±, on the western side of U.S. Highway 1. This report details our findings.

The purpose of the assessment and constraints analysis is to approximate the extent of jurisdictional wetlands [as regulated by St. Johns River Water Management District (SJRWMD) and the U.S. Army Corps of Engineers (USACE)], identify any documented occurrences of federally-listed or state-listed protected species, and identify any other potential ecological constraints that should be taken into consideration during master planning efforts.

Various resources were consulted for this assessment, including, but not limited to, the following:

- *Soil Survey of St. Johns County, Florida* [U.S. Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS)]
- U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping
- SJRWMD land use/land cover Geographic Information System (GIS) mapping data (2009, 2004, 2000)
- SJRWMD infrared aerial photography (2009, 2004, 2000, 1984)
- ArcGIS Online true color aerial photography
- SJRWMD regulatory conservation easement locations (SJRWMD, June 2016)

The project assessment area is located west of the Northeast Florida Regional Airport in St. Johns County, Florida, in Sections 15, 22, 23, 26, 27, 50, 51, and 52, Township 6 South, Range 29 East (Exhibit 1).

According to the *Soil Survey of St. Johns County, Florida* (USDA-NRCS), fifteen soil types are present in the assessment area. Soil survey mapping is depicted on Exhibit 2. Soil types and their numeric Soil Identification Number are listed below:

- Myakka-Myakka, wet, fine sands (3)
- Immokalee fine sand (7)
- St. Johns fine sand (13)
- Cassia fine sand (14)
- Pomello fine sand (15)
- Floridana fine sand, frequently flooded (18)
- Manatee fine sandy loam, frequently flooded (22)
- Parkwood fine sandy loam, frequently flooded (25)
- Wesconnett fine sand, frequently flooded (30)
- Jonathan fine sand (33)
- Riviera fine sand, frequently flooded (36)
- Pottsburg fine sand (40)
- Holopaw fine sand, frequently flooded (47)
- Winder fine sand, frequently flooded (48)
- EauGallie fine sand (58)

The approximate boundaries of wetlands jurisdictional to SJRWMD and USACE were estimated for this report using various sources, including information from previously issued SJRWMD Formal Wetland Determinations, published soil survey mapping, SJRWMD land use/land cover habitat mapping, and aerial interpretation. No field work was conducted for this assessment. All wetland boundaries and acreages given in this report are estimates and are subject to change upon wetland delineation, agency verification, and final survey.

On-site communities were then classified using the Florida Department of Transportation (FDOT) *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, 1999), as depicted on Exhibit 3. The table below summarizes the approximate acreages for the project area, by community type.

Table 1. Estimated upland, wetland, and surface water acreages.				
FLUCFCS Code	Community Description	Uplands (acres)	Wetlands (acres)	Surface Waters (acres)
110	Low Density Residential	15.41		
172	Religious	0.89		
190	Open Land	5.31		
211	Improved Pasture	209.27		
434	Hardwood-Coniferous Mixed	193.04		
441	Coniferous Plantations	148.05		
524	Lakes Less Than 10 Acres in Size			2.27
617	Mixed Wetland Hardwoods		236.93	
625	Hydric Pine Flatwoods		21.62	
630	Wetland Forested Mixed		136.09	
TOTALS		571.97	394.64	2.27

Significant non-natural land uses within the assessment area include Low Density Residential (FLUCFCS Code 110), Religious (172), Open Land (190), Improved Pasture (211), and Coniferous Plantations (441).

The only natural upland habitat type that occurs on the site is Hardwood-Coniferous Mixed (434). This community, which is generally characterized by a mixture of hardwood and coniferous canopy species, is dominated by slash pine (*Pinus elliottii*), loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), broom sedge (*Andropogon virginicus*), and bracken fern (*Pteridium aquilinum*).

On-site forested wetland habitats include Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), and Wetland Forested Mixed (630). Mixed Wetland Hardwoods (617) are generally dominated by cypress (*Taxodium* spp.), red maple (*Acer rubrum*), tupelo (*Nyssa sylvatica* var. *biflora*), sweetgum (*Liquidambar styraciflua*), laurel oak, wax myrtle (*Myrica cerifera*), fetterbush (*Lyonia lucida*), Virginia chain fern (*Woodwardia virginica*), and royal fern (*Osmunda regalis*).

Hydric Pine Flatwoods (625) are pine-dominated wetlands, comprised mainly of slash pine, loblolly pine, red maple, sweetgum, gallberry, fetterbush, Virginia chain fern, and yellow-eyed grass (*Xyris* spp.).

Wetland Forested Mixed (630) communities are often dominated by slash pine, loblolly pine, red maple, sweetgum, wax myrtle, fetterbush, Virginia chain fern, netted chain fern (*Woodwardia areolata*), and cinnamon fern (*Osmunda cinnamomea*).

One area classified as a Lake (524) occurs near the center of the site; this area will likely be considered a Surface Water rather than a wetland.

On-site wetlands appear to vary in quality and composition based on habitat type, degree of disturbance due to silviculture activities, and adjacent land uses. In general, the natural forested wetland types are likely moderate in quality. All on-site wetlands were given preliminary scores using the Uniform Mitigation Assessment Method (UMAM). Scores (out of 1.0) are as follows: 617 – 0.80, 625 – 0.70, and 630 – 0.70. These scores are provisional and are subject to change. The functional loss for wetland impact is calculated by multiplying the estimated score by the estimated wetland acreage. The functional loss equals the amount of mitigation credits that would need to be purchased to offset the wetland impact. Surface waters (such as lakes) do not generally require mitigation for their impact, so they are not taken into account in the calculation of functional loss.

The project is located in SJRWMD Basin 9 (Pellicer Creek & Matanzas River). Several mitigation banks serve this basin. Due to competition, price per credit varies widely based how many credits are needed and when they are required. However, based on recent projects in the area, we estimate that mitigation will cost approximately \$80,000.00 per credit.

A GIS database search and map review were conducted for the assessment area to identify documented occurrences of protected species or their habitat. Data compiled by the Florida Natural Areas Inventory (FNAI), which contains documented occurrences of species listed by the FWS and/or the Florida Fish and Wildlife Conservation Commission (FWC), were reviewed. Attention was focused on those species listed by FWC (Chapter 68A-27 F.A.C.) and FWS (50 CFR 17.11-12). The data used to search for documented occurrences listed by FWC and FWS is updated regularly to ensure accuracy.

No occurrences of listed species or their habitat are documented in or near the assessment area.

The wood stork (*Mycteria americana*) is listed as Endangered by the FWS and FWC. The FWS considers wetlands that are suitable foraging habitat for storks within 13 miles of a wood stork colony in northern Florida to be part of that colony's Core Foraging Area (CFA). While wood storks may or may not be observed during field visits, all on-site wetlands will likely be considered suitable foraging habitat. If impact to a CFA is proposed, FWS requires that mitigation takes place within the CFA and consists of suitable foraging habitat.

The project area lies within the CFA of a wood stork nesting colony located at the St. Augustine Alligator Farm, approximately 5.6 miles southeast of the project area (Exhibit 4). The closest documented wading bird rookery is located approximately 2.1 miles northwest of the site, and was last documented as active in the 1970s FWC rookery survey.

Given the distance between the proposed project area and the documented wood stork nesting colony and wading bird rookery locations, and the high level of development in the intermediate area, it is not expected that future development will have a negative effect on wood storks or other protected birds.

Exhibit 5 shows documented occurrences of other protected wildlife within five miles of the assessment area. The closest documented occurrence of protected wildlife is the eastern indigo snake, approximately 1.0 mile northeast of the project area, prior to 1982.

The bald eagle (*Haliaeetus leucocephalus*) is no longer a protected species under the Endangered Species Act, but restrictions remain in place for work near nests. The bald eagle remains protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and state regulations. Adherence to the FWS 2007 Bald Eagle Monitoring Guidelines is still recommended. FWC data shows several documented eagle nests within a 5-mile radius of the project area; however, the closest documented nest is FWC Nest ID #SJ013, approximately 0.7-mile east of the project area, last documented as active in 1997. Since the management guidelines only apply when activity is proposed within 660 feet of a nest, eagle nests are not likely to restrict future development in the assessment area. If an eagle nest is found within 660 feet of any proposed work areas, coordination with FWS will be required.

The gopher tortoise (*Gopherus polyphemus*) is listed as Threatened by FWC, and permitting and relocation are required for any tortoises or burrows that are impacted. The closest FNAI-documented gopher tortoise occurrence is approximately 4.4 miles southeast of the project corridor. If any work is proposed in on-site uplands, a complete survey for tortoises should be completed in accordance with FWC regulations. A permit would have to be obtained from FWC to relocate any tortoises that would be impacted by the proposed work.

The eastern indigo snake (*Drymarchon corais couperi*), a commensal species of the gopher tortoise, is listed as Endangered by both the state and federal wildlife agencies; it requires large areas of suitable habitat. The likelihood of occurrence of this species within the project area will be assessed following completion of a gopher tortoise burrow survey.

The red-cockaded woodpecker (*Picoides borealis*, "RCW") is listed as Endangered by FWS and FWC. No FWC- or FNAI-documented occurrences of the red-cockaded woodpecker exist within a five mile radius of the project area. The RCW requires high quality pine forests with mature pines containing heart rot for nesting. It is unlikely that the habitat requisites for the RCW are present within the assessment area. Therefore, this species is highly unlikely to occur.

The site contains a considerable amount of forested wetlands which may comprise suitable habitat for listed avian species. Some habitats within the project area could potentially provide habitat for wood stork (*Mycteria americana*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), and/or white ibis (*Eudocimus albus*). All of these are highly mobile species. These species may occur, but are unlikely to be adversely affected by future development projects.

Additional research and/or surveys may be necessary to determine if any other listed species may be impacted by proposed work.

Depicted on Exhibit 6 are the locations of conservation easements granted to St. Johns River Water Management District (SJRWMD) for regulatory mitigation purposes. Please note that the locations and extents of these easements are approximate, based on Geographic Information System (GIS) data published by SJRWMD. A full title search of the project area will be required in order to identify all existing encumbrances. Each easement depicted on Exhibit 6 is listed below along with its book/page location in the Official Records (OR) of St. Johns County, as well as the SJRWMD Permit with which it is associated.

- C1: OR Book 2434, Page 48 – SJRWMD Permit No. 40-109-93973-1
- C2: OR Book 1838, Page 1630 – SJRWMD Permit No. 40-109-28307-17
- C3: OR Book 2034, Page 34 – SJRWMD Permit No. 40-031-80614-1

Subsequent investigation of C1 has revealed that its location is incorrect in the SJRWMD-published GIS data source. Based on the legal description and sketch included in the recorded easement, this encumbrance is located on the eastern side of U.S. Highway 1. Therefore, C1 is not located within the project area.

The results of this assessment are estimated based on existing information and are subject to change. ERS did not perform field work or seek agency verification of any of our findings. Please contact Kim Allerton or me if you have any questions or require any additional information.

Sincerely,

ENVIRONMENTAL RESOURCE SOLUTIONS, INC.



Jaime Northrup
Project Manager/Senior Environmental Scientist

JKN/16136_PrelimReportWestofUS1Revised_11-22-17

Environmental Resource Solutions, Inc.

Jacksonville Headquarters:

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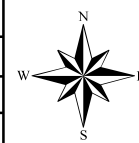
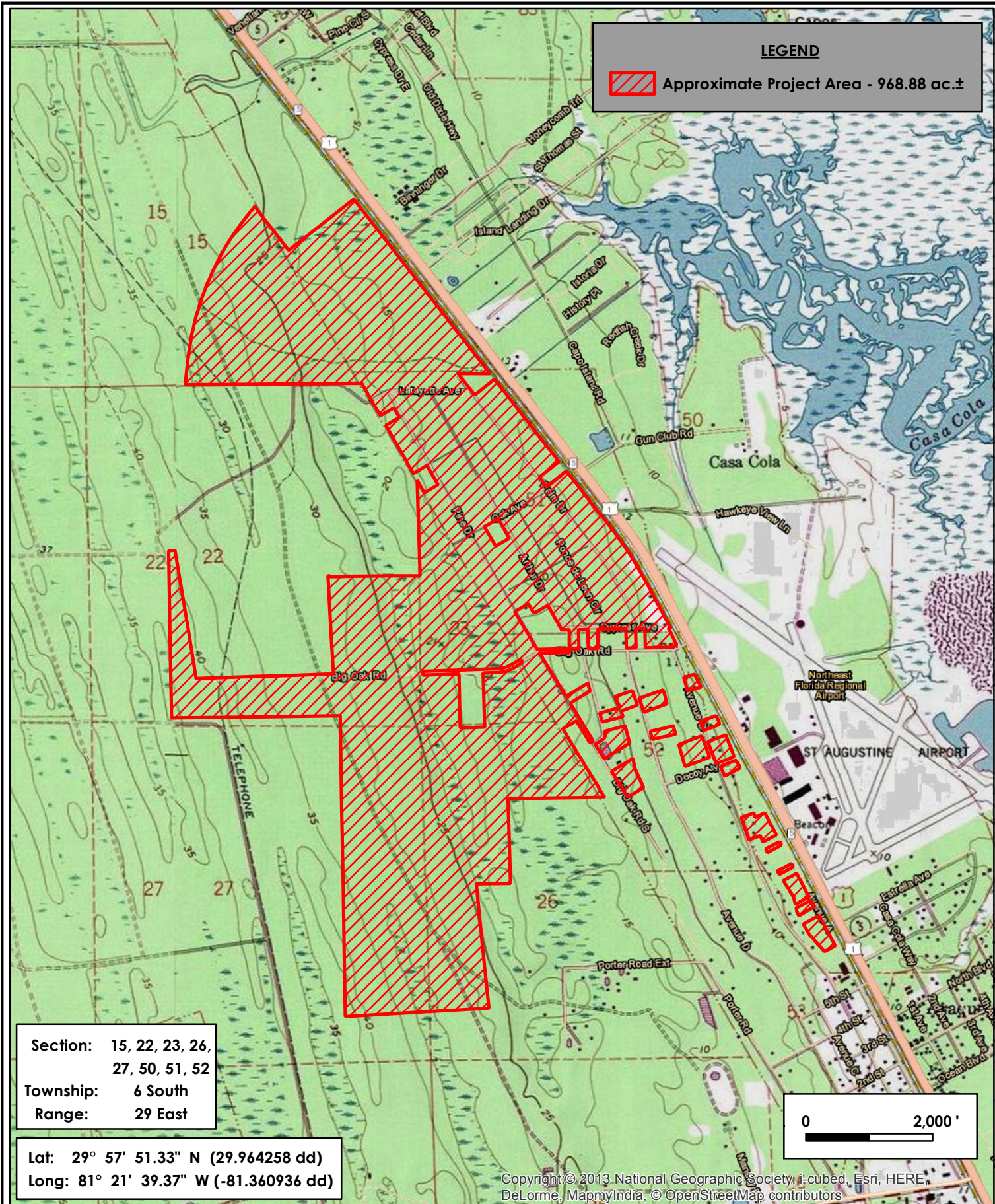
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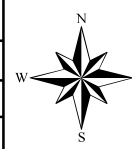
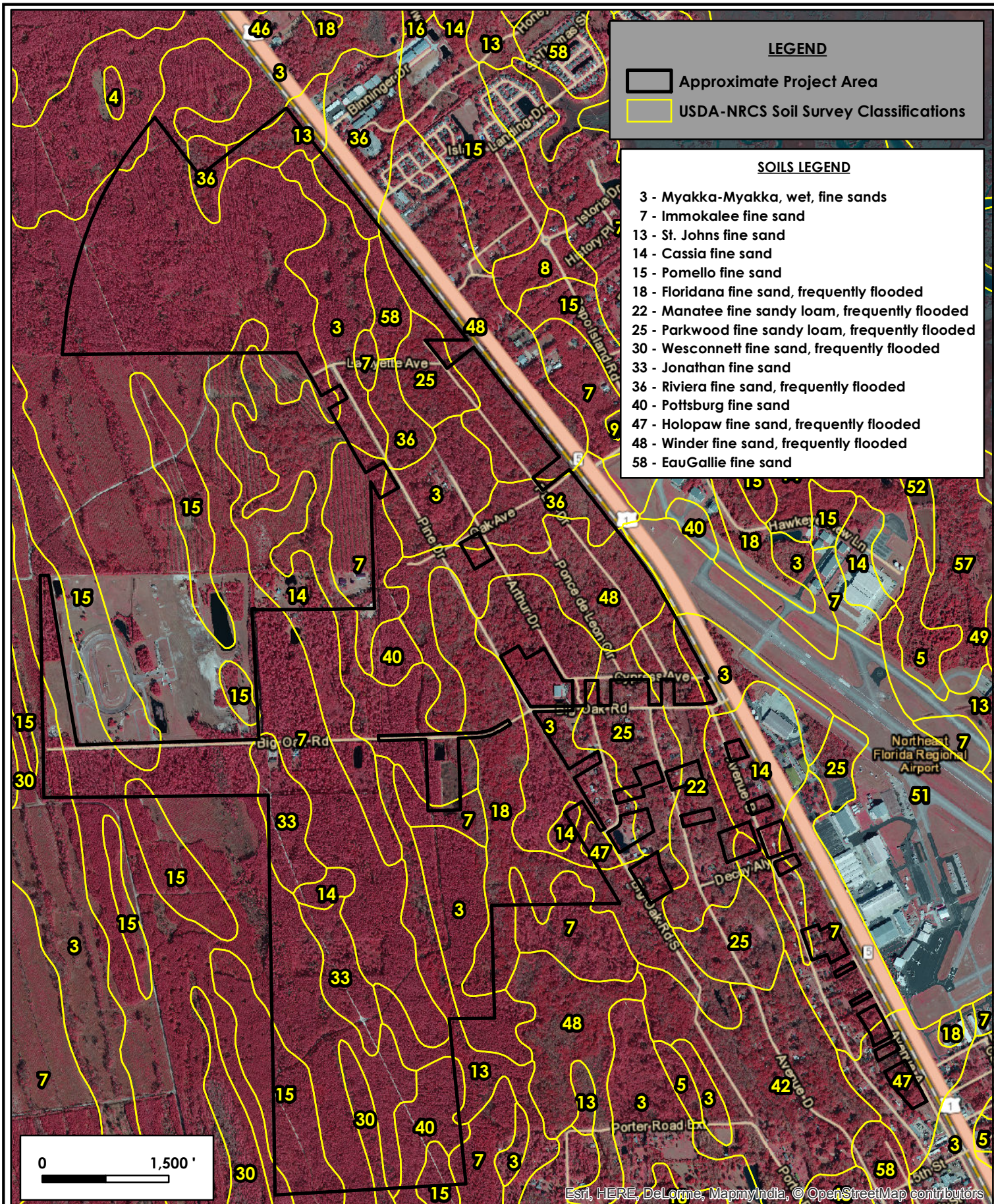
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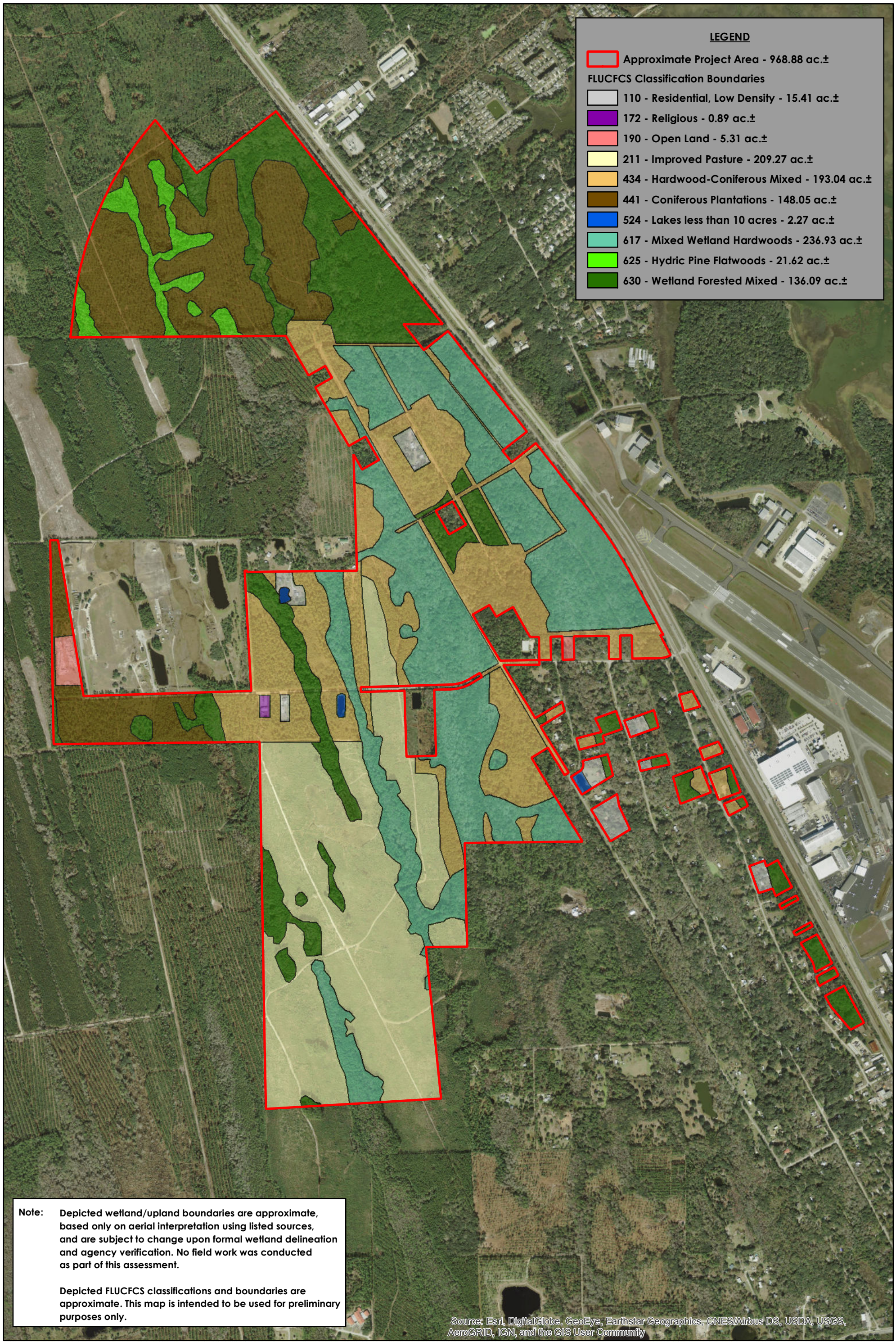
19607 Lake Osceola Lane, Odessa, Florida 33556

T: (813) 404-3963

Email: sbrammell@ersenvironmental.com







LEGEND

- Approximate Project Area - 968.88 ac.±
- FLUCFCS Classification Boundaries
- 110 - Residential, Low Density - 15.41 ac.±
 - 172 - Religious - 0.89 ac.±
 - 190 - Open Land - 5.31 ac.±
 - 211 - Improved Pasture - 209.27 ac.±
 - 434 - Hardwood-Coniferous Mixed - 193.04 ac.±
 - 441 - Coniferous Plantations - 148.05 ac.±
 - 524 - Lakes less than 10 acres - 2.27 ac.±
 - 617 - Mixed Wetland Hardwoods - 236.93 ac.±
 - 625 - Hydric Pine Flatwoods - 21.62 ac.±
 - 630 - Wetland Forested Mixed - 136.09 ac.±

Note: Depicted wetland/upland boundaries are approximate, based only on aerial interpretation using listed sources, and are subject to change upon formal wetland delineation and agency verification. No field work was conducted as part of this assessment.

Depicted FLUCFCS classifications and boundaries are approximate. This map is intended to be used for preliminary purposes only.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



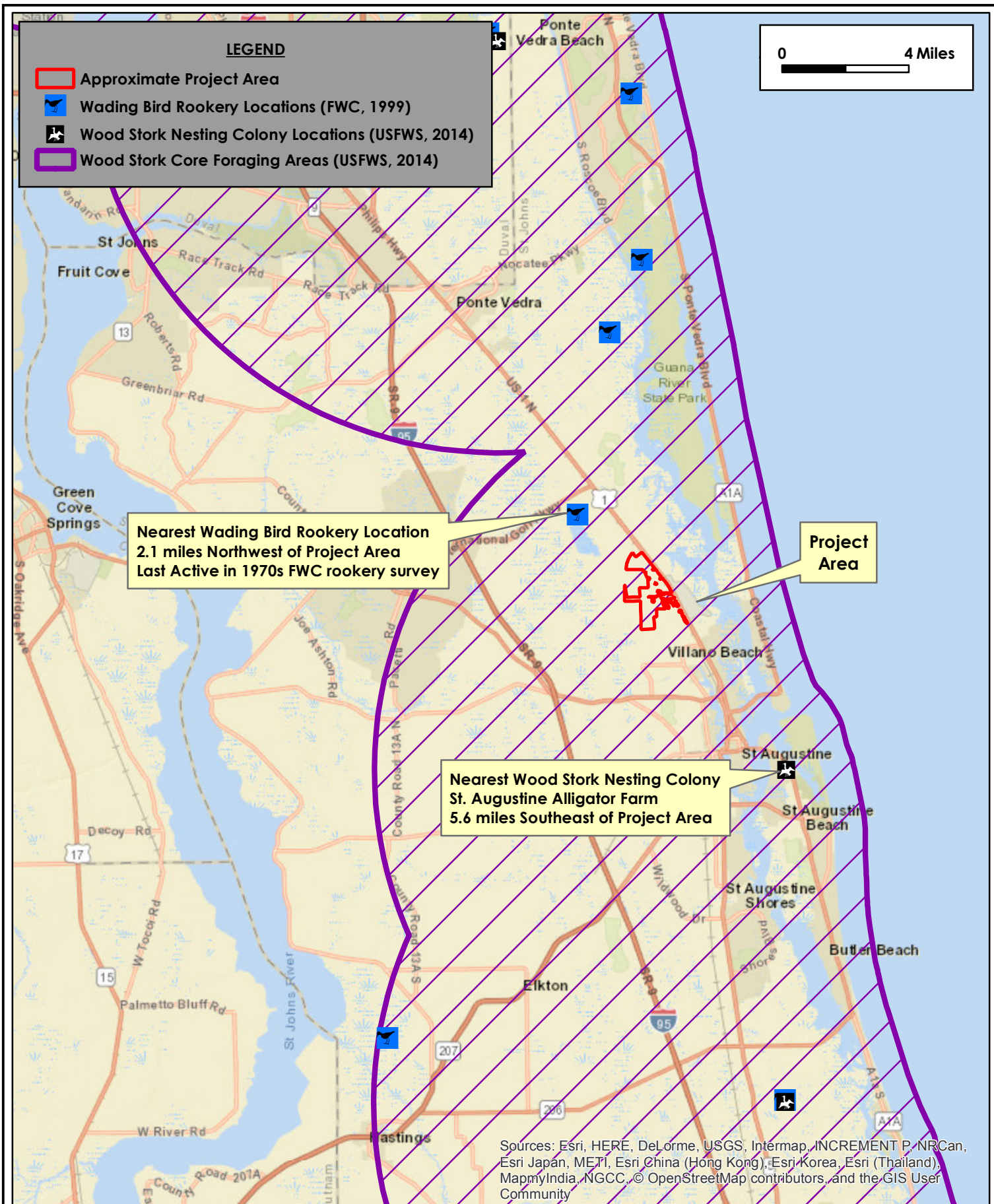
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**Northeast FL Regional Airport
FLUCFCS Map**

Project No.: 16136	
Exhibit No.: 3	
Date: 6-9-17	
Rev. Date:	

By: DF



LEGEND

- Approximate Project Area
- 5 Mile Radius of Project Area
- ✂ Bald Eagle Nest Locations (FWC, 2015)
- ☠ Manatee Mortality Locations (FWC, 2008)
- Manatee Consultation Areas (USFWS, 2003)

FNAI Occurrences of Protected Wildlife (October 2014)

(Documented Occurrence Date; Approximate Distance From Site)

- ✂ American Oystercatcher, Black Skimmer (1993; 4.7 miles)
- 🐍 Eastern Indigo Snake (pre-1982, 1.0 mile)
- 🐍 Florida Pine Snake (No Date Given; 3.4 miles)
- 🐢 Gopher Tortoise (1991; 4.4 miles)
- 🐦 Least Tern (1993; 4.0 miles)
- 🦅 Little Blue Heron, Tricolored Heron, White Ibis (1976, 1.5 miles)
- 🐬 Manatee (1994; 4.0 miles)
- 🦢 Snowy Egret (1992; 2.1 miles)

Closest documented bald eagle nest is FWC Nest ID#SJ013, approx. 0.7 mile± East of project area, last documented as active in 1997.

Closest documented manatee mortality location is 1.1 miles from site (FWC, 2008).

0 2 Miles

Note: The following databases showed no documented occurrences and/or coverage within the 5-mile radius:

1. Red Cockaded Woodpecker Occurrences (FWC, 2005)
2. Scrub Jay Occurrences (FWC, 1994)
3. Scrub Jay Habitat (FWC, 2004)

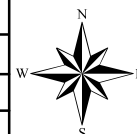
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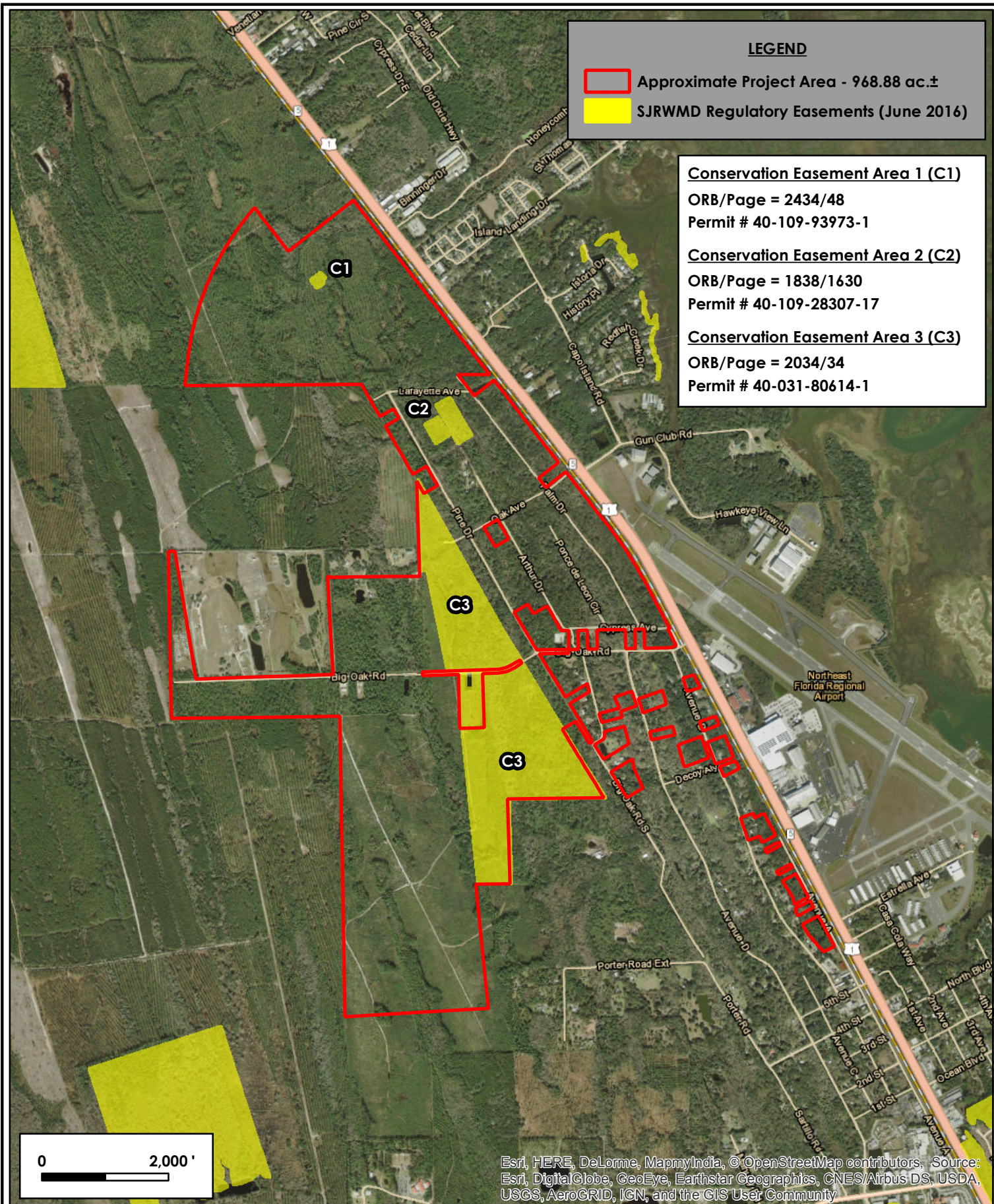


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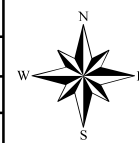
Northeast FL Regional Airport Documented Occurrences of Protected Wildlife Within 5 Miles

Project No.: 16136
Exhibit No.: 5
Date: 6-9-17
Rev. Date:
By: DF





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Appendix I

Stormwater Management Report

St. Augustine Airport Master Plan Update

Water Management

September 27, 2017

Regulatory Information

Drainage and water management systems on airport property are subject to regulatory reviews and/or approvals from several state and federal agencies. They may also be subject to review by local agencies depending on the specific site. The specific concerns of these agencies vary, and airport water management must simultaneously satisfy several criteria summarized following. Briefly, environmental concerns require that the water management system protect water quality, limit or prevent flood damage and preserve or maintain healthy ecosystems. Transportation concerns require that the water management system be consistent with safe and efficient air transportation. Solutions that simultaneously satisfy both sets of requirements are available and discussed in the Florida Department of Transportation *Statewide Airport Stormwater Best Management Practices Manual*. That document, available from the Florida Department of Transportation (FDOT) – Central Aviation and Spaceports office, should be used for water management system design on airport property.

Water management regulation for the St. Augustine Airport (SGJ) for environmental protection is principally the jurisdiction of the St. Johns River Water Management District (SJRWMD). Projects that modify the drainage system or that add impervious surface require an Environmental Resource Permit (ERP) issued under Chapter 62–330 Florida Administrative Code (FAC). The conditions of issuance for the permit are summarized in chapter 62–330.301 and 62–330.302 FAC. Restating, projects must provide reasonable assurance that they will not have adverse impacts on water quality; quantity and/or flood protection; or wetlands and ecosystems to obtain a permit. This can be demonstrated using “presumptive design” contained in the Permit Information Manual (PIM) published by the SJRWMD, or using alternate criteria subject to SJRWMD review and approval. Presumptive designs are rebuttably presumed to meet water quality requirements and conform to specific criteria published by the Florida Department of Environmental Protection (FDEP) and Water Management Districts.

On the airport airside, which includes the runways taxiways and aprons, ERP can be issued under Chapter 62–330.449 *General Permit for Construction, Operation, Maintenance, Alteration, Abandonment or Removal of Airport Airside Stormwater Management Systems*. This is typically the fastest permitting option for those projects that qualify, and it simultaneously satisfies environmental and transportation agency criteria.

The Federal Aviation Administration (FAA) exercises primary regulatory jurisdiction over SGJ with respect to air traffic safety, airport design and operations. Also, both the FAA and the FDOT provide funding for airport development, and the conditions associated with that funding may act as constraints to the allowable water management systems. The FAA has specific airport requirements that SGJ must meet as a Part 139 air carrier airport. Through grant conditions, FAA requires the airport comply with

Advisory Circulars (AC) covering airport design and construction. The primary circulars affecting airport drainage are AC 150/5320–5C *Surface Drainage Design* and 150/5200–33B *Hazardous Wildlife Attractants On or Near Airports*. The latter document affects airfield drainage since it discourages open water, particularly ponds with combinations of open water and vegetated littoral shelves. Vegetated littoral shelves are zones of shallow water that very gradually slope deeper and that have wetland plants on them. The plants on the shelves are intended to provide a water quality function, but they also provide habitat and food that attracts wildlife and birds that can be hazardous to aircraft operations. Ponds designed with these shelves presumptively meet water quality requirements in the SJRWMD PIM and are commonly used for water management, but are obviously not consistent with AC 150/5200-33B or FAA Grant Assurance No. 20. Where ponds are unavoidable AC 150/5200-33B recommends deep, steep sided, rip-rap lined, narrow, linear systems without vegetated littoral zones. Options for this design are available both from SJRWMD and from FDOT Central Aviation Office. The FDOT design option has an enhanced treatment and wildlife minimization function and is described in their documents *Technical Report on the Water Management Performance of the FAA Pond at Naples Municipal Airport* and *Technical Report on the Wildlife/Bird Monitoring of the FAA Pond at Naples Municipal Airport*.

The *Surface Drainage Design* Advisory Circular describes the specific design events for airport airside drainage. Essentially, most airside drainage can be designed for a 5-year recurrence interval rainfall event. This is an intense rainfall that is likely to occur once every five years. Structures such as hangars and terminal buildings may, and generally do, have drainage design requirements to remain dry during larger, less frequent storms ranging from 10-year to 100-year recurrence interval events.

St. Augustine Airport is also subject to the requirements of The National Pollutant Discharge Elimination System (NPDES) of the federal Clean Water Act. The authority for NPDES regulation under the act has been delegated to the FDEP which exercises this authority under Section 403.0855 Florida Statutes (FS). St. Augustine Airport has Permit FLR05A849, specific to SGJ, in compliance with this regulation. Individual construction projects are also subject to the NPDES regulation and permits for these are generally the responsibility of the project contractor.

An option for Airports, that regulatory agencies accept and funding agencies, including FAA and FDOT, can support is an Airport Master Drainage Plan with a Conceptual Environmental Resource Permit. This may be a future consideration for the St. Augustine Airport.

Existing Conditions

Storm water from the St. Augustine Airport (SGJ) is discharged to the Tolomato River east of the airport. The river is part of the Intercoastal Waterway (ICW) with its closest connection to the Atlantic Ocean, south of the airport, at the St. Augustine Inlet. The Tolomato is a Class II water which is defined by designated use in 62-302.400 Florida Administrative Code (FAC) as shellfish propagation or harvesting. This classification establishes the standards for water quality discharging into it. It also establishes the standards for water quality treatment volumes when using “presumptive” designs contained in the

Permit Information Manual of the SJRWMD. Table 1 lists select constituents that may be in runoff water discharging from airport property and their Class II concentration limits. Nutrients Total Nitrogen (TN) and Total Phosphorus (TP) are generally sufficient to determine water management treatment requirements for airside (apron, taxiway and runway) land uses at airports. That is the basis for the General Permit authorized by 62-330.449 FAC. However, the other water quality constituents may require evaluation for various landside or mixed uses. Note that loads and load reduction may be used in lieu of the concentrations in Table 1 when evaluating and designing water quality treatment systems.

TABLE 1 – Class II Shellfish Water Quality Limits for Select Water Quality Constituents (62-302.400 FAC)

Class II Shellfish Water	Total Nitrogen, TN (mg/L)	Total Phosphorus, TP (mg/L)	Copper, Cu (µg/L)	Lead (Pb) (µg/L)	Zinc, Zn (µg/L)
	0.65	0.105	3.7	8.5	86

The water surface elevations in the Tolomato River affect the pipe, ditch and swale sizing for the airport drainage system. Higher water levels at the discharges either raise upstream water levels in swales and pipes for a given discharge, lower the amount that can be discharged, or require larger pipes and swales to discharge the runoff water. Tidal fluctuations of 4 ½ to 5 feet are reported by the National Oceanic and Atmospheric Administration (NOAA) at the St. Augustine Inlet station. These fluctuations may be expected at the discharge points for the Airport’s storm water runoff. The Mean High Water (MHW) reported for the St. Augustine Inlet station is 1.7 feet NAVD ‘88 and the Mean Higher High Water (MHHW) for the station is 2.1 feet NAVD ‘88. These values do not reflect storm surge but are appropriate for the airport drainage system planning. Important to flood protection and water quantity management, the discharges to the Tolomato River at the airport location do not require special structures or ponds to limit the flow rates. That is, water may be discharged as fast as necessary to avoid on-airport flooding, subject only to limitations needed to avoid water quality degradation. A special condition does apply to discharge structures for manatee protection however. Structures must be designed so openings are limited to 8-inches by use of grates or bars to prevent manatees entering the system and becoming trapped.

The average annual rainfall reported for St. Augustine is 48 inches. This value is useful for normalizing rainfall data for water quality estimates, but more detailed information is needed for the estimates. Rainfall records on 15-minute intervals for ten years (2004 – 2014) were obtained from the NOAA Cooperative Observer Network (COOP) from the MarineLand Florida weather station (COOP 085391) for water quality planning. The record contains 2,915 rainfall entries ranging from a trace to 5.9 inches. Using the data for a first estimate of water quality runoff loads requires defining an “event”, a time interval where the rainfall is considered to be additive. This is needed to provide an initial estimate of runoff, using an accepted rainfall-runoff relation. Continuous simulation modeling removes this approximation requirement, but is the most complex modelling method referenced by FAA or FDEP documents and beyond this planning study. The modal rainfall, the most common value, is 0.1 inches

for any assigned event time. The selected event time for this plan is 6-hours, consistent with the latest Florida Statewide Airport Stormwater Study monitoring and testing done for pond systems on airports. For the selected event time, the following rainfall parameters are derived from the dataset:

Modal Rainfall	0.10 inches
Mean Rainfall	0.30 inches
Maximum Rainfall	6.32 inches
Annual Rainfall Events	111
Events > 0.1 inches	47
Events ≤ 0.1 inches	64

Potential pollutant loads are based in part on land use and the Event Mean Concentration (EMC) of a potential pollutant associated with that use. The load is calculated as the runoff volume of water times the EMC, with appropriate conversion factors to express the load in pounds per year, kilograms per year or similar. When using load based water management, any of several criteria may be applied. The four most common are:

- 1) 80% average annual load removal of pollutants that cause or contribute to violations of water quality standards
- 2) 95% average annual load removal of pollutants that cause or contribute to violations of water quality standards for discharges to Outstanding Florida Waters
- 3) “net environmental improvement” requiring post-project loads be less than pre-project loads for discharges to impaired waters
- 4) Loads after development shall not exceed loads from a “natural vegetative community”

Note that only those constituents that are reasonably expected to be present at levels that would cause or contribute to violations require analysis. A typical list for airports, based on the Statewide Airport Stormwater Study, is Total Nitrogen (TN), Total Phosphorus (TP), Copper (Cu), Lead (Pb) and Zinc (Zn). This is applicable to SGJ. Presumptive designs are generally used for compliance with 1) and 2) above. Alternative designs and analyses are generally required to use 3) and 4) above. Airport airside pavement using the General Permit of 62-330.449 follow 4), which meets both environmental protection and transportation safety and efficiency objectives. The approach can be extended to landside development, but the calculation method and parameters require advance regulatory approval. This is the recommended planning approach for St. Augustine Airport.

Natural vegetative community EMC data were furnished by FDEP and, for nutrients, are incorporated by Rule in 62-330.449. The term “natural vegetative community” is technically used to define the standard that an airport airside water management system permitted under Rule 62-330.449 must meet. It, and the term “natural area(s)” describes an area where native plants, soils and hydrology dominate and are essentially uninfluenced by human activity. The data are available for a variety of different natural areas, but the summary data has been historically used for regulatory purposes. Two versions have generally been used, one including Xeric Hammock (XH) and Upland Mixed Forest (UMH), and one

excluding that data. The summary EMC data for natural areas or natural vegetative communities are listed in the Table 2, along with the Class II Water Standards for comparison.

Table 2- Comparison of Natural Area Runoff Characteristic with Class II Shellfish Water Quality Limits for Select Water Quality Constituents

Land use	TN (mg/l)	TP (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)
Natural Area	0.93	0.10	0.0033	0.001	0.007
Natural Area less XMH & UMH	0.93	0.056	0.0033	0.001	0.007
Class II Water	0.65	0.105	0.0037	0.0085	0.086

Runoff from marsh lands is generally taken to be equal to rainfall. Table 3 lists the base loads for SGJ for an area equal to the developed land on the airport. These are loads that would be generated by the developed area of SGJ if it were a natural area instead.

Table 3 – Natural Area (Natural Vegetative Community) Loads for SGJ

Land use	TN (lbs/year)	TP (lbs/year)	Cu (lbs/year)	Pb (lbs/year)	Zn (lbs/year)
Natural Area	4,815	518	15.5	5.18	36.2
Natural Area less XMH & UMH	4,815	290	15.5	5.18	36.2

Developed land use EMC data is presented in Table 4. Airside data are taken from either the 2013 revision of the *Statewide Airport Stormwater Best Management Practices Manual* or from the 2008 revision of the *Technical Report for the Florida Statewide Airport Stormwater Study*. St. Augustine Airport was a participant in the original 5-year study that concluded in 2005 and that the *Technical Report* summarizes. The *Technical Report* data was specifically referenced for hangar areas, since the T-hangars at SGJ include grassed dividers between the access pavement into each individual hangar. This design feature dramatically reduces concentrations and loads from the general T-hangar condition summarized in the *Best Management Practices Manual*.

Table 4- Event Mean Concentration Data for Select Water Quality Constituents for Developed Land Uses

Land Use	TN (mg/l)	TP (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)
Runway	0.401	0.049	0.024	0.003	0.065
Taxiway	0.569	0.11	0.014	0.005	0.022
Apron	0.398	0.057	0.02	0.004	0.055
Hangar*	0.617	0.178	0.006	0.003	0.058
Commercial	2.20	0.248	0.015	0.005	0.086
Road	1.371	0.167	0.014	0.004	0.087
Agricultural	2.07	0.152	0.003	0.001	0.012
Residential	1.87	0.301	0.014	0.003	0.052

*Hangar data from Technical Report uses T-Hangars with grassed dividers

Existing land use at the airport interpreted from aerial photography is listed in Table 5. Note that there is a judgement element in the interpretation that must ultimately be accepted by the SJRWMD in the permitting process.

Table 5 – Existing Land Use at SGJ

Land Use	Estimated Acreage
Runway	46
Taxiway	77
Apron	31
Hangar	18
Commercial	65
Road	10
Agricultural	237
Residential	267

The expected direct loads from the developed land uses are presented in Table 6. The runoff is variable by land use, but ranges from 11 inches to less than 1 inch. This is consistent with measured results from the Statewide Airport Stormwater Study and reflects the rainfall distribution that actually occurs. The values are substantially less than would be estimated by taking either a Curve Number or Rational Coefficient times the annual rainfall, since that approach does not consider the rainfall distribution.

Table 6 – Existing Developed Area Loads for SGJ

Land use	TN (lbs/year)	TP (lbs/year)	Cu (lbs/year)	Pb (lbs/year)	Zn (lbs/year)
Runway	47.7	5.8	2.85	0.36	7.73
Taxiway	113.4	21.9	2.79	1.00	4.39
Apron	32.0	4.6	1.61	0.32	4.43
Hangar*	28.7	8.3	0.28	0.14	2.70
Commercial	370.4	41.8	2.53	0.84	14.48
Road	34.9	4.3	0.36	0.10	2.21
Agricultural	77.7	5.7	0.11	0.04	0.45
Residential	90.7	14.6	0.68	0.19	2.52
<u>TOTALS</u>	<u>796</u>	<u>107</u>	<u>11.2</u>	<u>2.94</u>	<u>38.9</u>

Conclusion

From review of the data summarized in Table 7, the constituent of concern for the airport property in the existing condition is Zinc (Zn), which has loads about 7½ % higher than the natural vegetative community prior to any water quality treatment. Water quality treatment is effective at zinc removal, and currently exists at the airport. All other constituents are below the natural vegetative community requirement prior to treatment.

Table 7 – Comparison of Existing Developed Area Loads Prior to Treatment and Natural Area Loads for SGJ

Land use	TN (lbs/year)	TP (lbs/year)	Cu (lbs/year)	Pb (lbs/year)	Zn (lbs/year)
Natural Area	4,815	518	15.5	5.18	36.2
Natural Area less XMH and UMH	4,815	518	15.5	5.18	36.2
SGJ Total Developed Area	796	107	11.2	2.94	38.9

Review of the airport permits on file with SJRWMD indicates that presumptive treatment in the form of wet detention ponds and dry retention with filtration are in place for a portion of the developed airport land. Swales and overland flow are also in place for the airport. The implication of this is that some excess water quality treatment capacity is already available at the airport for future development. This may be minimal when actual, as opposed to presumptive efficiency of the treatment system is evaluated, but excess capacity does exist.

Appendix J

Water and Wastewater Evaluation

TO: Andrew M. Holesko, CM, MBA, Vice President, Director, Passero Associates, LLC

FROM: Angela Bryan, PE, Principal Engineer
Laura Constantino, MSE, Engineering/GIS Manager

DATE: November 9, 2018

RE: Water and Wastewater Evaluation Services for the Northeast Florida Regional Airport (SGJ) Master Plan Update Project

1.0 INTRODUCTION AND PURPOSE

Four Waters Engineering (4Waters) has been authorized by Passero Associates, LLC (Passero) to conduct a Water and Wastewater Evaluation in support of the Northeast Florida Regional Airport (NFRA) Master Plan Update project which Passero is completing for their client, the St. Augustine-St. Johns County Airport Authority (Airport Authority) in St. Johns County, Florida. The purpose of the Water and Wastewater Evaluation is to develop feasible solutions for suitable, environmentally responsible water and wastewater service for the proposed developments included in the NFRA Master Plan Update.

Based on information provided by Passero, it is our understanding that Airport Authority currently owns or is in process of acquiring lands of up to 1,500 acres bounded by US-1 to the east, the future State Road 313 to the north and west, and generally State Road 16 to the south, hereinafter referred to as NFR-B. Additional developments are proposed on the east side of US-1 in the existing NFRA complex, hereinafter referred to as NFRA.

The following sections of this technical memorandum will present the estimated water demands and wastewater generation rates for the proposed developments and the potential options for water and wastewater service.

2.0 PROJECTED WATER AND WASTEWATER RATES

2.1 DEVELOPMENT AREAS

Projected water and wastewater rates were estimated for the proposed developments utilizing the figures and general programming information provided by Passero. The figures provided are included in Appendix A.

Based on the programming information, the proposed development in NFR-B includes aeronautical uses for airplane maintenance, repair and overhaul (MRO), and non-aeronautical uses for commercial, manufacturing, and warehouse facilities with rail access, a multi-modal transportation facility, and public multi-use facilities such as parks and

recreational areas, parking and transit uses, and potentially utility staging areas for emergency/disaster preparation. There are also approximately 800 acres of lands within the proposed development area which are listed as St. Johns River Water Management District (SJRWMD) surplus lands that do not have any noted programming and were not included with the water and wastewater estimates. It is noted that there are significant wetland areas within the surplus lands south of Big Oak Road which may limit development and, accordingly, water and wastewater needs within these areas. Figure 1 provides an overlay of the National Wetland Inventory on the proposed Airport Authority development area west of US-1.

Proposed development within the existing NFRA complex on the east side of US-1 includes MRO facilities, relocated FBO facility, and corporate hangars on the north side of Runway 13-31, and two-phase terminal expansion, FBO, corporate hangars, aviation development, non-aviation development, T-hangar buildings, maintenance, and multi-purpose buildings for aviation/professional use on the south side of Runway 13-31.

Water and wastewater rates were projected for the proposed NFRA and NFR-B development areas based on industry standards for water and wastewater for specific uses as established by the State of Florida (64E-6, FAC), typical peaking factors for commercial and industrial uses, National Fire Protection Association (NFPA) guidelines and St. Johns County fire protection codes.



Figure 1:
Proposed Development and
National Wetland Inventory Map
Northeast Florida Regional Airport

DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.



2.2 PROJECTED WATER DEMANDS

Tables 1 and 2 provide the projected water demands for the NFR-B and NFRA developments, respectively, including the average daily flow in gallons per day (gpd), the maximum day flow (gpd), the total peak hourly flow in gallons per minute (gpm), and the estimated fire flow requirements (gpm). Additional information regarding the water demand projections including assumptions and loading rates are provided in Appendix B.

**Table 1: Projected Water Demands for NFR-B (West-Side US-1)
 Airport Authority Development**

Facility Type	Total Water ADF Per Facility (GPD)	Total Water Max Day Per Facility (GPD)	Total Water Peak Hour Flow Per Facility (GPM)	Fire Flow Est. (GPM)
Non-Aeronautical: Comm/Mfctg/Warehouse with Rail Access	57,500	86,250	80	2,000
Aeronautical Use: Maintenance/Repair Overhaul	14,925	22,388	21	1,375
Non-Aeronautical: Public/Multi-Use	-	-		
Park/Recreational Area	1,000	1,500	4	
Restroom Facilities	2,500	3,750	10	-
Non-Aeronautical: Multi-Modal Transportation Center	23,500	35,250	33	2,000
Non-Aeronautical: Parking for Transit/Mobility	2,500	3,750	10	-
Non-Aeronautical: Emergency-Disaster Prep/Staging Area (Utility)	2,500	3,750	3	-
TOTAL NFR-B (Near/Intermediate Range)	104,425	156,638	162	2,000
Long Range Uses	60,000	90,000	83	2,500
TOTAL NFR-B (Build-Out)	164,425	246,638	245	2,500

**Table 2: Projected Water Demands for NFRA (East-Side US-1)
 Airport Authority Development**

Facility Type	Total Water ADF Per Facility (GPD)	Total Water Max Day Per Facility (GPD)	Total Water Peak Hour Flow Per Facility (GPM)	Fire Flow Est. (GPM)
Maintenance, Repair, Overhaul Development (North end)	2,620	3,930	4	688
FBO (Relocated) (North end)	4,000	6,000	6	1,750
Corporate Hangar (North end)	4,200	6,300	6	2,500
Sub-Total North End of Runway 13-31	10,820	16,230	15	2,500
Terminal Expansion Phase 1 (South end)	1,300	1,950	3	1,500
Terminal Expansion Phase 2 (South end)	1,300	1,950	3	1,500
FBO/Corporate Hangar (South end)	3,980	5,970	6	563
Aviation Development (South end)	960	1,440	1	1,500
Non-Aviation Development (South end)	2,640	3,960	4	1,500
Non-Aviation Development (South end)	2,880	4,320	4	1,500
New T-Hangar Buildings North of Estrella Avenue (12 units each) (South end)	1,600	2,400	2	2,250
New T-Hangar Units North of Araquay Avenue (8 units each) (South end)	1,400	2,100	2	2,250
New T-Hangar Units North of Indian Bend Road (12 units each) (South end)	2,400	3,600	3	2,250
New T-Hangar Units North of Indian Bend Road (10 units each) (South end)	750	1,125	1	2,250
Multi-Purpose Bldgs (Aviation/Professional) South of Estrella Avenue (South end)	2,520	3,780	4	1,500
Multi-Purpose Bldgs (Aviation/Professional) North of Araquay Avenue (South end)	360	540	1	1,500
Multi-Purpose Bldgs (Aviation/Professional) North of Indian Bend Road (South end)	3,960	5,940	6	1,500
Maintenance (South end)	2,800	4,200	4	688
Hangar (South end) ¹	700	1,050	1	375
Multi-Purpose Bldg (Aviation/Professional) (South end)	2,700	4,050	4	1,500
Multi-Purpose Bldg (Aviation/Professional) (South end)	1,200	1,800	2	1,500
Aviation Development (South end)	3,000	4,500	4	1,500
Sub-Total South End of Runway 13-31	36,450	54,675	52	2,250
TOTAL PROPOSED NFRA	47,270	70,905	67	2,500

2.3 PROJECTED WASTEWATER DEMANDS

Tables 3 and 4 provide the projected wastewater generation rates for the NFR-B and NFRA developments, respectively, including the average daily flow (gpd) and the total peak hourly flow (gpm). All facilities except for the park/recreation area and utility staging area uses in the NFR-B and the NFRA terminal expansion were assumed to discharge 100% of the water use to the wastewater system. Additional information regarding the wastewater generation rate projections including assumptions and loading rates are provided in Appendix C.

**Table 3: Projected Wastewater Generation Rates for NFR-B (West-Side US-1)
 Airport Authority Development**

Facility Type	Total Wastewater ADF Per Facility (GPD)	Total Wastewater Peak Hour Flow Per Facility (GPM)
Non-Aeronautical: Comm/Mfctg/Warehouse with Rail Access	57,500	80
Aeronautical Use: Maintenance/Repair Overhaul	14,925	21
Non-Aeronautical: Public/Multi-Use		
Park/Recreational Area	0	0
Restroom Facilities	2,500	10
Non-Aeronautical: Multi-Modal Transportation Center	23,500	33
Non-Aeronautical: Parking for Transit/Mobility	2,500	10
Non-Aeronautical: Hurricane Prep/Staging Area (Utility)	0	0
TOTAL NFR-B (Near/Intermediate Range)	100,925	154
Long Range Uses	60,000	83
TOTAL NFR-B (Build-Out)	160,925	237

**Table 4: Projected Wastewater Generation Rates for NFRA (East-Side US-1)
 Airport Authority Development**

Facility Type	Total Wastewater ADF Per Facility (GPD)	Total Wastewater Peak Hour Flow Per Facility (GPM)
Maintenance, Repair, Overhaul Development (North end)	2,620	4
FBO (Relocated) (North end)	4,000	6
Corporate Hangar (North end)	4,200	6
Sub-Total North End of Runway 13-31	10,820	15
Terminal Expansion Phase 1 (South end)	1,300	2
Terminal Expansion Phase 2 (South end)	1,300	2
FBO/Corporate Hangar (South end)	3,980	6
Aviation Development (South end)	960	1
Non-Aviation Development (South end)	2,640	4
Non-Aviation Development (South end)	2,880	4
New T-Hangar Buildings North of Estrella Avenue (12 units each) (South end)	1,600	2
New T-Hangar Units North of Araquay Avenue (8 units each) (South end)	1,400	2
New T-Hangar Units North of Indian Bend Road (12 units each) (South end)	2,400	3
New T-Hangar Units North of Indian Bend Road (10 units each) (South end)	750	1
Multi-Purpose Bldgs (Aviation/Professional) South of Estrella Avenue (South end)	2,520	4
Multi-Purpose Bldgs (Aviation/Professional) North of Araquay Avenue (South end)	360	1
Multi-Purpose Bldgs (Aviation/Professional) North of Indian Bend Road (South end)	3,960	6
Maintenance (South end)	2,800	4
Hangar (South end)	700	1
Multi-Purpose Bldg (Aviation/Professional) (South end)	2,700	4
Multi-Purpose Bldg (Aviation/Professional) (South end)	1,200	2
Aviation Development (South end)	3,000	4
Sub-Total South End of Runway 13-31	36,450	51
TOTAL PROPOSED NFRA	47,270	66

3.0 MUNICIPAL WATER AND WASTEWATER SERVICE

The existing NFRA complex on the east side of US-1 is currently provided water and wastewater service by the City of St. Augustine. Based on an evaluation of the St. Johns County, St. Augustine, and JEA (formerly referred to as Jacksonville Electric Authority) service areas, the proposed Airport Authority developments on the west and east sides of US-1 are within the St. Augustine water and wastewater service area. Figure 2 provides an overlay of the proposed Airport Authority development areas on the City of St. Augustine's utility service area.

3.1 CITY OF ST. AUGUSTINE WATER AND WASTEWATER SYSTEMS

3.1.1 CITY OF ST. AUGUSTINE WATER FACILITIES

The City of St. Augustine (City) owns and operates a 6.5 million gallon per day (MGD) Water Treatment Plant (WTP) located on King Street and two water storage and booster pumping facilities, the South Tank Facility located off US-1 south of State Road 312 and the North Tank Facility located on US-1 approximately one mile south of the NFRA complex. The City's water demands over the last year averaged approximately 3.3 MGD. The North Tank Facility includes a 1.0 million-gallon (MGal) ground storage tank, high service pumps to boost system pressure, and disinfection facilities. The City's water distribution system extends along US-1 to Stokes Landing Road where it has an interconnection with St. Johns County's water main on the east side of US-1; the interconnection is for emergencies only.

Figure 3 provides a layout of the City's water distribution system in the vicinity of the NFRA complex which includes 12-, 8-, and 6-inch water mains on the east side of US-1, a 16-inch water main on the west side of US-1, a 6-inch interconnect crossing US-1 near the main airport and a 16-inch interconnect north of Gun Club Road.

3.1.2 CITY OF ST. AUGUSTINE WASTEWATER FACILITIES

The City owns and operates a 4.95 MGD Wastewater Treatment Plant (WWTP) located at the south end of Riberia Street. Over the last year, the average daily flow discharged to the WWTP was 3.78 MGD. The collection system is comprised of 82 pump stations and 63 miles of forcemain which transport the wastewater both by repumping and manifolding to discharge at the WWTP. The forcemain system starts as a 12-inch in the north along US-1 at Stokes Landing Road which crosses to the west side of US-1 north of the NFRA complex and Oak Lane, and increases to 24-inch and 36-inch as it routes south on the approach to the WWTP. There is an additional City-owned forcemain in the vicinity of the NFRA complex on the east side of US-1.

Currently, it appears that the NFRA complex discharges wastewater to two private pump stations which discharge into the City-owned forcemain on the east side of US-1. One private pump station is located on the north end of Runway 13-31 and discharges into the 6-inch forcemain along US-1 which transitions to an 8-inch forcemain as it moves south and collects from the other private pump

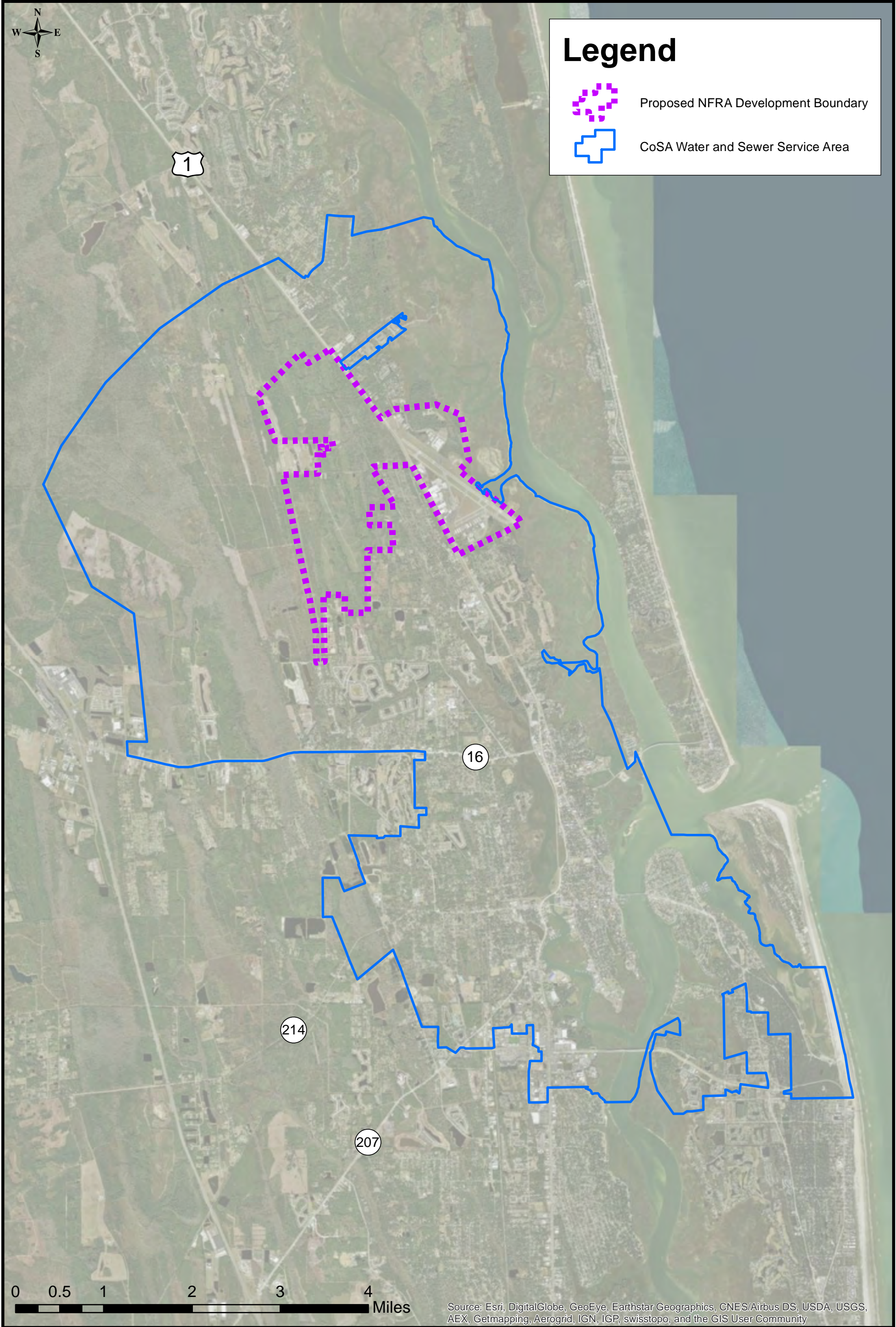


Figure 2:
Proposed Development and City of St. Augustine
Water and Sewer Service Area
Northeast Florida Regional Airport

DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.



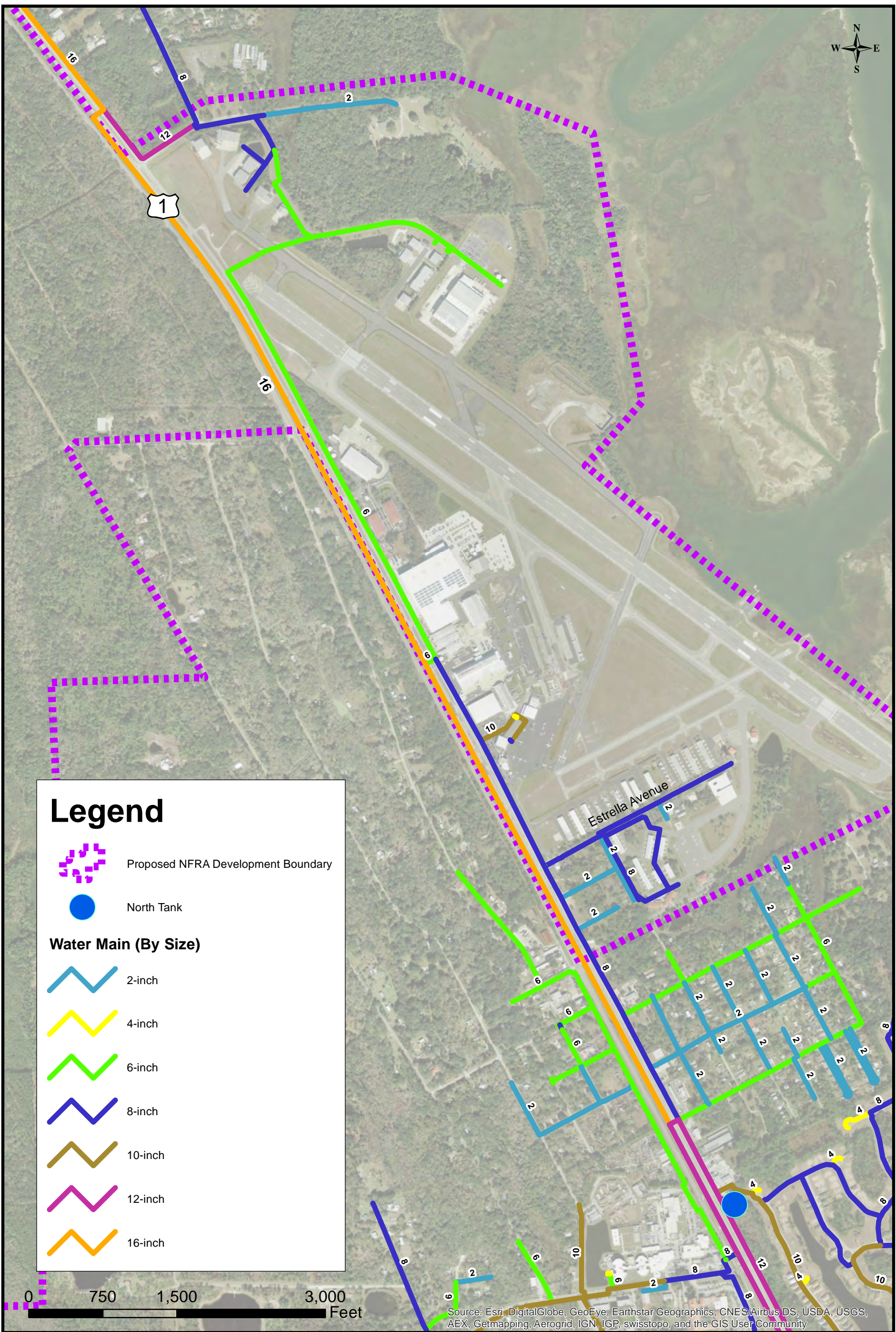


Figure 3:
Proposed Development and
CoSA Water Distribution System Vicinity Map
Northeast Florida Regional Airport

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station on Estrella Avenue. The 8-inch forcemain then manifolds with City pump station PS78 and then crosses US-1 to manifold with the 12-inch forcemain on the west side which continues to the WWTP as noted previously. Figure 4 depicts the City's wastewater system as relevant to the NFRA complex and Airport Authority proposed developments.

3.2 CITY OF ST. AUGUSTINE WATER AND WASTEWATER AVAILABILITY

4Waters gathered available information from the City and other sources regarding planned and projected developments within the City's water and wastewater service areas. This information was reviewed to begin assessing planned and/or secured water and wastewater allocations, particularly around the NFRA complex and the proposed Airport Authority developments in NFR-B, and along possible wastewater discharge routes to the City's WWTP.

4Waters then developed limited scope water (WaterGEMs) and wastewater (SewerGEMs) hydraulic models to generally evaluate the availability of:

Water System

- System capacity for estimated average daily and peak hourly water flows for the proposed NFR-B and NFRA developments;
- System storage capacity and availability of estimated fire flow requirements for the proposed NFR-B and NFRA developments;
- Required conceptual improvements or interconnections in the water system to meet estimated Airport Authority water and fire flow demands.

Wastewater System

- Forcemain and pump station capacity for estimated average daily and peak hourly wastewater flows for the proposed NFR-B and NFRA developments;
- Potential impacts to existing pump stations and forcemain capacities within the route of the wastewater system to the WWTP caused by the addition of estimated wastewater flows from the proposed NFR-B and NFRA developments.

Following this evaluation, 4Waters coordinated with the City's Public Works Department and made a general request for water and wastewater availability. 4Waters provided the projected water and wastewater demands for the proposed Airport Authority developments and the information resulting from the hydraulic modeling. Based on a discussion with representatives of the Public Works Department (October 3, 2018), the City does have available water and wastewater capacity to serve the proposed Airport Authority developments. However, additional detailed evaluations of the City's water and wastewater systems will need to be conducted as the Airport Authority solidifies development plans and land uses to better determine impacts to the City's infrastructure and necessary improvements or utility extensions, and to quantify associated connection costs and/or special assessments to the Airport Authority.

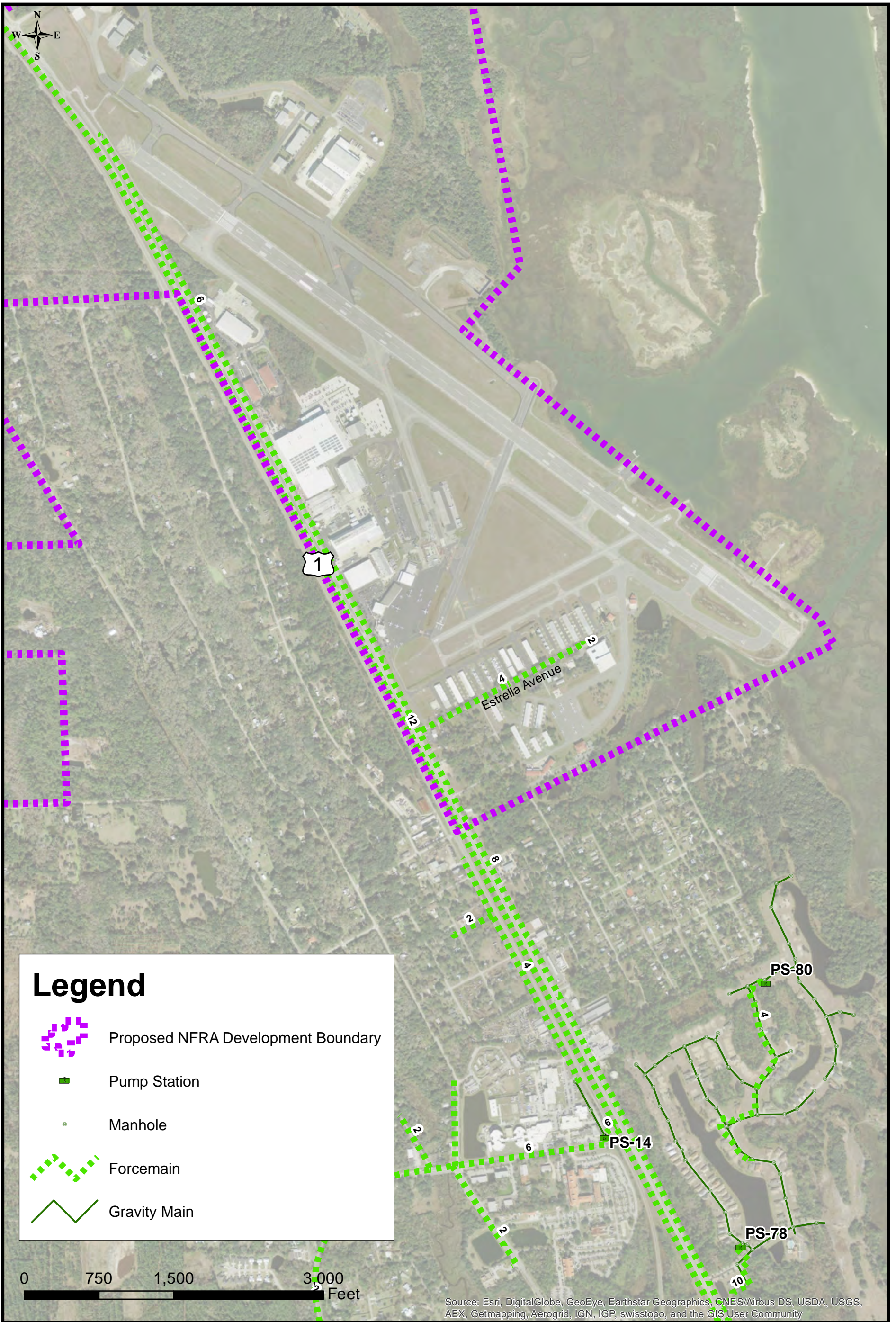


Figure 4:
Proposed Development and
CoSA Sewer Collection System Vicinity Map
Northeast Florida Regional Airport

DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.



3.2.1 WATER SYSTEM CONNECTIONS AND IMPROVEMENTS

The water system model developed to evaluate the NFRA complex and proposed Airport Authority developments water and fire flow demands was limited in scope, generally only evaluating the water system characteristics from the City's North Tank Facility to the north side of the proposed Airport Authority development in NFR-B. The findings and general recommendations from the water system modeling are provided below.

3.2.1.1 NFR-B AIRPORT AUTHORITY DEVELOPMENT WATER SYSTEM

The NFR-B development area was modeled with a connection to the 16-inch water main on the west side of US-1. The model indicates the Average Daily Flow (ADF), Maximum Daily Flow (MDF), and Peak Hourly Flow (PHF) flows can individually be achieved with satisfactory system pressure. Additionally, the model indicates sufficient fire flow demand with MDF and system storage for the four-hour fire with satisfactory residual system pressure well above 20 psi. Table 5 below presents the requirements and results of the water modeling for the proposed NFR-B developments.

Table 5: NFR-B Water System Demands and Model Results

Requirements	Flow Demand	Minimum Pressure Results (psi)
Average Daily Flow	164,425 gpd (114 gpm)	67
Maximum Daily Flow	246,638 gpd (171 gpm)	66
Peak Hourly Flow	245 gpm	65
Maximum Fire Flow Requirements	2,500 gpm for 4 hours	45

General recommendations for a water system expansion to serve the NFR-B development area are provided below:

- Connect to the 16-inch water main on the west side of US-1 in a minimum of two locations and provide a looped water system to provide water system reliability to the development and reduce the potential for water quality issues due to stagnant water;
- Master plan the water system route and pipe sizes to serve the NFR-B proposed developments to ensure suitable fire flow. The minimum recommended connection size to the 16-inch water main on US-1, based on available development information, is 12-inch.

3.2.1.2 NFRA AIRPORT AUTHORITY DEVELOPMENT WATER SYSTEM

The projected NFRA Airport Authority water system needs were modeled and evaluated by separating the demands located north and south of Runway 13-31.

North Side of Runway 13-31

The north end, NFRA development area was modeled with service from the 8- and 6-inch existing water mains along Hawkeye View Lane. While the model indicates the ADF, MDF, and PHF flows can individually be achieved with satisfactory system pressure, there was not sufficient fire flow available through the 8- and 6-inch water mains to meet the high (2,500 gpm) potential demands of the proposed corporate box hangars.

Table 6 presents the requirements and results of the existing system water modeling for the proposed north end developments on NFRA.

Table 6: North End NFRA Water System Demands and Model Results – Existing System

North Side of Runway 13-31 with Existing Water System		
Requirements	Flow Demand	Minimum Pressure Results (psi)
Average Daily Flow	10,820 gpd (8 gpm)	67
Maximum Daily Flow	16,230 gpd (11 gpm)	66
Peak Hourly Flow	15 gpm	65
Maximum Fire Flow Requirements	2,500 gpm for 2 hours	8

As there is already a 16-inch interconnect between the water mains on the west (16-inch) and east (12-inch) side of US-1 near the proposed north end developments on NFRA, modifications to the water mains along Gun Club Road and Hawkeye View Lane were evaluated to achieve the proposed potential fire flows. Upgrades of the 8- and 6-inch water mains along Gun Club Road and Hawkeye View Lane from the 12-inch water main on Gun Club Road to the end of the north-south segment on Hawkeye View Lane to both 10- and 12-inch water mains were evaluated. Both upgrade scenarios indicated acceptable fire flow capacity with satisfactory residual system pressure above 20 psi.

Table 7 presents the requirements and results of the upgraded system water modeling for the proposed north end developments on NFRA for both the 10-inch and 12-inch water main upgrade scenarios.

Table 7: North End NFRA Water System Demands and Model Results – Upgraded System

North Side of Runway 13-31 with Upgraded Water System			
Requirements	Flow Demand	Minimum Pressure Results (psi) with 10-Inch Water Main	Minimum Pressure Results (psi) with 12-Inch Water Main
Average Daily Flow	10,820 gpd (8 gpm)	67	67
Maximum Daily Flow	16,230 gpd (11 gpm)	66	67
Peak Hourly Flow	15 gpm	66	66
Maximum Fire Flow Requirements	2,500 gpm for 2 hours	33	42

Upgrades to the existing water mains from the 12-inch water main along Gun Club Road to the end of the north-south segment of Hawkeye View Lane, are recommended. While both 10- or 12-inch water main improvements provide sufficient water service and fire flow capability for the identified proposed north end improvements (corporate hangars, MRO, and relocated FBO), the needs of the 19-acre Future Aviation Development Area to the northeast are unknown. Prior to making water main improvements along Gun Club Road and Hawkeye View Lane, an evaluation of the water and fire flow demands of this future development area should be completed to determine whether 10- or 12-inch water main would better serve the development. Opportunities to loop the water system should also be evaluated as development proceeds to provide water system reliability.

South Side of Runway 13-31

The south end development area of NFRA was modeled with service from the 8-inch existing water mains along US-1 and Estrella Avenue. While the model indicates the ADF, MDF, and PHF flows can individually be achieved with satisfactory system pressure, there was not sufficient fire flow available through the 8-inch water mains to meet the estimated 2,250 gpm potential demands of the proposed T-Hangar buildings in the south end development. This has also been documented by St. Augustine fire hydrant testing in the area.

Table 8 presents the requirements and results of the existing system water modeling for the proposed south end developments on NFRA.

Table 8: South End of NFRA Water System Demands and Model Results – Existing System

South Side of Runway 13-31 with Existing Water System		
Requirements	Flow Demand	Minimum Pressure Results (psi)
Average Daily Flow	36,450 gpd (25 gpm)	68
Maximum Daily Flow	54,675 gpd (38 gpm)	66
Peak Hourly Flow	52 gpm	65
Maximum Fire Flow Requirements	2,250 gpm for 2 hours	14 for 8-inch on US-1 (-) 40 for 8-inch at end Estrella

Various water main improvements were evaluated with the model to achieve the proposed potential fire flows for the south end. Based on the evaluation, construction of a 16-inch interconnect between the existing US-1 west side (16-inch) and east side (8-inch) water mains near Estrella Avenue provided the most improvement for the south end water system near US-1, however additional 8-inch water main looping was needed along Indian Bend Road from the east end of the 8-inch water main on Estrella Avenue to tie-in to the 8-inch water main on US-1. The model results with these improvements indicated acceptable fire flow capacity with satisfactory residual system pressure above 20 psi.

Table 9 presents the requirements and results of the upgraded system water modeling for the proposed south end developments on NFRA.

Table 9: South End of NFRA Water System Demands and Model Results – Upgraded System

South Side of Runway 13-31 with Upgraded Water System		
Requirements	Flow Demand	Minimum Pressure Results (psi) with 16-Inch Interconnect
Average Daily Flow	36,450 gpd (25 gpm)	68
Maximum Daily Flow	54,675 gpd (38 gpm)	67
Peak Hourly Flow	52 gpm	65
Maximum Fire Flow Requirements	2,250 gpm for 2 hours	43 for 8-inch on US-1 24 for 8-inch at end Estrella

Construction of a 16-inch interconnect between the US-1 west and east side water mains and an 8-inch water main loop along Indian Bend Road are recommended to serve the water system needs of the proposed south end developments of NFRA. It is noted that this evaluation strictly focused on the backbone water system in the south end area; it did not include the internal water system along the roads south of Estrella Avenue. Other improvements to the water main system in the area south of Estrella Avenue may be necessary including additional water main upgrades and looping of the system. Many of these water mains are 2-inch which cannot be used for fire hydrant service. Such

evaluation is beyond the scope of this project. Figure 5 depicts the general water system improvements recommended to serve the development areas.

3.2.2 WASTEWATER SYSTEM CONNECTIONS AND IMPROVEMENTS

The wastewater system model created to evaluate the NFRA complex and proposed Airport Authority developments wastewater generation rates included all of the pump stations on the forcemain from the north end of the City's system to the wastewater treatment plant (WWTP). This included 20 pump stations. The findings and general recommendations from the wastewater system modeling are provided below.

3.2.2.1 NFR-B AIRPORT AUTHORITY DEVELOPMENT WASTEWATER SYSTEM

The hydraulic capacity of a wastewater system is based on the capacity to transport the peak hourly flow from an area. The projected peak hourly wastewater flow generated from the NFR-B development area is 237 gpm. Based on discussions with City Public Works Department representatives, the recommended connection point to the City's forcemain system would be along the 12-inch forcemain on the west side of US-1 south of Oak Avenue. The wastewater model was setup and run accordingly. The model results indicate sufficient capacity in the 12-inch and downstream forcemains and resulted in an increased discharge at the WWTP of 237 gpm. The model did indicate high flow levels and potential overflows (surcharges) at the following pump stations: PS2, PS4, PS62, and PS78, however, this was also indicated at these stations without the additional NFR-B development flows, although not as significant.

Given the acreage of the proposed NFR-B development, it is anticipated that multiple pump stations would be required to provide wastewater collection. These various pump stations could then discharge to a master pump station located central to the site which connects and discharges to the City's 12-inch forcemain along west US-1 to the south of Oak Avenue. As the proposed development plans progress, the City would need to conduct additional hydraulic evaluation of the other pump stations on the City system to ensure surcharging of the noted pump stations, or others, are not a concern or to develop necessary improvements.

3.2.2.2 NFRA AIRPORT AUTHORITY DEVELOPMENT WASTEWATER SYSTEM

As with the water system evaluation, the projected NFRA wastewater system needs were modeled and evaluated by separating the demands located north and south of Runway 13-31.

North Side of Runway 13-31

The projected peak hourly wastewater flow generated from the NFRA north end development area is 15 gpm. As noted previously, it appears that the NFRA complex on the north end discharges to a private pump station located on the north end of Runway 13-31 which discharges into the City's 6-inch forcemain along US-1. It was assumed that the proposed north end development wastewater

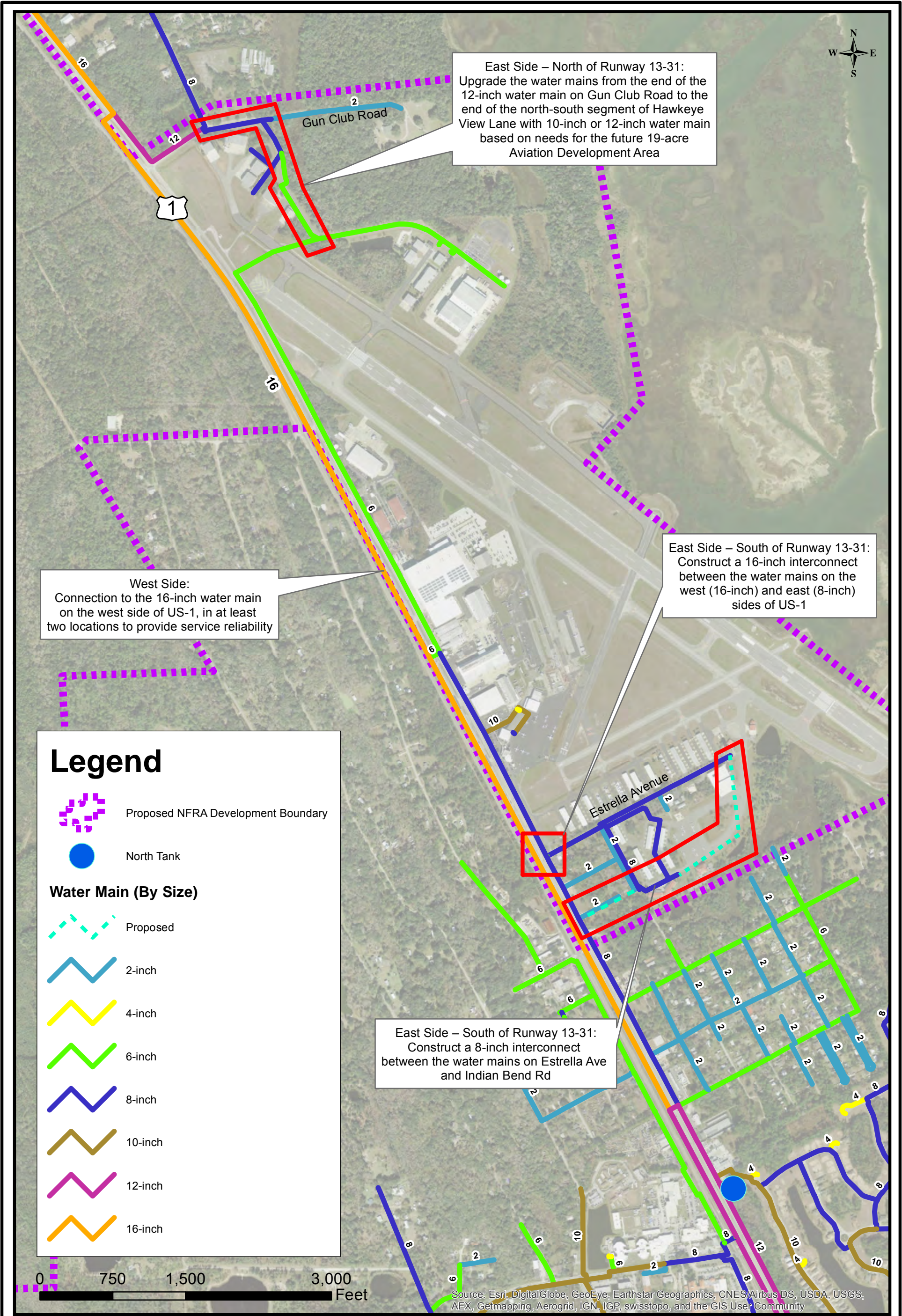


Figure 5:
Proposed Water Distribution Upgrades
Northeast Florida Regional Airport



DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.

flows would similarly be discharged to this private pump station and into the City's 6-inch forcemain. The wastewater model for the north end development was set up and run accordingly. The model results indicate sufficient capacity in the 6-inch and downstream forcemains and resulted in an increased discharge at the WWTP of 15 gpm. No surcharges at other pump stations were indicated by the model. As development plans progress, the City would need to conduct additional hydraulic evaluation of the other pump stations on the City system to ensure there are no concerns with the additional flow, if it is over that already allocated to the north end NFRA complex pump station.

South Side of Runway 13-31

The projected peak hourly wastewater flow generated from the NFRA south end development area is 51 gpm. As previously noted, it appears that the NFRA complex on the south end discharges to a private pump station located near the end of Estrella Avenue which discharges to a City-owned 4-inch forcemain on Estrella Avenue and manifolds into the 8-inch forcemain on US-1. It was assumed that the proposed south end development wastewater flows would similarly be discharged to this private pump station and into the City's 4- and 8-inch forcemains. The wastewater model for the south end development was set up and run accordingly. The model results indicate sufficient capacity in the 4-, 8-inch and downstream forcemains and resulted in an increased discharge at the WWTP of 51 gpm. No surcharges at other pump stations were indicated by the model. As development plans progress, the City would need to conduct additional hydraulic evaluation of the other pump stations on the City system to ensure there are no concerns with the additional flow, if it is over that already allocated to the south end NFRA complex pump station.

Figure 6 indicates the recommended discharge and connection locations to the City's wastewater system for all of the Airport Authority proposed development areas.

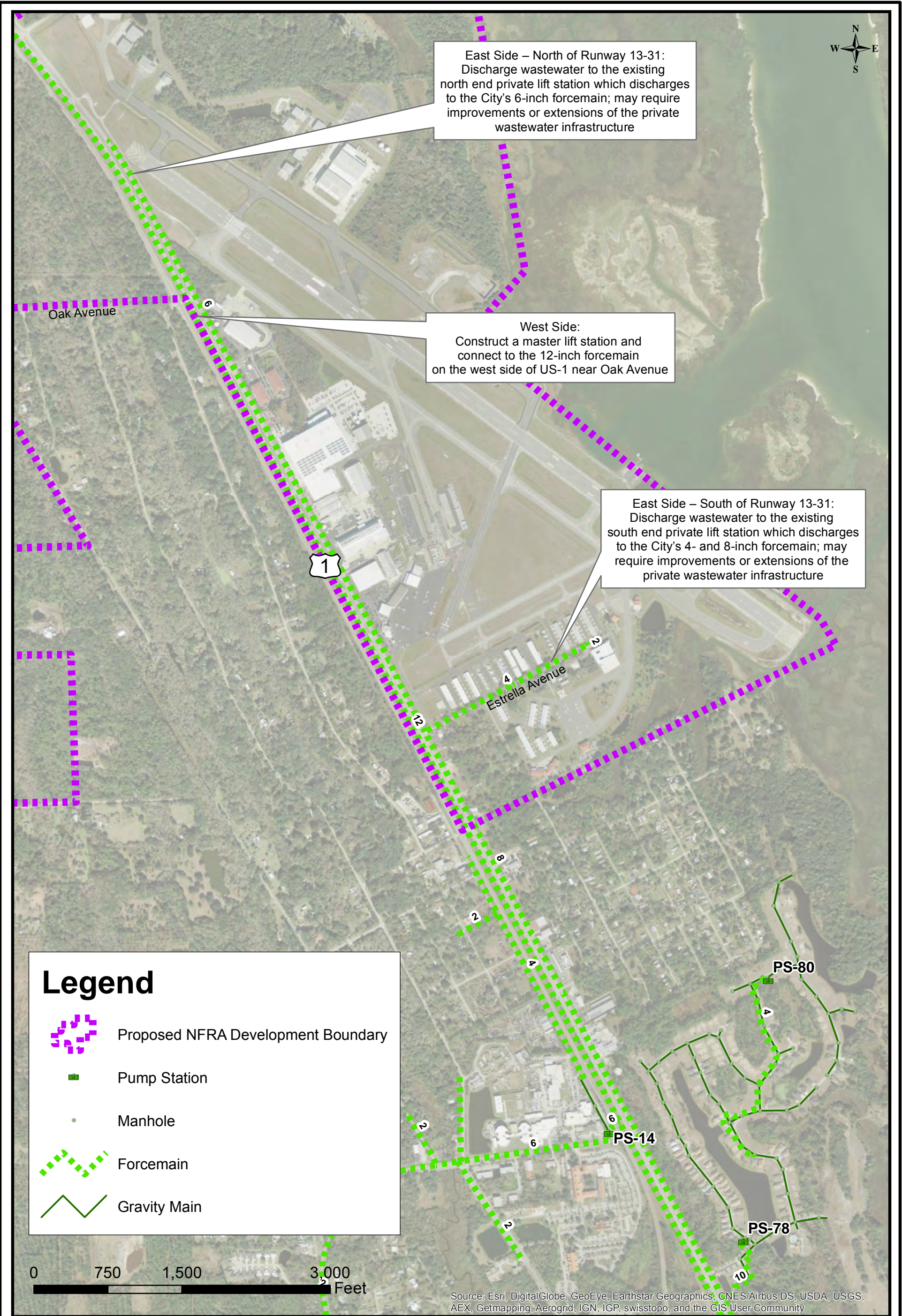


Figure 6:
Proposed Sewer Collection Upgrades

Northeast Florida Regional Airport

DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.



4.0 ON-SITE WATER AND WASTEWATER FACILITIES

Based on the evaluation of the projected water and wastewater needs for the proposed Airport Authority developments, discussions with the City of St. Augustine, and the results of the hydraulic models, water and wastewater service is available from the City although some system improvements and/or extensions may be necessary. Since water and wastewater service can be provided by the City, the use of on-site water and wastewater treatment facilities becomes a much less attractive option from a scheduling, financial, and permitting standpoint. Planning, design and permitting – particularly domestic wastewater treatment and consumptive use permitting for water supply - can take years and is exponentially more expensive than for water system extensions and wastewater collection and transmission systems. Also, given that the Airport Authority proposed developments are located within the City's water and wastewater service areas, there are likely legal constraints to constructing on-site water and wastewater treatment facilities. For these reasons and because water and wastewater service is available from the City, the option of on-site water and wastewater treatment facilities was eliminated as a suitable solution and was not explored further.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Passero authorized 4Waters to provide engineering assistance to evaluate feasible solutions for water and wastewater service for proposed Airport Authority developments on both the east and west sides of US-1 in the vicinity of the Northeast Florida Regional Airpor in support of their Master Plan Update. Feasible solutions were generally considered to be water and/or wastewater service from a municipal utility or on-site facilities for water and/or wastewater treatment with reclaimed water discharge or a discharge to surface water/wetlands. Evaluation of the municipal utilities in the area, St. Johns County, St. Augustine, and JEA, indicated that the proposed Airport Authority developments are within the City of St. Augustine's water and wastewater service areas.

4Waters developed a detailed assessment of the programming for the Airport Authority's proposed developments on both the NFR-B and NFRA areas and the estimated associated water and wastewater service needs. The projected water system demands included an evaluation of average daily flow, maximum daily flow, peak hourly flow, and fire flow demands for each development area – NFR-B, north end of NFRA and south end of NFRA. The projected wastewater system demands included an evaluation of the average daily flow and peak hourly flow for each area. An analysis of the City's water and wastewater treatment facilities available capacity and planned developments and secured allocations was conducted. 4Waters then utilized available information for the City's water and wastewater systems to develop hydraulic models and identify potential service and impacts to the systems by serving the proposed Airport Authority developments.

Following these evaluations, 4Waters contacted the City Public Works Department to review the water and wastewater needs of the Airport Authority developments, the model results, and to discuss the availability of City water and wastewater service. The City representatives indicated that there is available capacity to provide both water and wastewater service to the proposed Airport Authority developments. However, additional detailed evaluations of the City's water and wastewater systems

will need to be conducted as the Airport Authority solidifies development plans to better determine impacts to the City's infrastructure and necessary improvements or utility extensions, and to quantify associated connection costs and/or special assessments to the Airport Authority.

In summary, the following general infrastructure connections or improvements are recommended to provide water and wastewater service to the proposed NFR-B and NFRA Airport Authority developments from the City of St. Augustine.

NFR-B (West Side)

- Water Service: Connection to the 16-inch water main on the west side of US-1, in at least two locations to provide service reliability;
- Wastewater Service: Construct a master pump station for the development and connect to the 12-inch forcemain on the west side of US-1 near Oak Avenue.

NFRA (East Side) – North of Runway 13-31

- Water Service: Upgrade the water mains from the end of the 12-inch water main on Gun Club Road to the end of the north-south segment of Hawkeye View Lane with 10-inch or 12-inch water main based on needs for the future 19-acre Aviation Development Area;
- Wastewater Service: Discharge wastewater to the existing north end private pump station which discharges to the City's 6-inch forcemain; may require improvements or extensions of the private wastewater infrastructure.

NFRA (East Side) – South of Runway 13-31

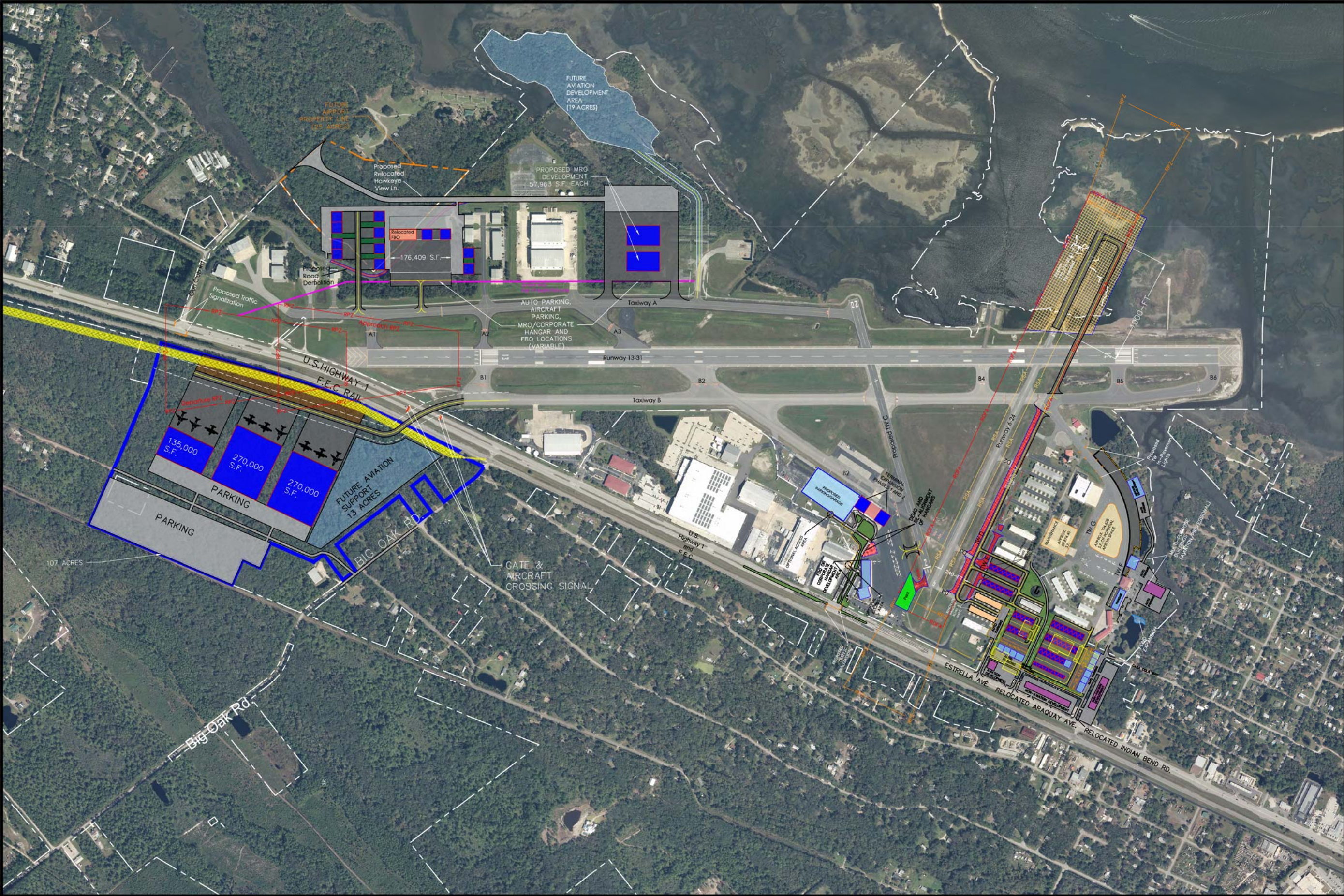
- Water Service:
 - Construct a 16-inch interconnect between the water mains on the west (16-inch) and east (8-inch) sides of US-1;
 - Construct an 8-inch water main loop along Indian Bend Road from the east end of Estrella Avenue to tie-in to the 8-inch water main on US-1;
 - Additional internal water main upgrades and looping may be required within the NFRA complex south of Estrella Avenue;
- Wastewater Service: Discharge wastewater to the existing south end private pump station which discharges to the City's 4- and 8-inch forcemains; may require improvements or extensions of the private wastewater infrastructure.

Since water and wastewater service can be provided by the City, the use of on-site water and wastewater treatment facilities is a much less attractive option from a scheduling, financial, permitting, and potentially legal standpoint. Planning, design and permitting for treatment facilities and groundwater supply can take years and is exponentially more expensive than for water system extensions and wastewater collection and transmission systems. There are also likely legal constraints to constructing on-site water and wastewater treatment facilities given that the proposed development areas are located within the City's water and wastewater service areas.

In conclusion, 4Waters recommends the Airport Authority begin coordination and negotiations with the City of St. Augustine to secure the necessary water and wastewater capacity and develop an understanding of connection costs and any special assessment or improvement fees.

APPENDIX A

JUNE 2018 FIGURES PROVIDED BY PASSERO ASSOCIATES FOR
NORTHEAST FLORIDA REGIONAL AIRPORT



Client:
**St. Augustine-St. Johns
County Airport Authority**
4900 U.S. Highway 1, North
St. Augustine, FL 32095

Passero Associates
13453 N Main St., #106 (904) 757-6106
Jacksonville, FL 32218 www.passero.com
Principal-in-Charge: Andrew M. Holesko
Project Manager: Lisa Cheung
Designed by: Chris Johnson

Revisions		
No.	Date	Description
1		

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NFRA Preferred Alternative

**Northeast Florida
Regional Airport**

Town/City: City of St. Augustine
County: St. Johns State: Florida

Project No.
23081.70

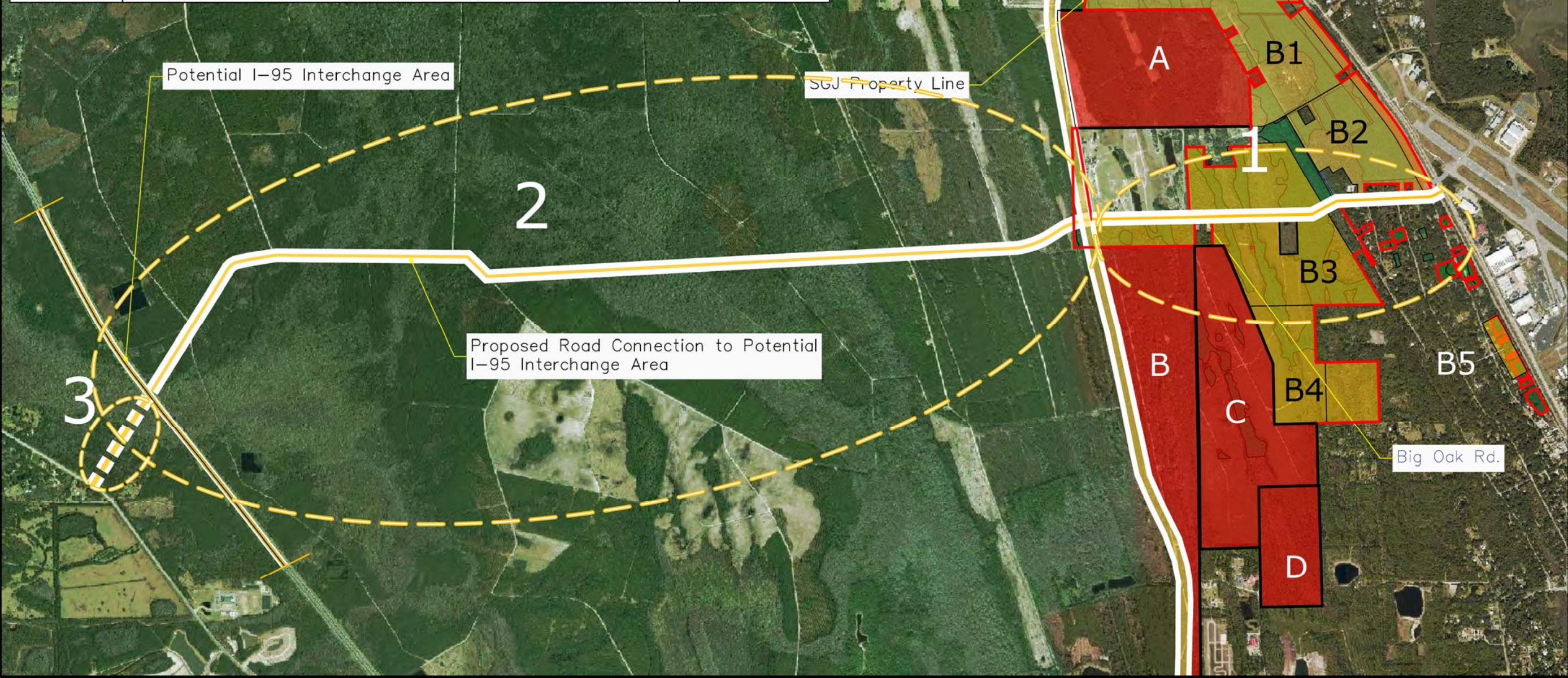
Drawing No.


Date
June 2018

UPWP Proposal for U.S. Highway 1 Connection to S.R. 16	
Area No.	Area Description
1	U.S. Highway 1 to S.R. 313 (via Big Oak Rd.)
2	S.R. 313 to I-95 (via new access)
3	I-95 to S.R. 16 (via new access)

St. Johns River Water Management District Surplus Lands	
Area No.	Approximate Acreage
A	232 Acres
B	234 Acres
C	244 Acres
D	82 Acres

Airport West (NFR-B) Proposed Development Areas		
B1	Non-Aeronautical: Commercial/Manufacturing/Warehouse with Rail Access	316 Acres
B2	Aeronautical Use: Maintenance/Repair/Overhaul	105 Acres
B3	Non-Aeronautical: Public/Multi-Use	241 Acres
B4	Non-Aeronautical: Water/Wastewater Plants	106 Acres
B5	Non-Aeronautical: Multi-Modal Transportation Center	12 Acres






PASSERO ASSOCIATES

Engineering Architecture


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NFRB

Northeast Florida Regional Airport

Fly Smart!



0 1100' 2200'

Client:

St. Augustine-St. Johns County Airport Authority

4900 U.S. Highway 1, North

St. Augustine, FL 32095

Passero Associates

13453 N Main St. #106 Jacksonville, FL 32218 (904) 757-6106 www.passero.com

Principal-in-Charge: Andrew M. Holesko
Project Manager: Lisa Cheung
Designed by: Chris Johnson

Revisions

No.	Date	By	Description
1			

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NFRB Proposed Development

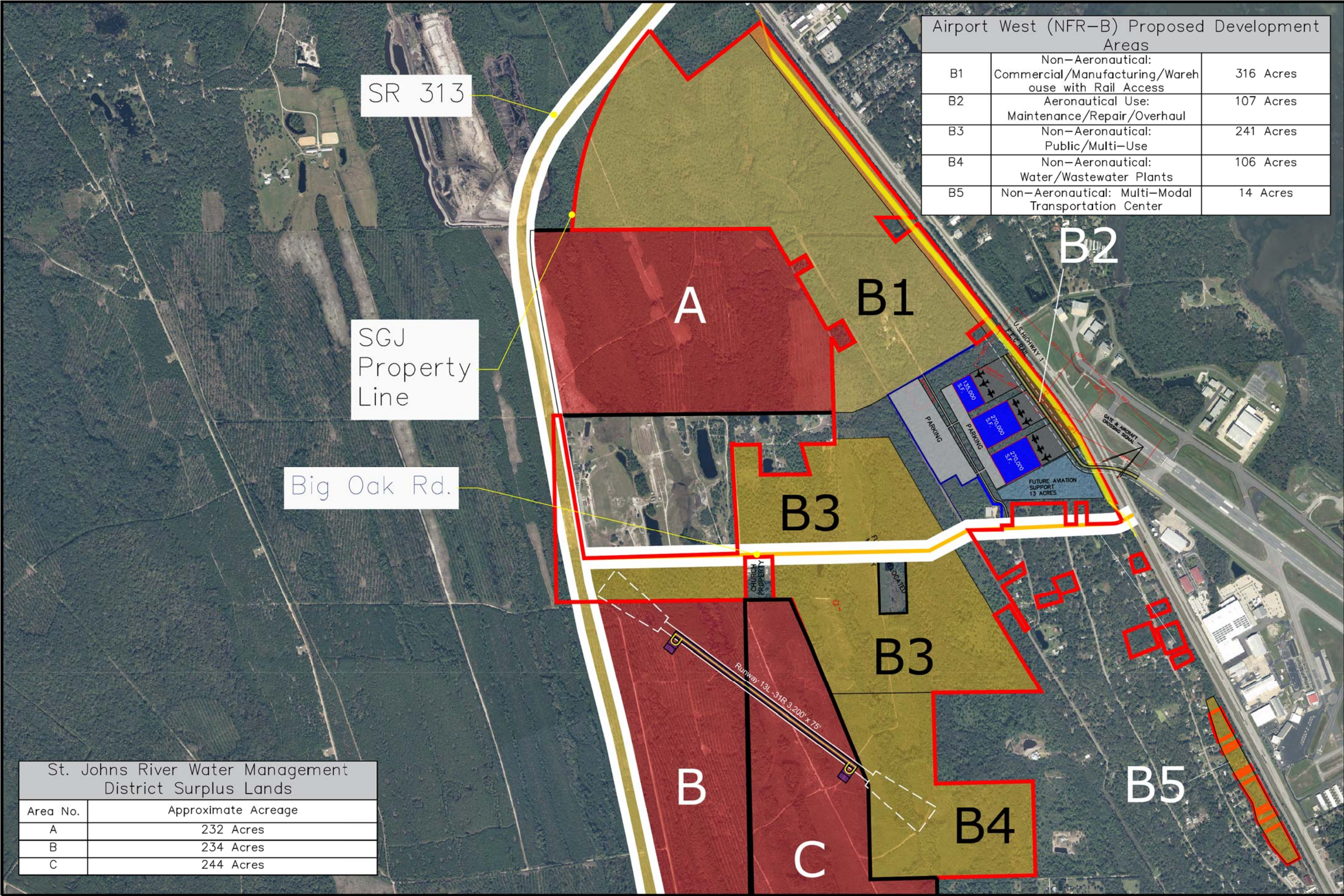
Northeast Florida Regional Airport

Town/County: City of St. Augustine
County: St. Johns State: Florida

Project No. 23081.70

Drawing No.

Date: June 2018



Airport West (NFR-B) Proposed Development Areas

B1	Non-Aeronautical: Commercial/Manufacturing/Warehouse with Rail Access	316 Acres
B2	Aeronautical Use: Maintenance/Repair/Overhaul	107 Acres
B3	Non-Aeronautical: Public/Multi-Use	241 Acres
B4	Non-Aeronautical: Water/Wastewater Plants	106 Acres
B5	Non-Aeronautical: Multi-Modal Transportation Center	14 Acres

St. Johns River Water Management District Surplus Lands

Area No.	Approximate Acreage
A	232 Acres
B	234 Acres
C	244 Acres

PA
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NFRA
Northeast Florida Regional Airport
Fly Smart!

North Arrow
Scale: 0 600' 1200'

Client:
St. Augustine-St. Johns County Airport Authority
4900 U.S. Highway 1, North
St. Augustine, FL 32095

Passero Associates
13453 N Main St. #106 Jacksonville, FL 32218 (904) 757-6106 www.passero.com
Principal-in-Charge: Andrew M. Holesko
Project Manager: Lisa Cheung
Designed by: Chris Johnson

Revisions		
No.	Date	Description
1		

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NFRB Proposed Development

Northeast Florida Regional Airport
Town/City: St. Johns City of St. Augustine
County: St. Johns State: Florida
Project No. 23081.70

Drawing No.
Date: June 2018

APPENDIX B

PROJECTED WATER DEMANDS FOR NFR-B (WEST SIDE) AND NFRA (EAST SIDE)

US-1 AIRPORT AUTHORITY DEVELOPMENT

Water Demand Estimates for NFR-B (West Side of US-1)

Facility Type	Acreage	Characteristics				Potential Water Demand				Total Water ADF Per Facility (GPD)	Total Water Max Day Per Facility (GPD)	Total Water PHF Per Facility (GPM)	Fire Flow Est. (GPM)
		Facility Est. Area (SF)	Employees	Bays (loading or Work)	Water Closets	by Area	by Employee	by Bay (Loading/Work)	by Water Closet				
Non-Aeronautical:													
Comm/Mfgt/Warehouse with Rail Access ¹	316	750,000	1,500			37,500	20,000			57,500	86,250		80
Aeronautical Use: Maintenance/Repair													2,000
Overhaul ²	107	675,000	250	9		10,125	3,000	1,800		14,925	22,388		21
Non-Aeronautical: Public/Multi-Use ³													1,375
Park/Recreational Area	241					1,000							
Restroom Facilities									2,500	2,500	3,750		4
Non-Aeronautical: Multi-Modal					10								10
Transportation Center ⁴	14		1,500	10			22,500	1,000		23,500	35,250		33
Non-Aeronatical: Parking for													2,000
Transit/Mobility ⁵					10				2,500	2,500	3,750		10
Non-Aeronautical: Emergency-Disaster						2,500							0
Prep/Staging Area (Utility) ⁶										2,500	3,750		3
TOTAL NFR-B (Near/Intermediate Range)										104,425	156,638		162
Long Range Uses ⁷										60,000	90,000		83
TOTAL NFR-B (Build-Out)										164,425	246,638		245
													2,500

Source: 64E-6, FAC

Factories, No Showers	15	gpd	per employee/8hr shift
Factories, with Showers	25	gpd	per employee/8hr shift
Office Bldg	15	gpd	per employee/8hr shift
	15	gpd	per 100 sf of floor space (whichever greater)
Warehouse	15	gpd	per employee/8hr shift
	add	100	gpd
Repair Shop	200	gpd	per bay
Water Closet (Toilet/Sink)	250	gpd	each

Notes on Water Usage:

1) Assumed one-third for each use: Commercial (Office) by square foot of floor space, Manufacturing (Factory) with showers with one-third of employees and Warehouse (bays unknown) with one-third of employees; assume is 12-hour shifts for Manufacturing and Warehouse; 24 hour operation.

2) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 9 bays; 24 hour operation.

3) Assume primarily passive park/recreational area with limited water use and restroom facilities; peak factor 3.0; 12 hour operation.

4) Assume similar to Warehouse; 24 hour operation; peak factor 2.0.

5) Assume restrooms only use; 12 hour operation; peak factor 3.0.

6) General use; assume most not returned to wastewater system; 24 hour operation; peak factor 2.0.

7) Long Range Use: Assumed half of employees in factory area; other half in office or warehouse. Assume 12-hour shifts for Manufacturing/Warehouse; 24 hour operation.

Notes on Fire Flow Requirements:

Fire Flows: For large industrial buildings and large aircraft maintenance hangars, assume are Type 1 construction and will require the building to have a sprinkler system. Use of a sprinkler system reduces the fire flow requirement by 75% (Table 18.4.5.1.2 NFPA Fire Code).

Water Demand Estimates for NFRA (East Side of US-1)

Facility Type	Quantity	Characteristics					Potential Water Demand						Total Water ADF Per Facility (GPD)	Total Water Max Day Per Facility (GPD)	Total Water PHF Per Facility (GPM)	Fire Flow Est. (GPM)	
		Facility Est. Area (SF) Each	Employees	Passengers	Bays (Loading or Work)	Water Closets	by Area	by Employee	by Passenger	by Bay (Loading/Work)	by Water Closet	by Other					
Maintenance, Repair, Overhaul Development (North end) ¹	2	58,000	40		2		1,740	480		400			2,620	3,930		4	688
FBO (Relocated) (North end) ²	1	24,000				8	1,800				2,000	200	4,000	6,000		6	1,750
Corporate Hangar (North end) ³	12	8,000				12					3,000	1,200	4,200	6,300		6	2,500
Sub-Total North End													10,820	16,230		15	2,500
Terminal Expansion Phase 1 (South end) ⁴	1	14,400	20	250				300	1,000				1,300	1,950		3	1,500
Terminal Expansion Phase 2 (South end) ⁴	1	14,400	20	250				300	1,000				1,300	1,950		3	1,500
FBO/Corporate Hangar (South end) ⁵	1	43,200				10	1,080				2,500	400	3,980	5,970		6	563
Aviation Development (South end) ⁶	1	6,400					960						960	1,440		1	1,500
Non-Aviation Development (South end) ⁶	1	17,600					2,640						2,640	3,960		4	1,500
Non-Aviation Development (South end) ⁶	1	19,200					2,880						2,880	4,320		4	1,500
New T-Hangar Buildings North of Estrella Avenue (12 units each) (South end) ⁷	2					4					1,000	600	1,600	2,400		2	2,250
New T-Hangar Units North of Araquay Avenue (8 units each) (South end) ⁷	2					4					1,000	400	1,400	2,100		2	2,250
New T-Hangar Units North of Indian Bend Road (12 units each) (South end) ⁷	3					6					1,500	900	2,400	3,600		3	2,250
New T-Hangar Units North of Indian Bend Road (10 units each) (South end) ⁷	1					2					500	250	750	1,125		1	2,250
Multi-Purpose Bldgs (Aviation/Professional) South of Estrella Avenue (South end) ⁸	4	4,200					2,520						2,520	3,780		4	1,500
Multi-Purpose Bldgs (Aviation/Professional) North of Araquay Avenue (South end) ⁸	1	2,400					360						360	540		1	1,500
Multi-Purpose Bldgs (Aviation/Professional) North of Indian Bend Road (South end) ⁸	6	4,400					3,960						3,960	5,940		6	1,500
Maintenance (South end) ⁹	1	70,000	25		2		2,100	300		400		500	2,800	4,200		4	688
Hangar (South end) ¹⁰	1	16,000				2						200	700	1,050		1	375
Multi-Purpose Bldg (Aviation/Professional) (South end) ⁸	1	18,000					2,700						2,700	4,050		4	1,500
Multi-Purpose Bldg (Aviation/Professional) (South end) ⁸	1	8,000					1,200						1,200	1,800		2	1,500
Aviation Development (South end) ⁵	1	20,000					3,000						3,000	4,500		4	1,500
Sub-Total South End													36,450	54,675		52	2,250
TOTAL PROPOSED IN NFRA AIRPORT COMPLEX													47,270	70,905		67	2,500

Source: 6AE-6, FAC

Airports, per passenger	4	gpd	per passenger
Airports, per employee	15	gpd	per employee/8hr shift
Factories, No Showers	15	gpd	per employee/8hr shift
Factories, with Showers	25	gpd	per employee/8hr shift
Office Bldg	15	gpd	per employee/8hr shift
	or		per 100 sf of floor space (whichever greater)
Warehouse	15	gpd	per employee/8hr shift
	add		per loading bay
Repair Shop	100	gpd	per bay
Water Closet (Toilet/Sink)	200	gpd	per bay
Showers, Per Person	250	gpd	each
	10	gpd	per person

Notes provided on following page.

Notes on Water Usage:

- 1) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 2 days; 24 hour operation.
- 2) Assumed FBO provides fueling services and other support services to aviation crews - bathrooms, showers, vending, etc. Assume up to 20 crew members shower daily. Treat 50% of facility area as office use.
- 3) Assumed Corporate Hangars have one water closet (no shower) each and utilize 100 gpd in other water uses. Primarily plane storage, some office space, some maintenance work.
- 4) Assumed terminals would require 20 additional employees and approximately 250 additional passengers each. Assume 16 hrs/day operations.
- 5) Assume half use as FBO and half use as Corporate Hangar. Assumed FBO provides fueling services and other support services to aviation crews - bathrooms, showers, vending, etc. Assume up to 20 crew members shower daily. Treat 50% of facility area as office use.
Assumed Corporate Hangars have two water closets (no shower) each and utilize 200 gpd in other water uses.
- 6) Aviation and Non-Aviation Development: assume is similar to office space use. Use area to determine water use.
- 7) Assume each T-Hangar Building has two water closets. Assume each unit could use up to 50 gallons per day, but only 50% concurrent use.
- 8) Multi-Purpose Buildings: assume is similar to office space use. Use area to determine water use.
- 9) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 2 days; 24 hour operation.
- 10) Assumed Hangars has two water closets (no shower) and utilize 200 gpd in other water uses. Primarily plane storage, some office space, some maintenance work.

Notes on Fire Flow Requirements:

Fire Flows: For large industrial buildings and large aircraft maintenance hangars, assume are Type 1 construction and will require the building to have a sprinkler system. Use of a sprinkler system reduces the fire flow requirement by 75% (Table 18.4.5.1.2 NFPA Fire Code).

St. Johns County requires all commercial buildings without sprinkler systems to have an available fire flow of 1500 gpm.

APPENDIX C

PROJECTED WASTEWATER GENERATION RATES FOR NFR-B (WEST) AND NFRA
(EAST SIDE) US-1 AIRPORT AUTHORITY DEVELOPMENT

Wastewater Generation Rate Estimates for NFR-B (West Side of US-1)

Facility Type	Acreage	Characteristics				Potential Wastewater Generation					Total Wastewater ADF Per Facility	Total Wastewater PHF Per Facility
		Facility Est. Area (Sf)	Employees	Bays (Loading or Work)	Water Closets	by Area	by Employee	by Bay (Loading/Work)	by Water Closet			
Non-Aeronautical: Comm/Mktg/Warehouse with Rail Access ¹	316	750,000	1,500			37,500	20,000			57,500		80
Aeronautical Use: Maintenance/Repair Overhaul ²	107	675,000	250	9		10,125	3,000	1,800		14,925		20.73
Non-Aeronautical: Public/Multi-Use ³												
Park/Recreational Area	241					0				0		0
Restroom Facilities					10				2,500	2,500		10
Non-Aeronautical: Multi-Modal Transportation Center ⁴	14		1,500	10			22,500	1,000		23,500		33
Non-Aeronautical: Parking for Transit/Mobility ⁵					10				2,500	2,500		10
Non-Aeronautical: Hurricane Prep/Staging Area (Utility) ⁶						0				0		0
TOTAL NFR-B (Near/Intermediate Range)												
Long Range Uses ⁷			3,000				60,000			60,000		83
TOTAL NFR-B (Build-Out)											160,925	237

Source: 64E-6, FAC

Factories, No showers	15	gpd	per employee/8hr shift
Factories, with Showers	25	gpd	per employee/8hr shift
Office Bldg	15	gpd	per employee/8hr shift
	or	15	gpd
Warehouse	15	gpd	per 100 sf of floor space (whichever greater)
	add	100	gpd
Repair Shop	200	gpd	per loading bay
Water Closet (Toilet/Sink)	250	gpd	each

Notes:

- 1) Assumed one-third for each use: Commercial (Office) by square foot of floor space, Manufacturing (Factory) with showers with one-third of employees and Warehouse (bays unknown) with one-third of employees; assume is 12-hour shifts for Manufacturing and Warehouse; 24 hour operation.
Assume 100% of water use discharged to wastewater system.
- 2) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 9 bays; 24 hour operation.
Assume 100% of water use discharged to wastewater system.
- 3) Assume primarily passive park/recreational area with limited water use and restroom facilities; peak factor 3.0; 12 hour operation.
Assume general water use not discharged to wastewater system.
- 4) Assume similar to Warehouse; 24 hour operation; peak factor 2.0.
Assume 100% of water use discharged to wastewater system.
- 5) Assume restrooms only use; 12 hour operation; peak factor 3.0.
Assume 100% of water use discharged to wastewater system.
- 6) General use; assume most not returned to wastewater system; 24 hour operation; peak factor 2.0.
Assume general water use not discharged to wastewater system.
- 7) Long Range Use: Assumed half of employees in factory area, other half in office or warehouse. Assume 12-hour shifts for Manufacturing/Warehouse; 24 hour operation.
Assume 100% of water use discharged to wastewater system.

Wastewater Generation Rate Estimates for NFRA (East Side of US-1)

Facility Type	Quantity	Characteristics					Potential Wastewater Generation						Total	Total
		Facility Est. Area (SF) Each	Employees	Passengers	Bays (Loading or Work)	Water Closets	by Area	by Employee	by Passenger	by Bay (Loading/Work)	by Water Closet	by Other	Wastewater ADP Per Facility (GPD)	Wastewater PHF Per Facility (GPM)
Maintenance, Repair, Overhaul Development (North end) ¹	2	58,000	40		2		1,740	480		400			2,620	4
FBO (Relocated) (North end) ²	1	24,000				8	1,800				2,000	200	4,000	6
Corporate Hangar (North end) ³	12	8,000				12					3,000	1,200	4,200	6
Sub-Total North End													10,820	15
Terminal Expansion Phase 1 (South end) ⁴	1	14,400	20	250				300	1,000				1,300	2
Terminal Expansion Phase 2 (South end) ⁴	1	14,400	20	250				300	1,000				1,300	2
FBO/Corporate Hangar (South end) ⁵	1	43,200				10	1,080				2,500	400	3,980	6
Aviation Development (South end) ⁶	1	6,400					960						960	1
Non-Aviation Development (South end) ⁶	1	17,600					2,640						2,640	4
Non-Aviation Development (South end) ⁵	1	19,200					2,880						2,880	4
New T-Hangar Buildings North of Estrella Avenue (12 units each) (South end) ⁷	2					4					1,000	600	1,600	2
New T-Hangar Units North of Araquay Avenue (8 units each) (South end) ⁷	2					4					1,000	400	1,400	2
New T-Hangar Units North of Indian Bend Road (12 units each) (South end) ⁷	3					6					1,500	900	2,400	3
New T-Hangar Units North of Indian Bend Road (10 units each) (South end) ⁷	1					2					500	250	750	1
Multi-Purpose Bldgs (Aviation/Professional)														
South of Estrella Avenue (South end) ⁸	4	4,200					2,520						2,520	4
Multi-Purpose Bldgs (Aviation/Professional)														
North of Araquay Avenue (South end) ⁸	1	2,400					360						360	1
Multi-Purpose Bldgs (Aviation/Professional)														
North of Indian Bend Road (South end) ⁸	6	4,400					3,960						3,960	6
Maintenance (South end) ⁹	1	70,000	25		2		2,100	300		400		500	2,800	4
Hangar (South end) ¹⁰	1	16,000				2						200	700	1
Multi-Purpose Bldg (Aviation/Professional)														
Multi-Purpose Bldg (Aviation/Professional)	1	18,000					2,700						2,700	4
Multi-Purpose Bldg (Aviation/Professional)														
Aviation Development (South end) ⁸	1	8,000					1,200						1,200	2
Aviation Development (South end) ⁸	1	20,000					3,000						3,000	4
Sub-Total South End													36,450	51
TOTAL PROPOSED IN NFRA AIRPORT COMPLEX													47,270	66

Source: 64E-6, FAC

Airports, per passenger 4 gpd per passenger
Airports, per employee 15 gpd per employee/8hr shift
Factories, No showers 15 gpd per employee/8hr shift
Factories, with Showers 25 gpd per employee/8hr shift
Office Bldg 15 gpd per employee/8hr shift
or 15 gpd per 100 sf of floor space (whichever greater),
Warehouse 15 gpd per employee/8hr shift
add 100 gpd per loading bay

Repair Shop 200 gpd per bay
Water Closet (Toilet/Sink) 250 gpd each
Showers, Per Person 10 gpd per person

Notes provided on following page.

Notes on Water Usage:

- 1) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 2 bays; 24 hour operator Assume 100% of water use discharged to wastewater system.
- 2) Assumed FBO provides fueling services and other support services to aviation crews - bathrooms, showers, vending, etc. Assume up to 20 crew members shower daily. Treat 50% of facility area as office use.
Assume 100% of water use discharged to wastewater system.
- 3) Assumed Corporate Hangars have one water closet (no shower) each and utilize 100 gpd in other water uses. Primarily plane storage, some office space, some maintenance work. Assume 100% of water use discharged to wastewater system.
- 4) Assumed terminals would require 20 additional employees and approximately 250 additional passengers each.
Assume 80% of water use discharged to wastewater system. Assume 16 hour/day operations
- 5) Assume half use as FBO and half use as Corporate Hangar. Assumed FBO provides fueling services and other support services to aviation crews - bathrooms, showers, vending, etc. Assume up to 20 crew members shower daily. Treat 50% of facility area as office use
Assumed Corporate Hangars have two water closets (no shower) each and utilize 200 gpd in other water uses
Assume 100% of water use discharged to wastewater system.
- 6) Aviation and Non-Aviation Development: assume is similar to office space use. Use area to determine water use.
Assume 100% of water use discharged to wastewater system.
- 7) Assume each T-Hangar Building has two water closets. Assume each unit could use up to 50 gallons per day, but only 50% concurrent use.
Assume 100% of water use discharged to wastewater system.
- 8) Multi-Purpose Buildings: assume is similar to office space use. Use area to determine water use.
Assume 100% of water use discharged to wastewater system.
- 9) Assumed 10% used for Office by square foot of floor space, Manufacturing (Factory) without showers for 80% of employees, and 2 bays; 24 hour operation.
Assume 100% of water use discharged to wastewater system.
- 10) Assumed Hangars has two water closets (no shower) and utilize 200 gpd in other water uses. Primarily plane storage, some office space, some maintenance work.
Assume 100% of water use discharged to wastewater system.

Notes on Fire Flow Requirements:

- 1) Fire Flows: For large industrial buildings and large aircraft maintenance hangars, assume are Type 1 construction and will require the building to have a sprinkler system. Use of a sprinkler system reduces the fire flow requirement by 75% (Table 18.4.5.1.2 NFPA Fire Code)
- 2) St. Johns County requires all commercial buildings without sprinkler systems to have an available fire flow of 1500 gpm