

Northeast Florida Regional Council
Military Installation Readiness Review



Priority Asset Analysis

DECEMBER 2025



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Acronyms and Abbreviations

ADT	average daily traffic
BAH	Basic Allowance for Housing
CCFR	Clay County Fire Rescue
DoD	Department of Defense
EOC	Emergency Operations Center
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FPL	Florida Power & Light
FWC	Florida Fish and Wildlife Conservation Commission
HUD	U.S. Department of Housing and Urban Development
JAA	Jacksonville Aviation Authority
JAXPORT	Jacksonville Port Authority
JFRD	Jacksonville Fire and Rescue Department
JTC	Joint Training Center
MAF	Military Access Facility
MCSF	Marine Corps Support Facility
MFLC	Military and Family Life Counselor
MHA	military housing area
MIRR	Military Installation Readiness Review
NAS	Naval Air Station
NEFL MIRR	Northeast Florida Military Installation Readiness Review
NEFRC	Northeast Florida Regional Council
NHJ	Naval Hospital Jacksonville
NS	Naval Station
OLF	Outlying Landing Field
SB	Senate Bill
SIS	Strategic Intermodal System



SLR	sea level rise
ST	station
T&E	threatened and endangered
TM	technical memorandum
VA	vulnerability assessment
WMA	wildlife management area
WTP	water treatment plant
WWTP	wastewater treatment plant



Executive Summary

The Northeast Florida Military Installation Readiness Review identifies and analyzes the assets, hazards, and corresponding vulnerabilities and risks that affect the military installations in Duval and Clay counties. This study focuses on Camp Blanding Joint Training Facility, Marine Corps Support Facility Blount Island, Naval Station Mayport, and Naval Air Station Jacksonville. The project focuses on protecting these installations from the impacts of extreme weather events, infrastructure challenges, and other vulnerabilities, thereby promoting mission assurance.

This Priority Asset Analysis Technical Memorandum (TM) provides a framework for prioritization of the systems and their associated assets for the vulnerability assessment (VA). The Project Team gathered data on interdependent military and community assets by collecting and reviewing publicly available data, distributing surveys, visiting the installations, and meeting with and interviewing installation and community stakeholders to better understand installation operations, relationships, and relevant critical systems and assets.

The information collected during the data collection process served as the first steps of the Unified Resilience Assessment Standard and supported the development of this TM, the process for which included:

- **Review of relevant systems and critical assets.** The team reviewed mission-relevant system and asset data to understand how they connect to the installations and their operations.
- **Development of a Framework for Asset Organization.** Using the Resilient Florida Critical Asset Framework as a foundation, the project team categorized assets into four groups and then various asset classes within those groups. The framework was customized to reflect what had been learned during the data collection process.
- **Mission-Criticality Assessment.** Assets were categorized based on their relevance to the installations' primary and secondary missions. The mission criticality filter served as a means of removing assets that did not serve any significant benefit to the installations and their personnel, reducing the volume of data analyzed in the VA.

The results of this process designate mission-critical assets for the various installations, including:

- **Electric Production and Supply Systems**
- **Transportation Networks**
- **Natural Resources**



1 Introduction

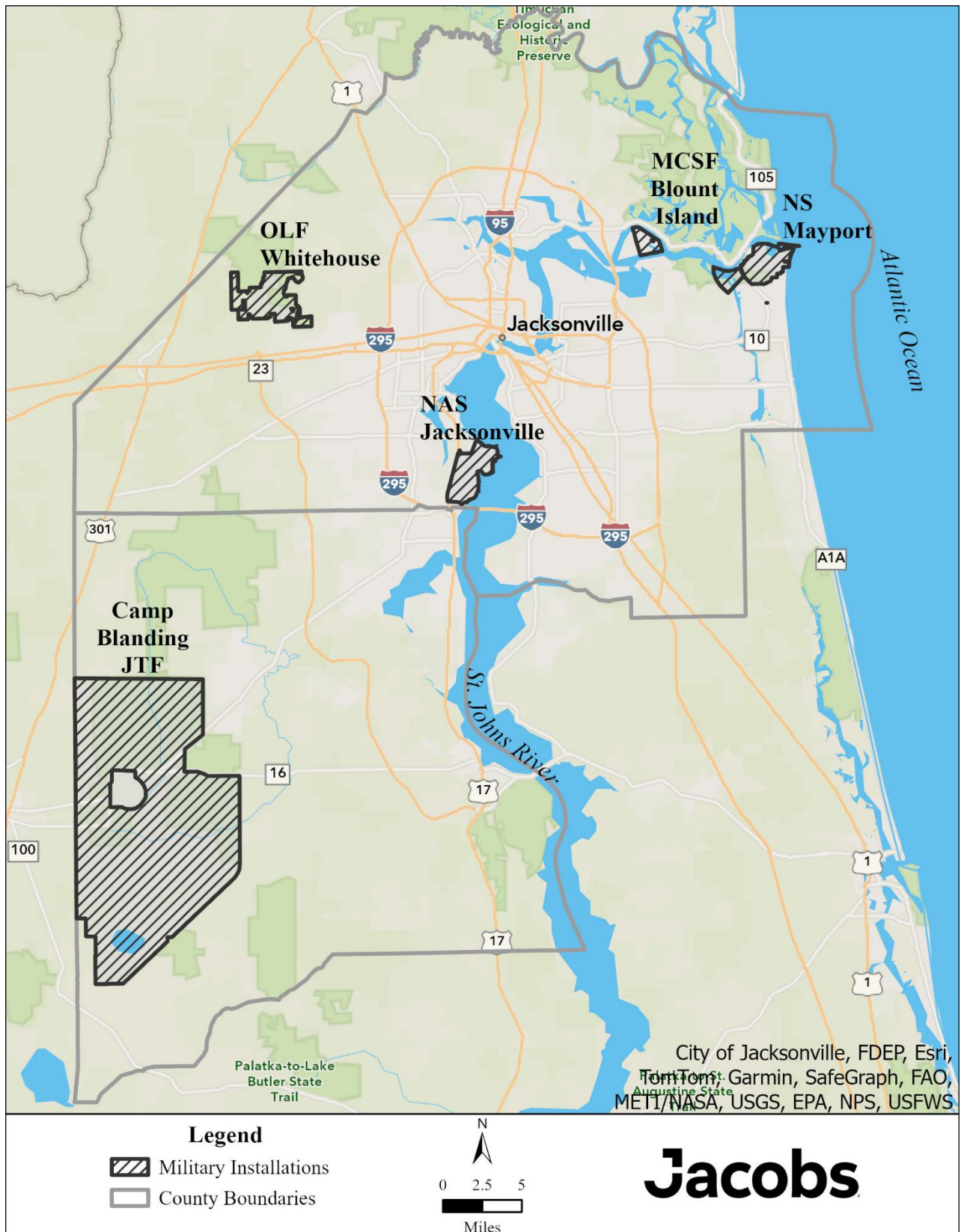
Military installations in Northeast Florida serve crucial roles in training, operations, and deployment for almost every branch of the U.S. Department of Defense (DoD) (Figure 1-1). These significant regional economic engines also play an important role in the fabric and culture of the region. The installations face a range of shocks and stresses driven by changing weather patterns, aging infrastructure, natural resource constraints, and shifting economic trends. Identifying these issues and developing an adaptation roadmap to invest in the community infrastructure that support the installations reduces those risks. The Northeast Florida Military Installation Readiness Review (NEFL MIRR) highlights the urgency of supporting mission assurance through community resilience as well as prosperity and the sense of pride of Florida's First Coast.

In this context, resilience is defined as the capacity to recover and improve when faced with short-term shocks (such as natural hazards) or long-term stressors (such as aging infrastructure). Assessing the factors that contribute to vulnerability is essential for understanding how resilience enhances the effectiveness of installations, supports personnel, and benefits local economies. This approach enables transformative change, long-term sustainability, and collaboration among diverse regional stakeholders.

Understanding the drivers of vulnerability is critical for the initial resilience assessment (Task #3) and serves as the foundation for the vulnerability assessment (VA) (Task #4). To accomplish this, the Northeast Florida Regional Council (NEFRC) and Jacobs (hereinafter, "the Project Team") performed a priority asset analysis that identified both mission-critical and supporting asset types within the NEFL MIRR study area. The team collected and analyzed data on local community and economic factors to better understand their relationships to mission assurance. From this foundation, a framework for organizing assets was developed, drawing from local precedence and industry standards. Each asset class was evaluated from the collected data; study area boundaries were defined, and mission criticality scores were assigned. The process and findings of this priority asset analysis are summarized in this technical memorandum (TM).



Figure 1-1. NEFL MIRR Study Area Installations



2 Asset Prioritization Framework

In Duval and Clay counties, a variety of systems and sectors support the military installations. Each system is comprised of different components, that, when working together, create a functioning system. For the purpose of this MIRR study, an *asset* is defined as a *system component that provides support to the installations*.

Significant work regarding sectors and asset typologies in the VA has already been done throughout the state and region. The state of Florida developed a Critical Asset Framework as part of its Resilient Florida Program (FDEP 2022). Similarly, Duval County generated its own framework for the Resilient Jacksonville Strategy (Fernleaf and The Water Institute 2023). The categorization and prioritization framework presented herein aligns with these existing frameworks.

2.1 Critical Asset Framework

2.1.1 Basis for the Critical Asset Framework

The Project Team agreed to develop the MIRR critical asset framework based on the Resilient Florida Program’s Critical Asset Framework. Established as part of the 2021 “Always Ready” legislation, the Resilient Florida Program provides planning and implementation funding to reduce risks to flooding and sea level rise (SLR). As part of the program and legislation, four critical asset groups were created and defined in Florida Statute 380.093 for the purpose of conducting VAs:

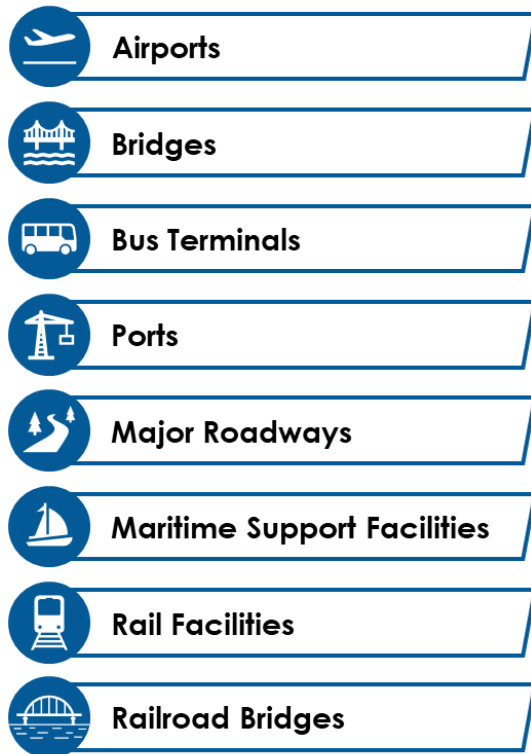
- Critical Community and Emergency Facilities
- Critical Infrastructure
- Transportation and Evacuation Routes
- Natural, Cultural, and Historical Resources

Figures 2-1 and 2-2 list the different asset types in each asset group. This framework was used as the basis for the critical asset framework for this MIRR.



Figure 2-1. Resilient Florida Transportation and Evacuation Routes and Natural, Cultural, and Historical Resources Asset Groups and Associated Asset Types

Transportation and Evacuation Routes



Critical Infrastructure



Figure 2-2. Resilient Florida Critical Community and Emergency Facilities and Critical Infrastructure Asset Groups and Associated Asset Types



2.1.2 Filtering of Critical Asset Types

As described in the Unified Resilience Standard Methodology for this MIRR (Jacobs 2025), the first step in preparing for the MIRR vulnerability assessment was to filter the critical asset types by mission criticality. Assets are typically filtered out of the assessment if they are deemed mission-adjacent, outside of the project scope, or for other reasons. This allows for a more targeted assessment pursuant to grant intention and purpose and within the grant study area. Table 2-1 describes what asset types were filtered and the reason for their exclusion from the assessment.

Table 2-1. Critical Assets Filtered Out of the Vulnerability Assessment Analysis

Asset Type	Reason for Filtering	Comments
Critical Community and Emergency Facilities		
Colleges and Universities	Note 1	
Community Centers	Note 1	
Correctional Facilities	Note 1	
Disaster Recovery Centers	Note 1	Though these sites serve the greater community, they were not seen as mission critical for the installation as each installation has their own disaster recovery plans.
Emergency Medical Service Facilities	Note 1	Hospitals are included as the catch-all for medical care.
Health Care Facilities	Note 1	Hospitals are included as the catch-all for medical care.
Logistical Staging Areas	Note 1	
Affordable Public Housing	Note 2	Housing affordability will be evaluated through a different analysis within the VA.
Risk Shelter Inventory	Note 1	
State Government Facilities	Note 1	
Critical Infrastructure		
Military Installations	Note 3	
Disaster Debris Management Sites	Note 1	
Transportation & Evacuation Routes		
Bus Terminals	Note 1	
Natural, Cultural, and Historical Resources		
Parks	Note 1	Open space that does support the installations is included as part of the conservation areas dataset.
Historical and Cultural Assets	Note 1	

Notes:

1 While important for the community, these facilities are not critical to the installations' missions.

2 While the asset class is mission critical, specific units within the system are not necessarily so. As a result, this asset class and its associated vulnerabilities will be reviewed qualitatively.



3 Installations themselves are not included in the assessment because the focus of the MIRR is supportive services outside of the fence line.

2.1.3 Consolidation of Critical Asset Types

In addition to the filtering process, the Project Team consolidated select asset types to support a more targeted and focused analysis. Table 2-2 describes the original critical asset type, the new critical asset type, and the justification for change.

Table 2-2. Critical Assets Consolidated

Original Asset Type(s)	New Asset Type	Reason for Change
Railroads, Railroad Bridges	Railroads	The two categories were combined into a single category for ease of labeling and discussion. Railroad bridges are also discussed in the bridge section.
Marinas	Maritime Support Facilities	The marina category was broadened to incorporate mission-critical fuel depots, tug docks and facilities, and ship repair facilities that were noted by stakeholders as being crucial for installations with maritime activities.
Water Utility Conveyance Systems, Drinking Water Facilities	Potable Water Systems	The two categories were combined into a single category for ease of labeling and discussion. Specific components of the system (for example, treatment plants) will be further categorized as asset subtypes.

2.1.4 The Final Critical Asset Framework

Following the filtering and consolidation process, a total of 22 asset types were present across the four asset groups (Figure 2-3).



Figure 2-3. NEFL MIRR Critical Asset Framework

**Critical Community and
Emergency Facilities**

-  Emergency Operations Centers
-  Fire Stations
-  Hospitals
-  Law Enforcement Facilities
-  Local Government Facilities
-  Schools

**Transportation and
Evacuation Routes**

-  Airports
-  Bridges
-  Maritime Support Facilities
-  Major Roadways
-  Ports
-  Railroad Bridges

**Natural, Cultural, and
Historical Resources**

-  Conservation Lands
-  Shorelines
-  Surface Waters
-  Wetlands

Critical Infrastructure

-  Communication Facilities
-  Electric Production and Supply Facilities
-  Water Utility Conveyance Systems
-  Solid and Hazardous Waste Facilities
-  Stormwater Treatment Facilities and Pump Stations
-  Wastewater Treatment Facilities and Lift Stations



2.2 Mission Criticality

The purpose of the MIRR is to strengthen mission assurance through community resilience. Assets were categorized and prioritized based on their relevance to each installation’s primary and secondary missions. This mission critical framework serves as the foundation for identifying which assets would be included in the VA. The primary mission represents the installation’s core operational purpose, while the secondary mission encompasses additional responsibilities or supporting roles. By defining these missions it is possible to identify which ‘outside the fence line’ assets are relevant to the mission. All assets were assigned a mission criticality score based on their support to the mission of the installation as supporting either the installation’s primary mission, secondary mission, the installation and its personnel in general (mission-supportive), or not relevant to the mission as described in Table 2-3. The Project Team developed initial mission criticality scoring for each asset type and then proceeded to review scoring with installation representatives and other relevant stakeholders in September 2023. Initial feedback was considered and applied to the revised critical asset framework. The mission criticality scores for each installation are given in Section 4.

Table 2-2. Mission-Criticality Classifications

Mission Criticality Category	Description
Primary Mission-Critical	Asset supports/enables the foremost mission of the installation
Secondary Mission Critical	Asset that supports/enables the subordinate mission of the installation
Mission-Supportive	Assets that support the livelihood and health of installation personnel and/or operations; indirect support to primary and secondary missions
Not Mission-Relevant	Asset does not affect the mission of the installation

Military installations depend on the surrounding communities for critical resources and infrastructure, such as water, wastewater, energy, transportation, housing, waste, and medical services. Many emergency facilities have agreements with the regional military installations to provide support services in the event of an emergency. Community and installation stakeholders took part in the workshops for each installation to help identify which emergency facilities provided mission-critical support to each installation. Assets were ranked accordingly based on these workshops and vetted with the NEFL Steering Committee.

Section 3 describes each critical asset type in further detail.



3 Critical Assets

3.1 Critical Community and Emergency Facilities

Community and emergency facilities play important roles during standard community functions and emergencies. These facilities are essential for public order and safety, strengthening the resilience of the installations and nearby communities. During emergencies, they play a crucial role in ensuring rapid coordination and communication among first responders. Maintaining reliable emergency services enables communities to remain functional and adaptive during natural disasters, security incidents, or unexpected emergencies. Emergency facilities such as fire stations, police stations, hospitals, shelters and Emergency Operation Centers (EOCs) form the foundation of coordinated disaster response. Their ability to function effectively is directly tied to the readiness of nearby installations, helping protect mission personnel and assets during high stress events.

Critical community and emergency facilities include:

- **Affordable housing**
- **EOCs** that serve as hubs for emergency coordination and response
- **Fire stations** include facilities that house fire response personnel and equipment
- **Hospitals** include major facilities that have the capacity to provide significant medical care during emergencies
- **Law enforcement facilities** include facilities that house and support police and their mission of maintaining law and order
- **Local government facilities** include facilities such as city halls and public safety buildings that serve as an anchor for civic life and support for the installations
- **Schools** include public elementary, middle, and high schools where the children of military personnel attend; in addition, schools typically serve as shelters during declared emergencies and as a result function as part of the emergency management system

These assets directly or indirectly support the civilian and military workforce that operates the installation and provides shelter and resources during emergencies. When critical community infrastructure is compromised, ripple effects are felt in other sectors such as workforce availability.



Affordable Housing

According to the Florida Housing Coalition (n.d.), housing is defined as affordable when a household spends “no more than 30% of its income on either rent or mortgage payments.” Income limits are designated by the U.S. Department of Housing and Urban Development (HUD), with the median income in both Duval and Clay counties estimated to be \$102,500 in 2025 (Westmont Advisors, 2025a; Westmont Advisors, 2025b).

The cost of housing is not the only component that must be considered; the availability of affordable housing is also critical, particularly for military families. Florida overall has a



shortage of affordable housing, with a deficit of 644,061 affordable and available units for persons at or below 50% of the area median income (Harati et al. 2025).

Military personnel receive the Basic Allowance for Housing (BAH), which consists of financial support that enables personnel to live off-base, the compensation for which is based on housing costs in civilian markets. The BAH varies depending on whether personnel have dependents and is not designed to cover all housing costs (DoD 2023). BAH rates are allocated for each military housing area (MHA); the only MHA within the MIRR study region is the Jacksonville, FL MHA (MHA code FL058). The DoD expects that, on average, 84% of the BAH go toward housing while the remaining 16% be used to pay for rent in 2026 (DoD 2025b). Table 3-1 lists the BAH rates for a military classification of E-4 (data are given based on nearby metropolitan areas, so there is no BAH for Clay County).

Table 3-1. Example BAH Rates for E-4

Classification	BAH Rate
E-4, with dependents	\$2,100
E-4, without dependents	\$1,671

Source: DoD 2025 BAH Rates

During stakeholder workshops, installation representatives noted that installation personnel live all over the region and are not generally clustered around the installations, with some driving from Georgia or west of Clay County. The lack of available, affordable housing places stress on military families, resulting in them needing to move further away to find affordable housing.

The VA will contain a review of housing affordability compared to the incomes of military personnel.



Emergency Operations Centers

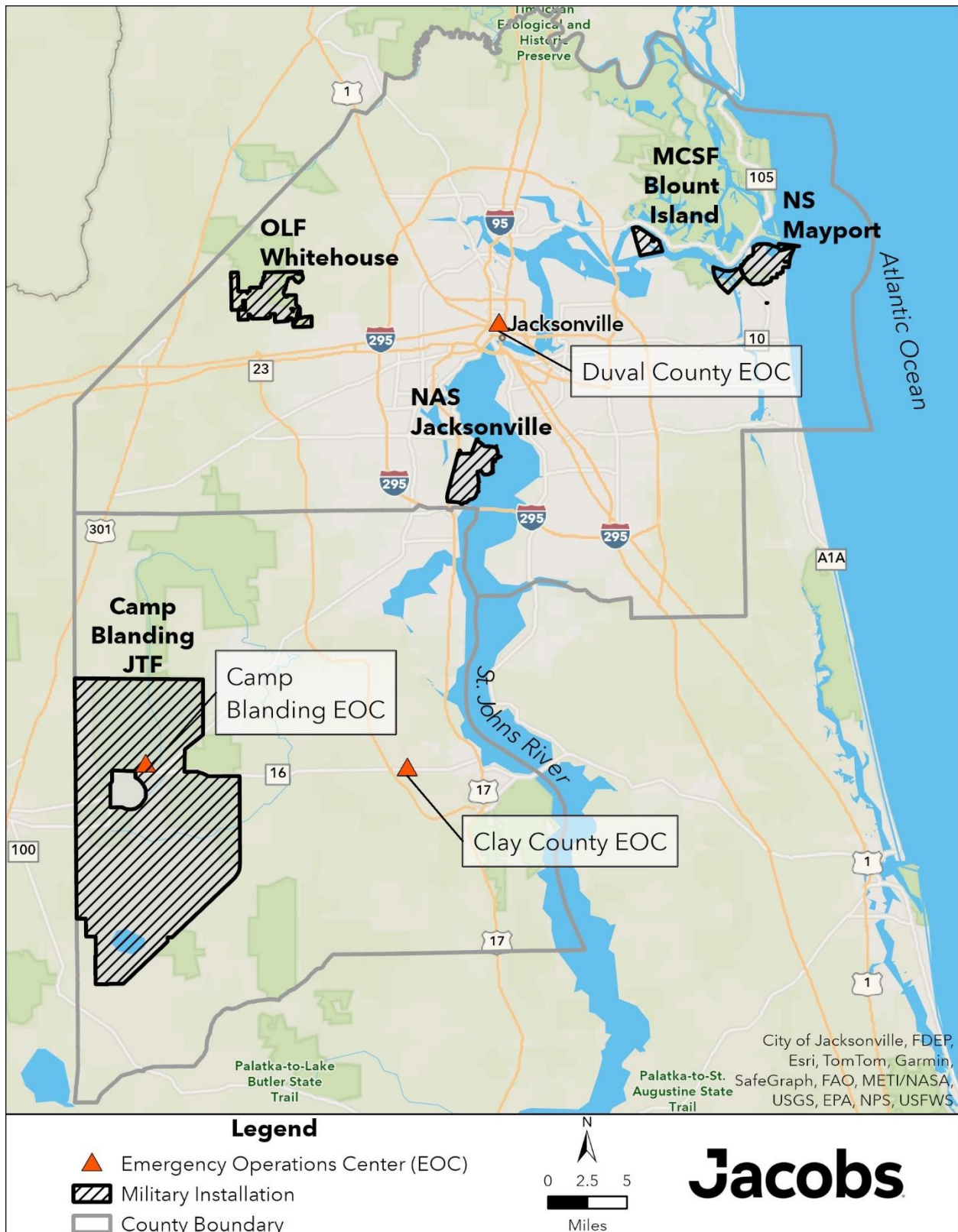
EOCs are physical locations that serve as hubs for coordinating emergency response before, during, and after events. EOCs are activated before planned, scheduled, or forecasted events such as major sporting events or hurricanes, as well as during or after unplanned incidents, such as terrorist attacks. They bring together representatives from various departments and agencies to facilitate communication, resource allocation, and decision-making. There are three critical EOCs located within the study area:

1. **City of Jacksonville EOC.** Jacksonville's EOC is located at the Jacksonville Fire and Rescue Department (JFRD) Headquarters in downtown Jacksonville. This mission-supportive facility would serve as the coordination point of community emergency support for incidents at Marine Corps Support Facility (MCSF) Blount Island, Naval Station (NS) Mayport, and Naval Air Station (NAS) Jacksonville.
2. **Clay County EOC.** The Clay County EOC is in Green Cove Springs and would support Camp Blanding Joint Training Center (JTC) during an emergency
3. **State of Florida Backup EOC.** The backup EOC for the State of Florida is located on-base at Camp Blanding, inside the fence line. While this facility will not be evaluated as part of this MIRR because of its location, it further highlights the importance of operational continuity at the installation in the event of EOC activation.



Figure 3-1 shows the locations of the EOCs.

Figure 3-1. Emergency Operations Center Locations





Fire Stations

Fire stations provide firefighting and emergency response support to the installations. Fire stations that provide direct support may be located on or adjacent to the installations. Other facilities providing indirect or additional support, such as HAZMAT response, are located around the region. Duval County operates JFRD, which operates approximately 70 fire stations, while Clay County Fire Rescue (CCFR) operates 13 fire stations throughout Clay County and is currently constructing five new stations and replacing five others (Clay County n.d.).

The installations have agreements with their respective counties for firefighting services. These agreements include single stations that provide primary support as well as other stations that provide additional support or services.

- **Camp Blanding JTC:** Clay County Fire District Station (ST) 25 is located on-base and provides response services for on-base structural fires.
- **NS Mayport** has its own fire department on base. This group would be supported by JFRD if needed.
- **NAS JAX** has its own fire department on base. The installation also has formal agreements with both JFRD and CCFR, with multiple stations providing support in the event of an emergency.
- **NCSF Blount Island:** JFRD ST 48 is located just outside the fence line of the installation and is the primary supportive fire station, with other JFRD stations supporting as needed.

Figure 3-2 shows the fire stations that support each installation.



Hospitals

Hospitals provide a mission-supportive function during regular installation operations and emergencies. The region has a robust network of healthcare facilities (including hospitals and other specialized facilities) that can support installation personnel. Major regional medical institutions include Baptist Health, the University of Florida Health System, Ascension St. Vincent's, and the Mayo Clinic.

While community hospitals in general support the installations and their personnel, they have a more direct mission connection at NAS Jacksonville because of the presence of Naval Hospital Jacksonville (NHJ). NHJ supports both current and retired military personnel and provides services including, but not limited to, primary and preventive care, urgent and emergency care, seventeen specialties, mental health care, readiness services, a Veteran's Affairs clinic, and pharmaceutical services. Because of limited personnel in NHJ's emergency room, Orange Park Medical Center, St. Vincent's (cardiac support), UF Health hospitals (including Shands Medical Center in Gainesville for burns), and Baptist hospitals all provide additional emergency support. As a result, while hospitals are mission-supportive for NS Mayport, MCSF Blount Island, and Camp Blanding JTC, they are critical to the secondary mission of medical care for NAS JAX. Figure 3-3 shows the location of mission-supportive hospitals in the region.



Figure 3-2. Fire Station Locations

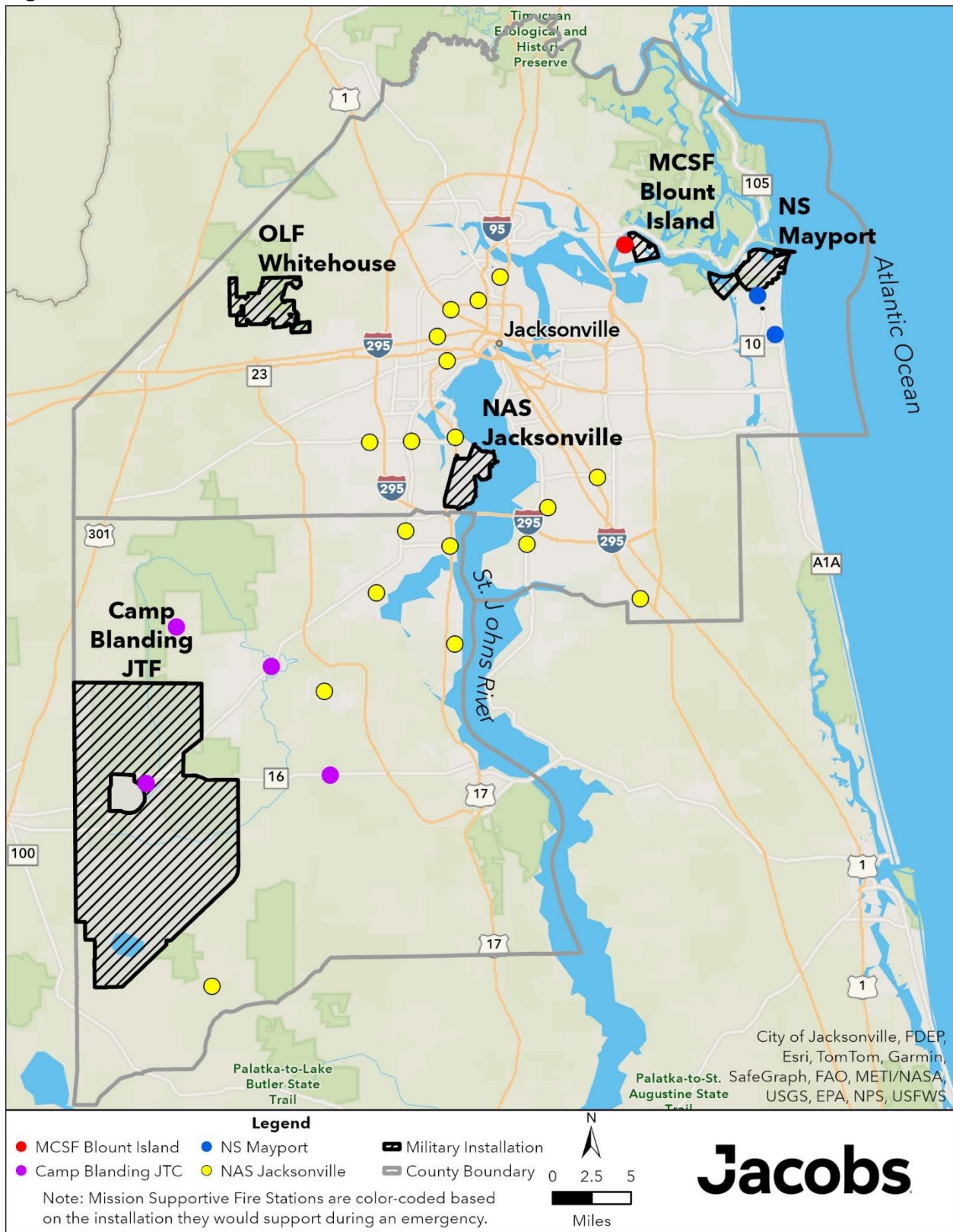
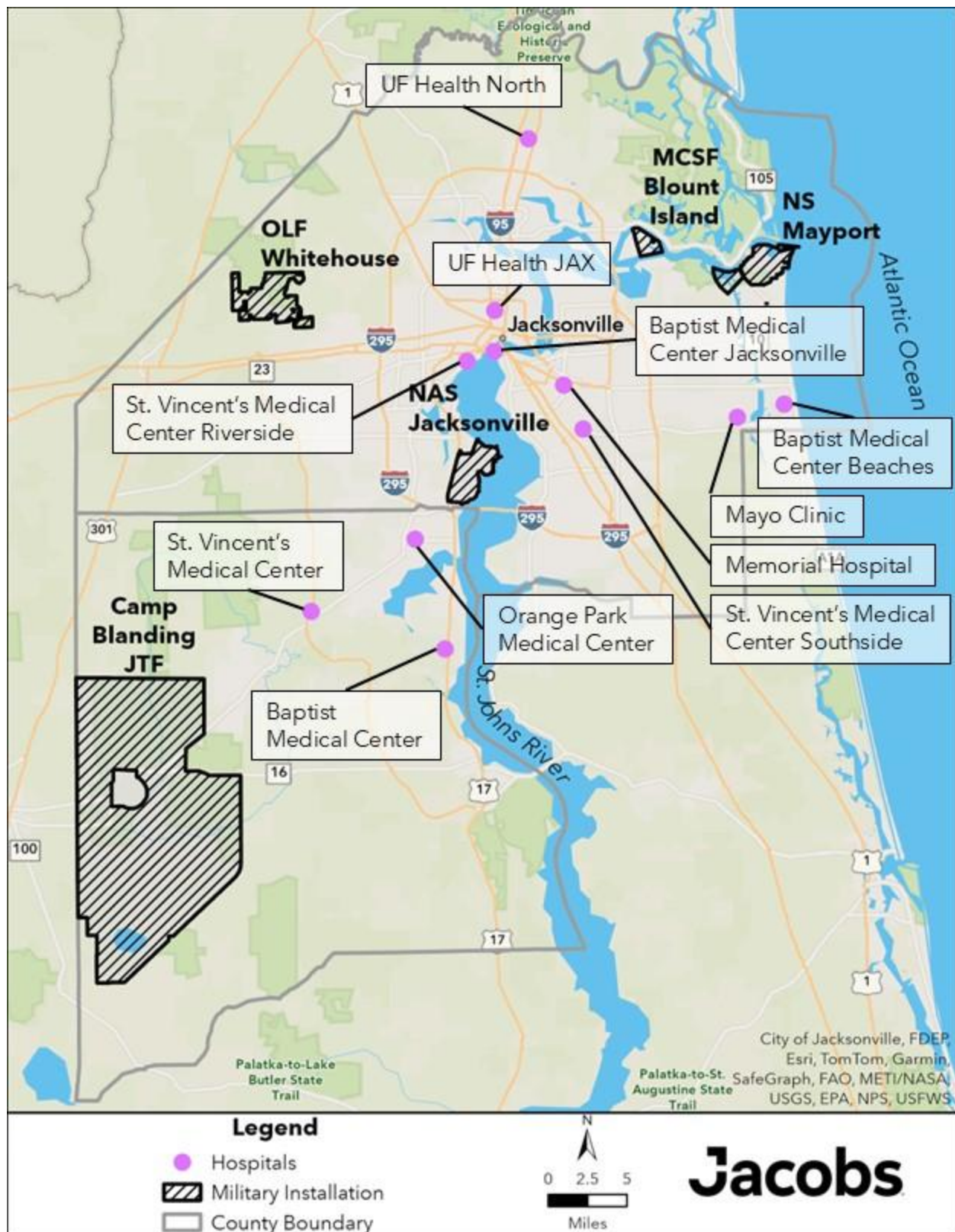


Figure 3-3. Hospital Locations





Local Government Facilities

Local governments support the installations and their operations. Local governments provide services to installation personnel and are critical points of contact with the installations for a variety of needs, including planning and zoning and public safety. In addition, governments provide services that enhance quality of life (such as arts and recreation) to installation personnel living in the region. During site visits conducted from June through September of 2025, stakeholders noted that the installations have positive relationships and good communication with local governments. Relevant local governments include:

- **Duval County.** Duval County/the City of Jacksonville work with NAS Jacksonville,



Local Law Enforcement Facilities

Local law enforcement facilities consist of sheriff's offices and substations that house police (or other law enforcement agencies) and their equipment. Local law enforcement support both outside and inside the installation boundaries. Local sheriff's offices typically provide law enforcement services for domestic matters occurring within the installation boundaries. In addition, they provide both emergency response support and support to the installations during larger community events, such as air shows. Depending on the size of the event, officers from multiple facilities may assist the installation. Table 3-2 describes the law enforcement agencies that support the installations.

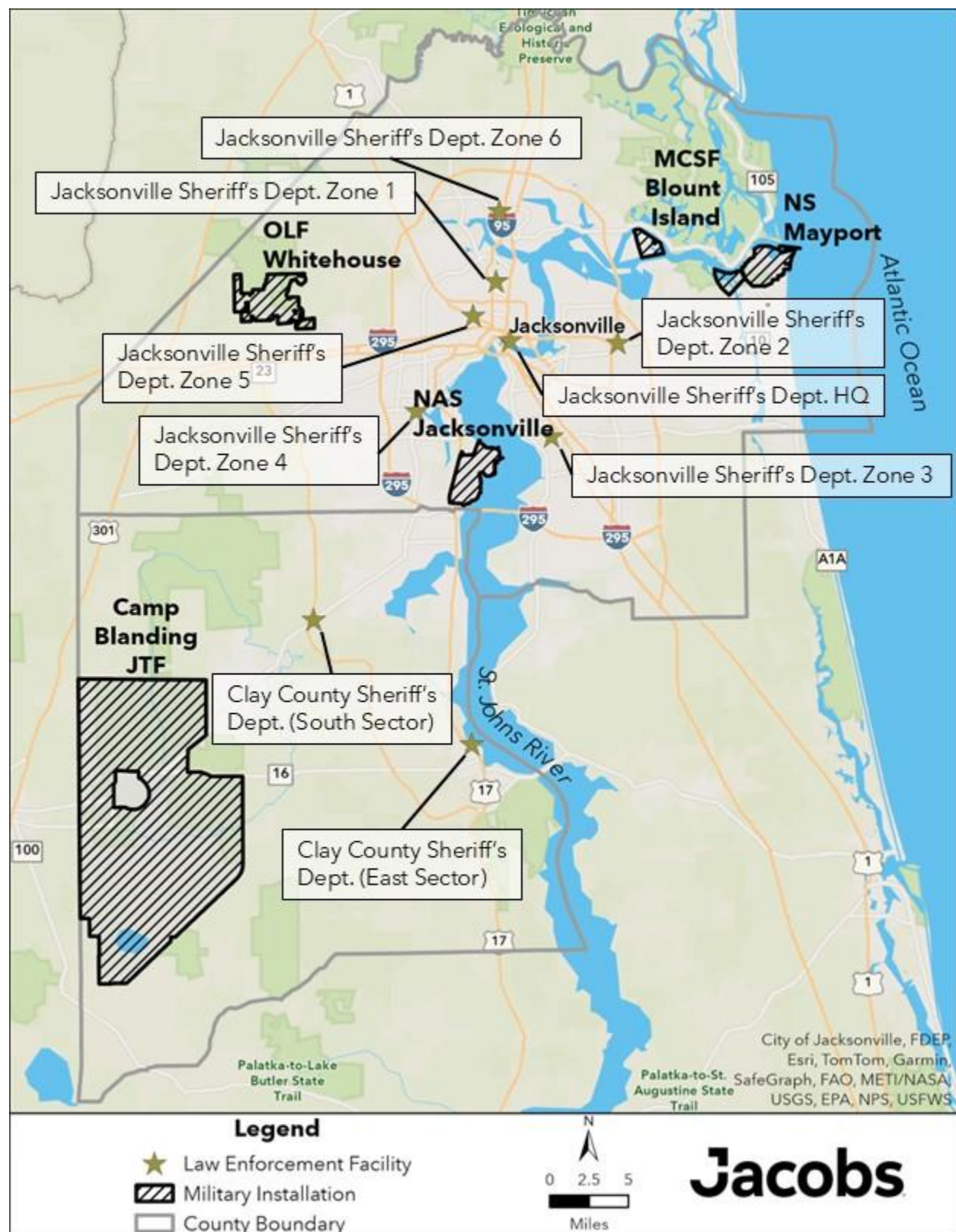
Table 3-2. Law Enforcement Agencies

Agency Name	Installation(s) Supported	Description
Jacksonville Sheriff's Department	MCSF Blount Island NS Mayport NAS JAX	▪ Provides law enforcement presence and services for domestic issues ▪ Provides support during large events (e.g., airshow days at NAS JAX)
Clay County Sheriff's Office	NAS JAX Camp Blanding JTC	▪ Provides law enforcement presence and services for domestic issues ▪ Provides support during large events (e.g., training days at Camp Blanding JTC)
Florida Fish and Wildlife Commission (FWC)	Camp Blanding JTC	▪ Provides law enforcement in wildlife management areas (WMAs) adjacent to Camp Blanding

Relevant law enforcement facilities were confirmed with Duval and Clay County personnel during the stakeholder engagement workshops and are shown in Figure 3-4.



Figure 3-4. Law Enforcement Facility Locations





Schools

Schools are critical areas of importance for military families. Quality schools ease the worries of military families as they move to new places, and available services support the children of military families as they transition to these new environments. School closures, either by organizational decision or by hazard events, can impact personnel as they need to arrange childcare or take their kids to schools further away.

Both Duval and Clay counties have support systems available for military families. Duval County provides a Military Transition Team that as a liaison between installation leadership, military families, and County schools, providing guidance for transition. In addition, Military and Family Life Counselors (MFLCs) are provided at 26 schools throughout the Duval County. Duval County supports children of military families in its schools through the provision of online tutoring services and counseling (Duval County Public Schools n.d.). Nineteen schools in Duval County and nine in Clay County received the Purple Stars Schools of Distinction Award for 2024-2025 from the State of Florida, which recognizes schools that support the unique needs of military families, help military-connected students navigate critical challenges and provide resources for military-connected students when transitioning to a new school environment (FLDOE 2025).

One example of the impact of school availability on the installation is near NS Mayport. Anchor Academy Elementary school will close in May 2026. Limiting access to only a single elementary (Mayport Elementary School) can further increase traffic congestion and impact access to the base.

Mission-supportive schools were identified as a mixture of those identified as Purple Star Schools of Distinction and those with MFLCs. The selected schools are shown in Figure 3-5.

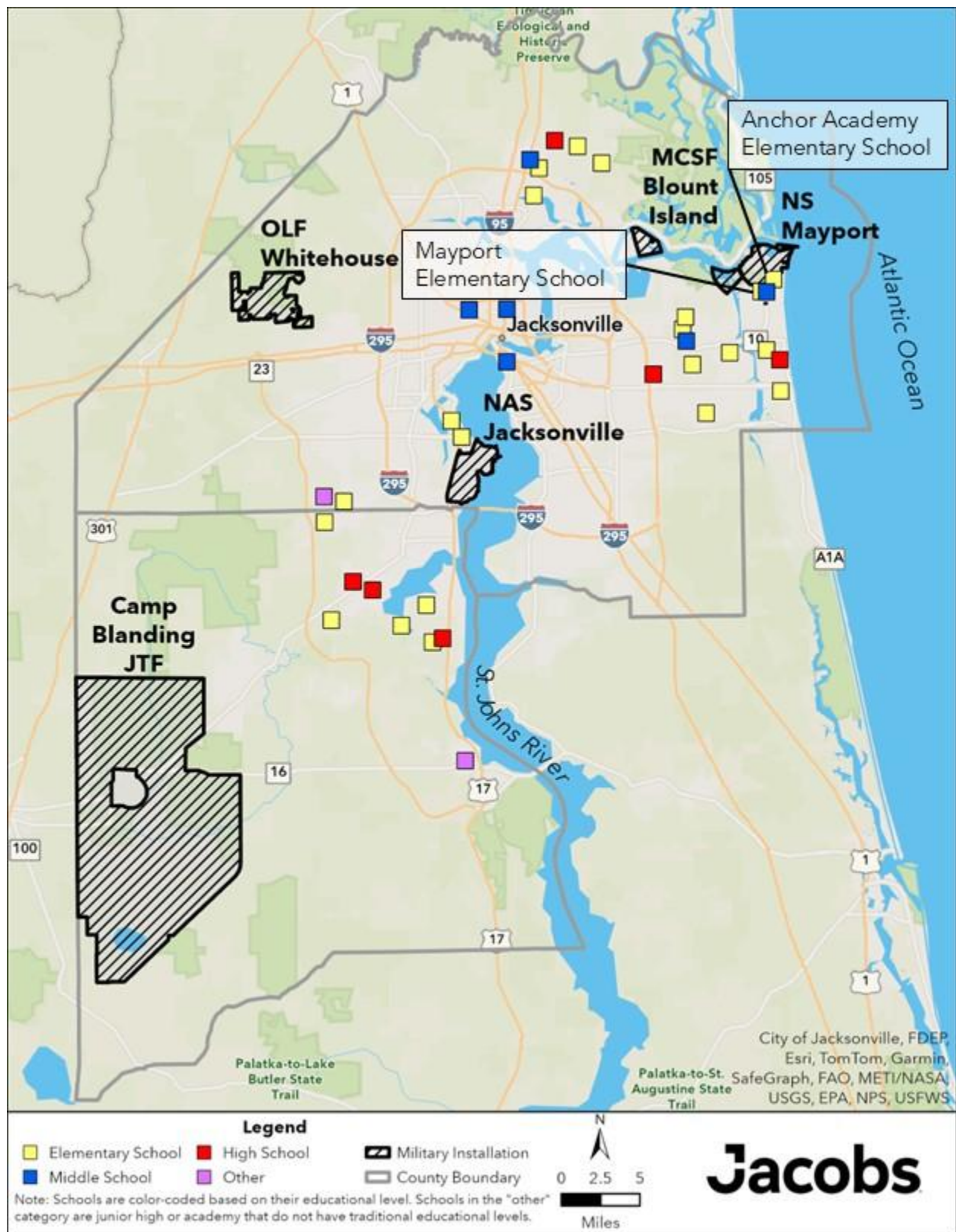
3.2 Critical Infrastructure

This asset class encompasses essential systems such as wastewater, drinking water facilities, stormwater infrastructure, and power/communication networks. These systems are fundamental to sustaining daily operations and ensuring the delivery of reliable services to both military installations and surrounding communities. Functioning critical infrastructure supports the personnel who live and work in nearby areas, enabling them to contribute effectively to the missions of each installation. An effective system with reliable critical infrastructure also supports economic growth, public health, and national security. If these assets were compromised, it could trigger a chain reaction that affects additional critical assets. For example, interruptions in power or communication networks can hinder emergency response operations, limiting the ability of fire stations, police departments, and hospitals to serve the community during times of crisis.

The relationship between critical infrastructure and mission assurance underscores the need for maintaining system capacity, reliability, and redundancy. Across installations in Northeast Florida, recurring challenges include aging infrastructure, limited backup systems, and vulnerabilities to extreme weather events. Addressing these issues is essential to strengthening regional resilience and ensuring continued operational readiness.



Figure 3-5. School Locations





Communications Facilities

Communication facilities are essential to the operational readiness and resilience of military installations. They enable secure, reliable, and continuous information exchange, which is critical for command and control, logistics coordination, and mission execution. Any disruption to these systems can significantly impact operational effectiveness, making communications a vital component of overall infrastructure security. Note that for the purpose of this MIRR, communications infrastructure consists of underground fiber lines and cell towers.

During stakeholder discussions, it was noted that communication infrastructure was considered reliable at the four installations, but redundancy challenges remain an issue. For example, MCSF Blount Island relies on AT&T fiber lines that traverse two bridges, creating a single point of failure for cyber connectivity. This vulnerability has been highlighted by two incidents in the past 5 years where construction crews accidentally severed these lines. Similarly, single points of failure were noted at other installations as well. While stakeholders did not report major issues at facilities other than MCSF Blount Island, the lack of alternative routes for fiber connectivity underscores the need for improved redundancy to ensure mission continuity.

One data gap identified is the precise location of fiber cable distribution. With numerous private providers operating across the region, obtaining detailed information on fiber routes remains a challenge. However, the assessment noted the importance of identifying ingress and egress points where fiber enters and exits the installation, as these represent critical nodes for maintaining connectivity and planning redundancy measures.

Figure 3-6 shows cell tower locations.



Potable Water Systems

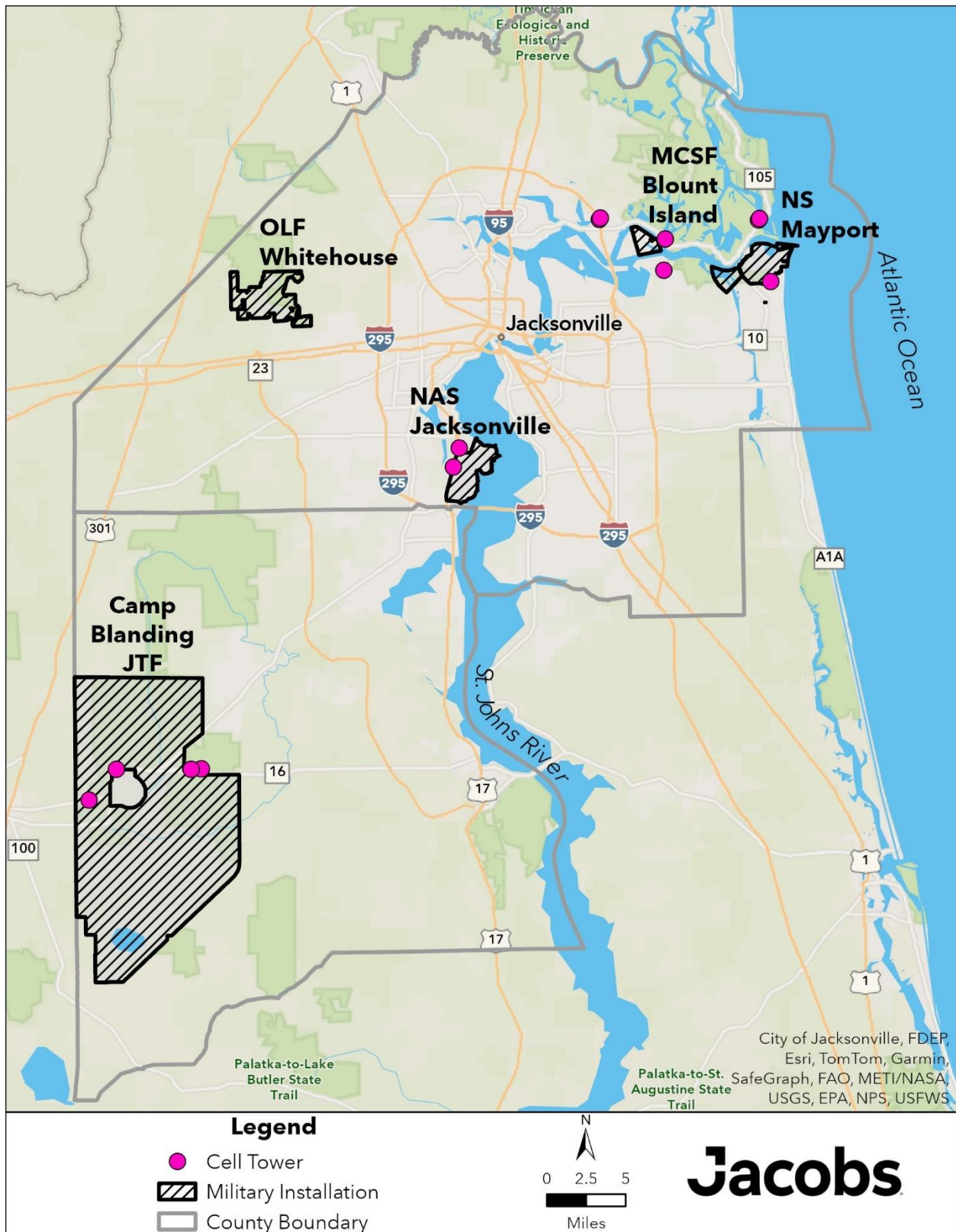
Drinking water facilities consist of the systems that deliver potable water to the installations. This asset type was further categorized into the following asset subtypes:

- **Wells or other intakes.** Most of the potable water in the region comes from groundwater through a series of wells.
- **Water treatment plants (WTPs).** WTPs treat raw water and make it safe for consumption.
- **Storage tanks.** Water storage facilities hold potable water to support supply and system operations (through pressurization). Storage tanks can further be classified as ground storage tanks, aboveground tanks (located at grade), and elevated storage tanks (also known as water towers).
- **Pump stations.** Pump stations support conveyance of water through the system, pumping water through the system. They are particularly common in Florida because of the flat terrain, as they provide the additional pressure and head required to convey water.
- **Pipes.** Pipes is a catch-all term in this MIRR that includes the force mains, gravity mains, and distribution lines that deliver water to customers.

Defining these asset subtypes is crucial for the VA because each one responds differently to various hazards.



Figure 3-6. Cell Tower Facility Locations



Installations typically have one or more water systems to meet their potable water needs. In the region, critical off-base water supply systems are owned and operated by JEA, which provides the majority of the regional water supply. Figure 3-7 shows the study area's potable water systems while Table 3-3 describes the installations' primary and backup water systems/connections and ownership as well as source waters.



Figure 3-7. Potable Water System Locations

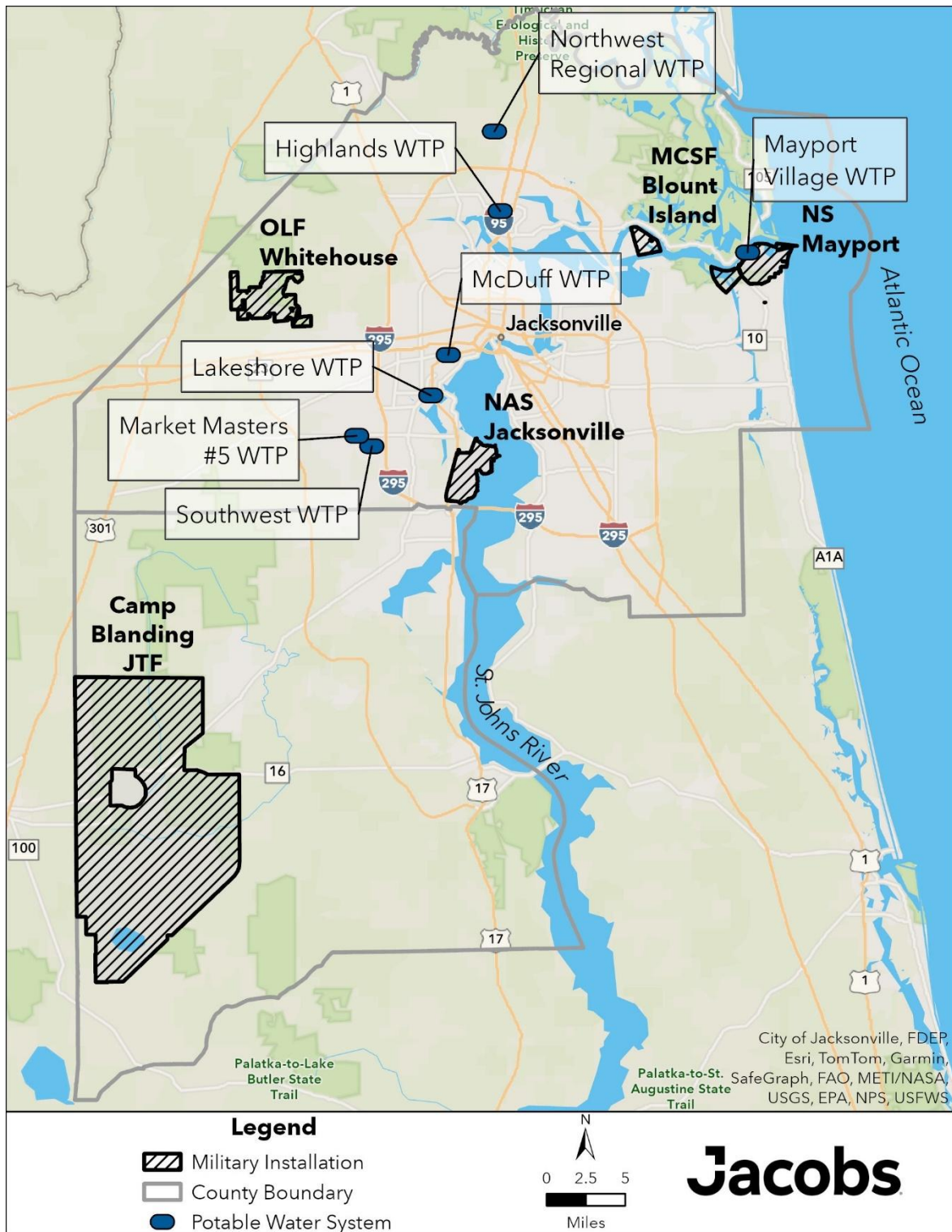


Table 3-3. Potable Water Systems

Installation	Primary Water Supply Location	Primary Supply Owner/ Operator	Primary Water Supply Details	Redundant Water Supply	Redundant Water Supply Owner
Camp Blanding JTC	On-base	Camp Blanding	System consists of four wells, two 2-million-gallon (MG) towers, and distribution system.	No	N/A
MCSF Blount Island	Off-base	JEA	Water comes from JEA Highlands WTP. Buried 16-inch-diameter line brings water to base. Installation water system looped with JAXPORT.	Backup water supply from JEA Northwest WTP.	JEA
NAS JAX	On-base	NAS JAX ^a	Consists of three wells, WTP, and distribution system.	Interconnect via 12-inch-diameter main. Water can come from multiple facilities, including the Southwest WTP.	JEA
NS Mayport	On-base	NS Mayport/ American Water	Consists of wells, WTP, and distribution system.	Currently constructing an interconnect with JEA.	JEA

^a NAS Jacksonville Public Works staff indicated that there is interest in privatizing the installation's water system over the long term and giving operations and maintenance responsibilities to JEA. A business case analysis for water and wastewater system privatization will be conducted in FY27.



Electric Production and Supply Facilities

The electrical production and supply facilities asset type consists of the infrastructure that provides reliable local power services, supporting the installations and their communities. This asset class consists of the generation, transmission, and distribution networks that convey electric power from the source to end users. For the VA, this asset type is divided into the following asset subtypes:

- **Electric production facilities.** Consisting of power plants or generating stations, these industrial sites are where energy is converted from various primary sources into electrical energy.
- **Substations.** These facilities connect generation, transmission, and distribution networks. They match voltage requirements so power can be safely conveyed across different systems.
- **Power transmission lines.** Transmission lines convey power over long distances using high-voltage power lines. They are typically located aboveground.
- **Power distribution lines.** These lines convey power over shorter distances via lower voltage lines to end users.

The two electric power providers in the region are JEA and Florida Power & Light (FPL). For this analysis, JEA provided GIS data to support the evaluation; however, although contacted, FPL did not supply data for this project. FPL provides electric power service to Clay County while JEA supplies Duval County with electric power from four generating stations: the Northside Generating Station, the Brandy Branch Generating Station, the Kennedy Generating Station, and the Greenland Energy Center. As of 2024, JEA's fuel mix consists of primarily natural gas (61%), followed by purchased power from FPL (11%), purchased power from nuclear energy sources (9%), economic purchases from other sources (9%), and coal, biomass, and renewables (10%) (JEA 2025). JEA is actively improving its systems' resilience against natural hazards, having conducted an electrical system resilience study in 2023 that analyzed electric system vulnerability and provided hazard mitigation strategies for its generating centers, select substations, and distribution systems (Jacobs 2023).

Power outages occur for a variety of reasons, ranging from extreme weather events (for example, hurricanes) to incidents involving wildlife that disrupt electric systems. All installations have backup power generation systems in the event of an outage.

Table 3-4 describes the installations' power supplies and Figure 3-8 shows the relevant facilities.



Figure 3-8. Electric Production and Supply Facility Locations

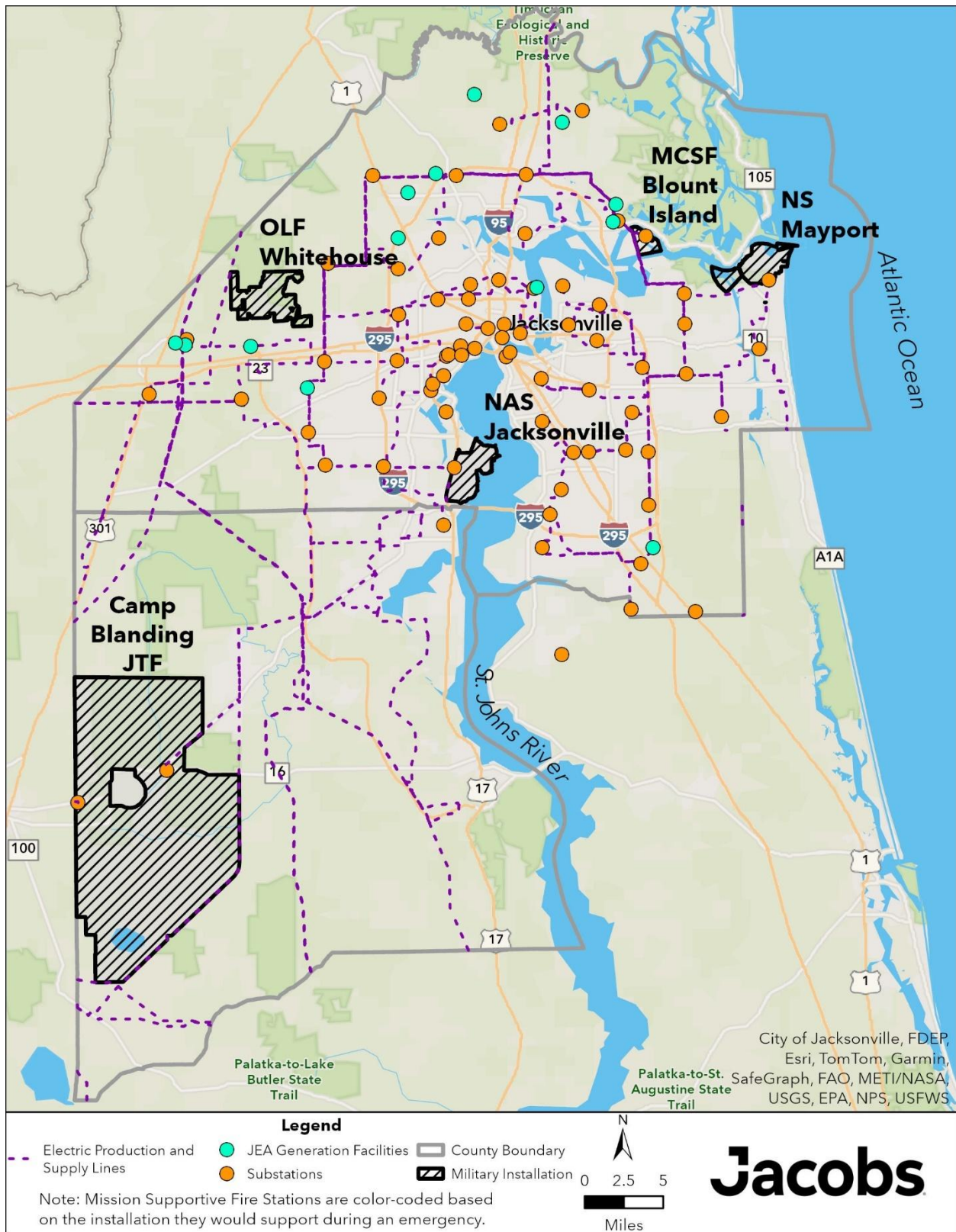


Table 3-4. Electric Production and Supply Facilities

Installation	Primary Power Supplier	Primary Generating Station	Supply Redundancy Concerns	Supply Capacity Concerns	Notes
Camp Blanding JTC	FPL	Multiple	Yes	No	Installation has previously evaluated feasibility of microgrids and they are not feasible.
MCSF Blount Island	JEA	Northside Generating Station	Yes	No	
NAS JAX	JEA		Yes	No	- Installation personnel noted interest in JEA handling O&M of on-base electrical systems. - Installation conducting a microgrid feasibility study.
NS Mayport	JEA	Northside Generating Station	No	No	



Natural Gas

Natural gas is supplied to the state of Florida through a complex network that includes both interstate and intrastate infrastructure. Figure 3-9 shows natural gas supply lines.



Wastewater Treatment Facilities and Lift Stations

Municipal wastewater treatment plants (WWTPs) and their collection systems are vital for maintaining public health, environmental quality, and operational resilience. These systems process and purify wastewater, remove pollutants, and safely dispose of the by-products. Well-maintained collection systems are vital for transporting wastewater efficiently and preventing environmental hazards such as sewage overflows, which can occur because of system failures and aging infrastructure. For the purpose of this MIRR, wastewater treatment assets were categorized into the following subtypes:

- **Wastewater treatment plants.** These facilities treat wastewater prior to disposal.
- **Pump stations/lift stations.** Pump stations and lift stations help convey wastewater to the treatment plants or to the disposal site.
- **Pipes.** This subtype includes the force mains, gravity mains, and laterals that collect wastewater for delivery to the WWTP and convey treated wastewater to the disposal site.

From a mission assurance perspective, wastewater facilities play a critical role in supporting base operations by managing mission-critical activities safely and maintaining hygiene standards for personnel and surrounding communities. Each installation in Northeast Florida presents unique wastewater infrastructure challenges that highlight the importance of system redundancy and



modernization. Senate Bill (SB) 64, which requires wastewater utilities to remove surface water discharges, is also a new law that the installations and nearby WWTPs must now adjust for in the future. Figure 3-10 shows locations of wastewater systems in the study area.

Figure 3-9. Natural Gas Supply Lines

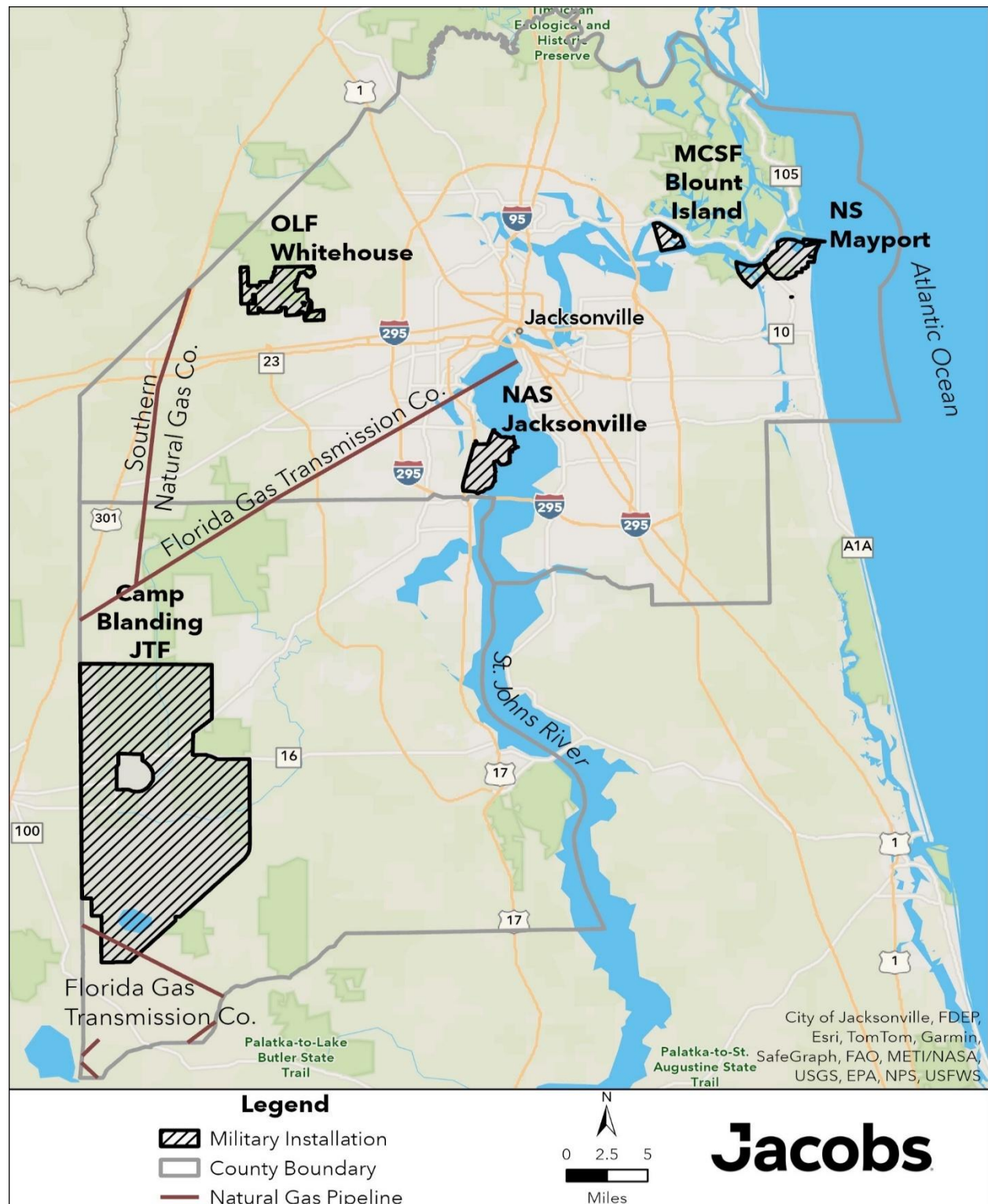


Figure 3-10. Wastewater System Locations

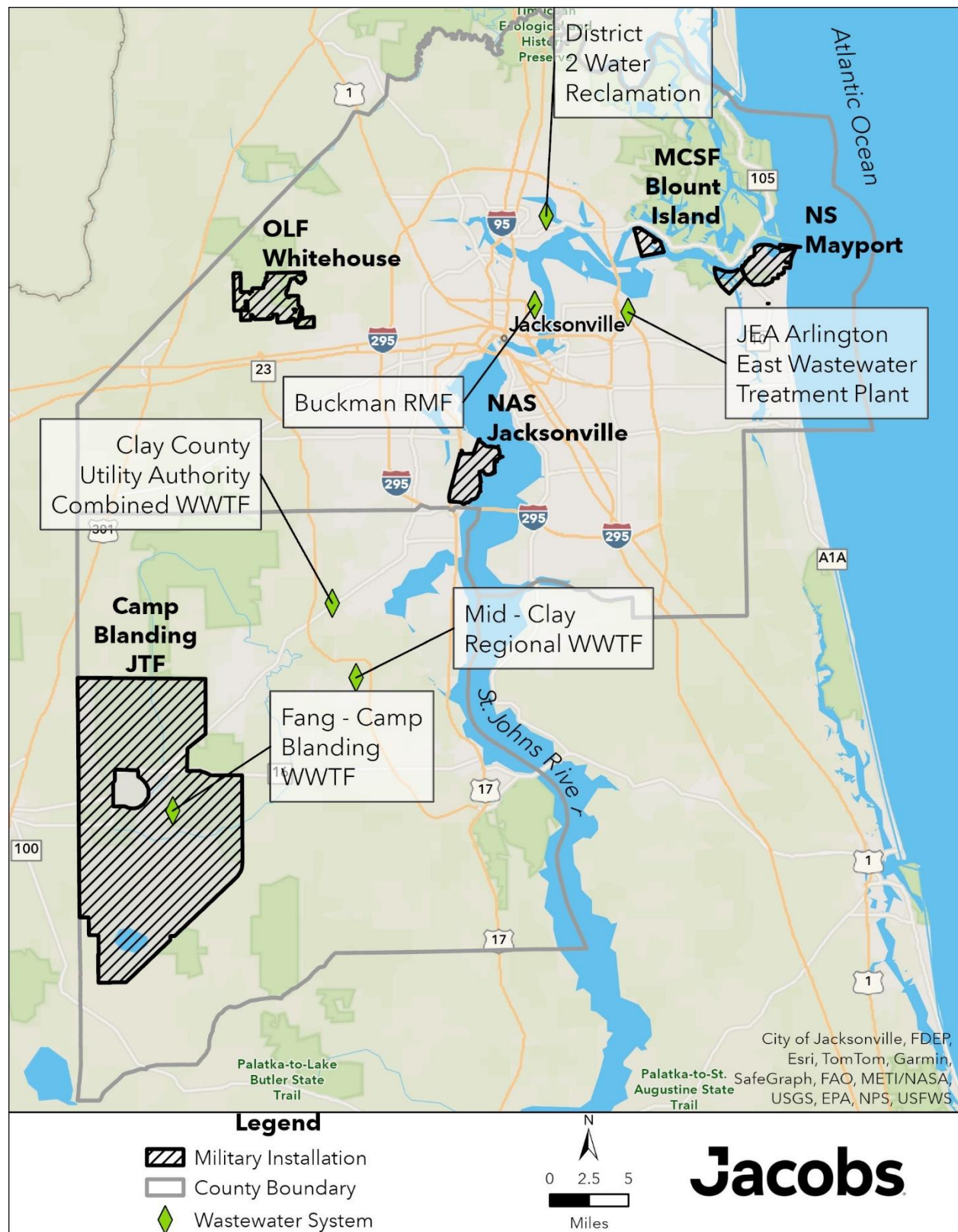


Table 3-5. Wastewater Systems

Installation	Wastewater System Location	Wastewater System Owner/Operator	Wastewater System Details	Notes
Camp Blanding JTC	On-base	Camp Blanding	System consists of a 3-MG WWTP that disposes effluent via injection wells.	SB 64 compliance is a noted stressor for the installation.
MCSF Blount Island	On/Off-base	Blount Island (on-base) JEA (off-base)	- Blount Island owns 32 LS throughout the island. - Wastewater is conveyed to Arlington East WWTP for treatment.	N/A
NAS JAX	On-base	NAS JAX	Current disposal method is deep well injection.	- Installation has expressed interest in connecting its wastewater system to JEA's. - Some wastewater is diverted to reuse for irrigation at the on-base golf course, spray fields, and Timuquana Golf Course.
NS Mayport	On-base	NS Mayport/ American Water	WWTP discharges to St. Johns River	- Installation wastewater system will be affected by SB 64. - Installation plans to develop an interconnect with the City of Atlantic Beach.



Stormwater

In Northeast Florida, stormwater infrastructure plays a critical role in supporting military installations by reducing flood risks, protecting transportation routes, and safeguarding essential facilities during severe weather events. Effective stormwater systems help manage runoff, prevent erosion, and minimize water intrusion that could compromise mission-critical operations and assets. Because military installations often rely on surrounding communities for interconnected drainage networks, the resilience and capacity of local stormwater infrastructure directly influence installation readiness and continuity. These systems are, therefore, considered vital assets for maintaining operational stability and mitigating the impacts of extreme weather.

In addition to the local stormwater drainage systems, there are also several dams of note within the region:

- **Lake Asbury Dams.** A series of four dams contain flooding around Lake Asbury in Middleburg: the North Dam, South Dam, Lake Ryan Dam, and Lake Lark Dam.

Figure 3-11 shows stormwater facility locations.



Solid and Hazardous Waste Facilities

Solid and hazardous waste facilities consist of waste treatment plants, landfills, recycling centers, hazardous material storage sites, and transfer stations. They support the installations by hauling solid waste offsite, supporting the health of personnel and facility cleanliness. There are two solid waste facilities that service the installations and the region:

- **Trail Ridge Landfill.** This landfill is owned by Duval County and receives solid waste from all installations within the County. The facility consists of a Class 1 landfill, a waste tire processing facility, and a source-separated organics processing facility. The landfill is nearing constructed capacity; as of January 2025, the landfill has space for approximately 4.5 million tons, having received approximately 1 million tons each in 2023 and 2024 (Townsend et al. 2025).
- **Rosemary Hill Solid Waste Management Facility.** This facility consists of a transfer station, waste tire collection, and closed landfill cells. It receives waste from all other County solid waste facilities, which is then delivered to Chester Island and Old Kings Road Landfill in Georgia, according to County employees.

Duval County provides its own solid waste collection services while FCC Environmental Services provides trash collection services in Clay County. Figure 3-12 shows the locations of the solid waste facilities.

3.3 Transportation and Evacuation Routes

This asset class includes transportation hubs such as roads, bridges, airports, seaports, freight railways, and major transit stations. These facilities are essential for the movement of people and goods, providing both local and regional connectivity. In doing so, they make it possible to access multiple critical infrastructure systems, indirectly supporting reliability, maintenance, and overall resilience. By providing efficient mobility, employees at the installation and people in surrounding communities enjoy an improved quality of life.



Improved transportation also supports timely emergency responses and aids in driving economic activity.

In Duval and Clay counties, these transportation networks are necessary to link the military bases to critical infrastructure and emergency facilities. Transportation hubs such as ports and airports are also essential in supporting the missions of the installation.

- **Airports.** An airport is a complex facility designed for the arrival, departure, and maintenance of aircraft, providing essential infrastructure for air travel, including runways, taxiways, terminals, and support services.



Figure 3-11. Stormwater Facility Locations

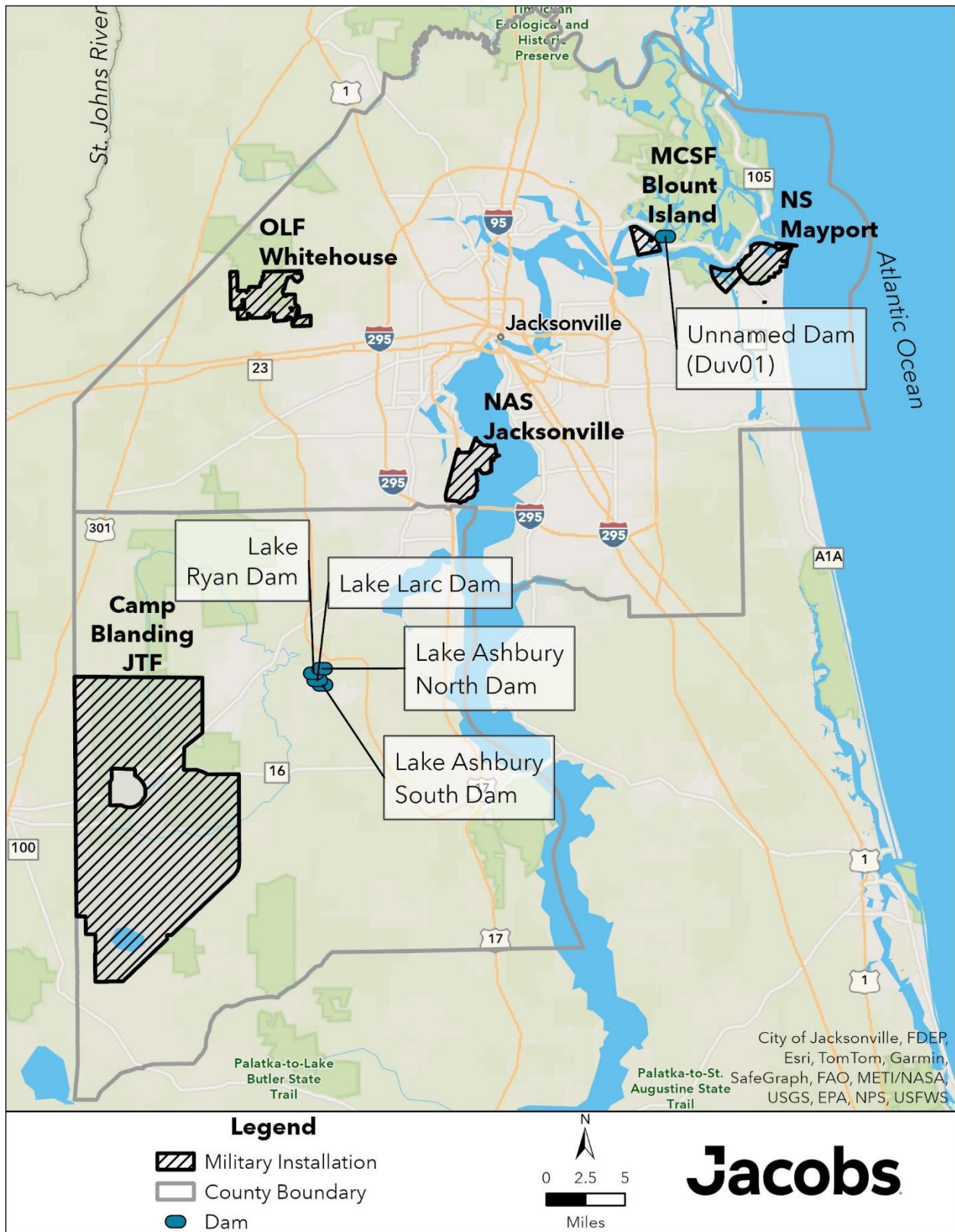
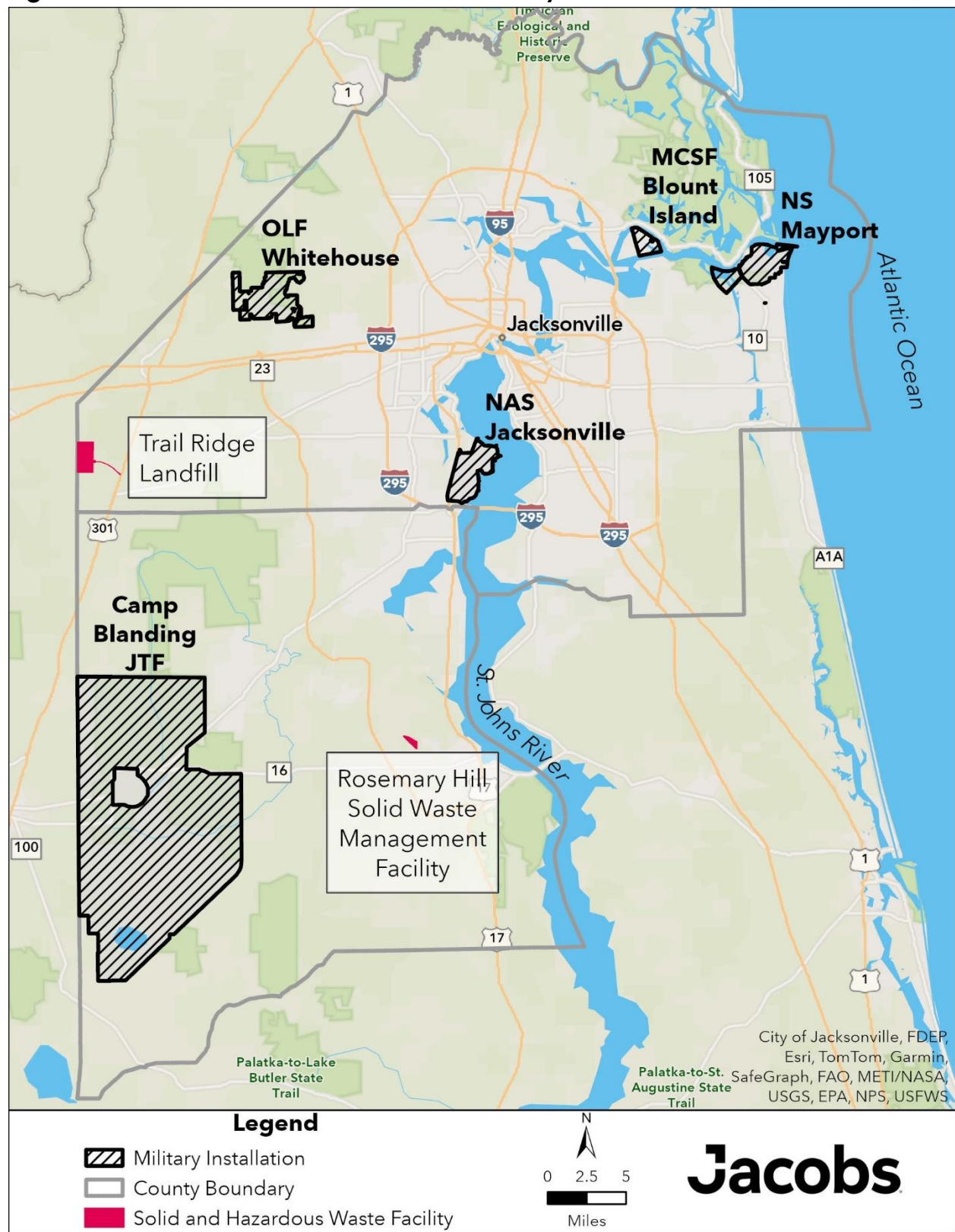


Figure 3-12. Solid and Hazardous Waste Facility Locations



- **Maritime Support Facilities.** Marinas in Florida are crucial for supporting the state’s vibrant boating culture, commercial fishing, and tourism industries. They are typically owned and managed by a mix of private entities, local governments, and state or federal agencies, each serving different segments of the boating community.
- **Ports.** A port is a facility located along a coastline or inland waterway where ships dock to load and unload cargo, passengers, and other goods. They serve as vital hubs for international and domestic shipping, connecting sea routes with land-based transportation systems (such as railroads and highways), and play a critical role in global commerce, economic development, and logistics.
- **Rail Facilities.** Freight rail is a transportation asset consisting of a network of railways and trains specifically designed to move goods, materials, and commodities over long distances. It is known for its ability to handle large volumes of cargo with lower fuel consumption and reduced environmental impact compared to road transport.
- **Roads and Bridges.** Roads and bridges are vital infrastructure components that provide the pathways for vehicles to travel over land and water, enabling the movement of people, goods, and services.

The Florida Department of Transportation (FDOT) recognizes high priority transportation networks that facilitate mobility throughout the state. The Strategic Intermodal System (SIS) was established in state statute to “focus resources on transportation facilities of statewide and interregional significance,” including military access facilities (MAF) that support connection to military installation. Multiple assets within the Transportation and Evacuation Routes group have SIS designations.



The Jacksonville Port Authority (JAXPORT) is Florida’s largest container port and one of the nation's leading vehicle handling ports. JAXPORT owns and operates three primary terminals: the Blount Island Marine Terminal, the Dames Point Marine Terminal, and the Talleyrand Marine Terminal. In addition, JAXPORT owns and operations a cruise terminal and a railyard, located west of the Blount Island Marine Terminal. Of JAXPORT’s facilities, the Blount Island Terminal supports the missions at MCSF Blount Island and NS Mayport.

The Blount Island Marine Terminal is a 754-acre SIS-designated facility located adjacent to MCSF Blount Island. The terminal includes 240,000 square feet of transit shed space, a 90,000-square-foot Container Freight Station, nine container cranes, and approximately 7,000 linear feet of deepwater berths (JAXPORT n.d.). The connectivity of this port is further enhanced by an on-dock rail system operated by CSX, allowing rapid movement between the ports and other areas in Northeast Florida.

MCSF Blount Island, NS Mayport, and JAXPORT operate in a tightly interconnected network that allows for the success of the installation’s missions. MCSF Blount Island and JAXPORT have a good neighbor relationship, with the Blount Island Terminal providing support to the installation as needed. The Terminal’s cranes can be used to offload, restock, and prepare Marine Corps prepositioning ships, which directly supports the installation’s core mission of being the Maritime prepositioning force. The Terminal functions as a key mobilization site for various commands, such as the Army’s 82nd Airborne.



At NS Mayport, major ship repair and maintenance operations are supported by improving on the infrastructure. This includes an effort to double the size and capacity of onsite cranes. These upgrades help in sustaining large naval vessels and improving turnaround for fleet readiness. Moreover, NS Mayport and JAXPORT also have a mutual agreement that allows vessels to seek safe harbor during severe weather events such as hurricanes.



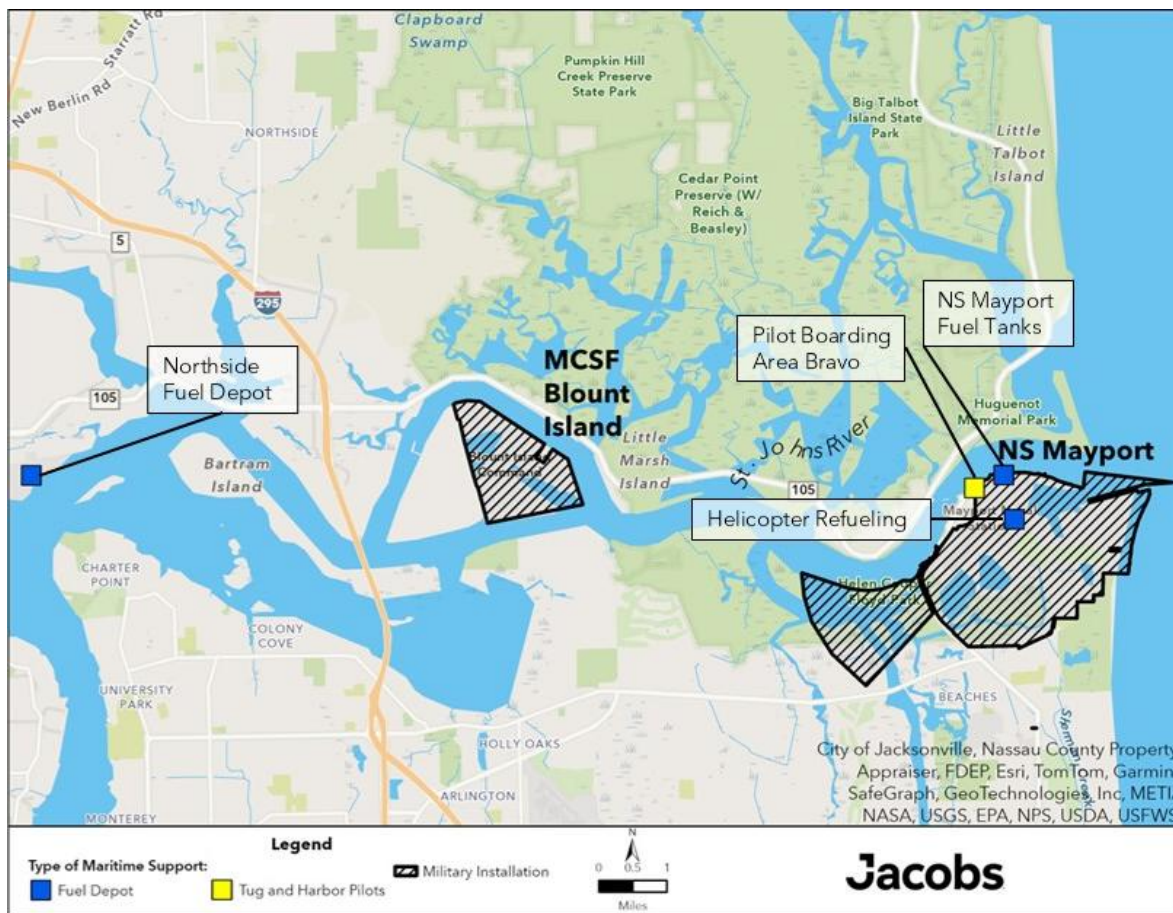
Maritime Support Facilities

Maritime Support Facilities are a custom asset type created for this MIRR. These facilities support NS Mayport and MCSF Blount Island and their associated maritime activities. This asset type contains two subtypes:

- **Fuel Depots.** The installation refuels at three locations: the NS Mayport Fuel Tanks (fuel farm) north of the runways, the helicopter refueling station, and the northside fuel depot west of Blount Island. This MIRR evaluates direct hazard impacts on the northside fuel.
- **Tug and Harbor Pilots.** Tug boats help larger ships navigate the waters of the St. Johns River.

Figure 3-13 shows maritime support facility locations.

Figure 3-13. Maritime Support Facility Locations





Airports

Northeast Florida has a long history of aviation – airfields were developed in the early 1920s in the region, and the Blue Angels originated in NAS Jacksonville. All four installations in this MIRR (NS Mayport, NAS JAX, and Camp Blanding JTC) have airfields.

The importance of airfields has grown during the past 100 years. They are important pieces of the regional economy, driving the local economy by connecting the region to national and international markets and supporting tourism and regional development. The four airports owned and operated by the Jacksonville Aviation Authority (JAA)—Jacksonville International Airport (JAX), Jacksonville Executive at Craig Airport, Cecil Airport, and Herlong Recreational Airport—contribute more than \$ billion annually to the region’s economy (FDOT 2023).

In addition to the four JAA-operated airports within the study area, there are two other airfields in the study region: Outlying Landing Field (OLF) Whitehouse and Keystone Heights Airport. OLF Whitehouse is owned and operated by NAS JAX and supports fixed wing and rotary wing training missions at NAS JAX. Located in both Clay and Bradford counties, Keystone Heights Airport supports Camp Blanding during emergencies.

Table 3-6 describes the region’s airports, their ownership, and their activities while Figure 3-14 shows their locations.

Table 3-6. Regional Airports and Airfields

Airport Name	Owner	Description
Cecil Airport (VQQ)	JAA	- General aviation airport - Utilized by NAS JAX pilots for touch-and-go training - Supports aircraft maintenance at NAS JAX - Designated spaceport - Hub for aerospace defense, research and development, and aircraft maintenance - Actively expanding aircraft activities \$217 million economic impact^a
Herlong Airport (HEG)	JAA	- General aviation airport - Supports recreational flying \$80 million economic impact¹
Jacksonville Executive at Craig Airport (JAXEX)	JAA	General aviation airport
Jacksonville International Airport	JAA	- Commercial service airport - Supports commercial flights and cargo industries - SIS-designated facility - Approx. 31,000 scheduled departures and arrivals in 2024^b \$3.2 billion economic impact^a

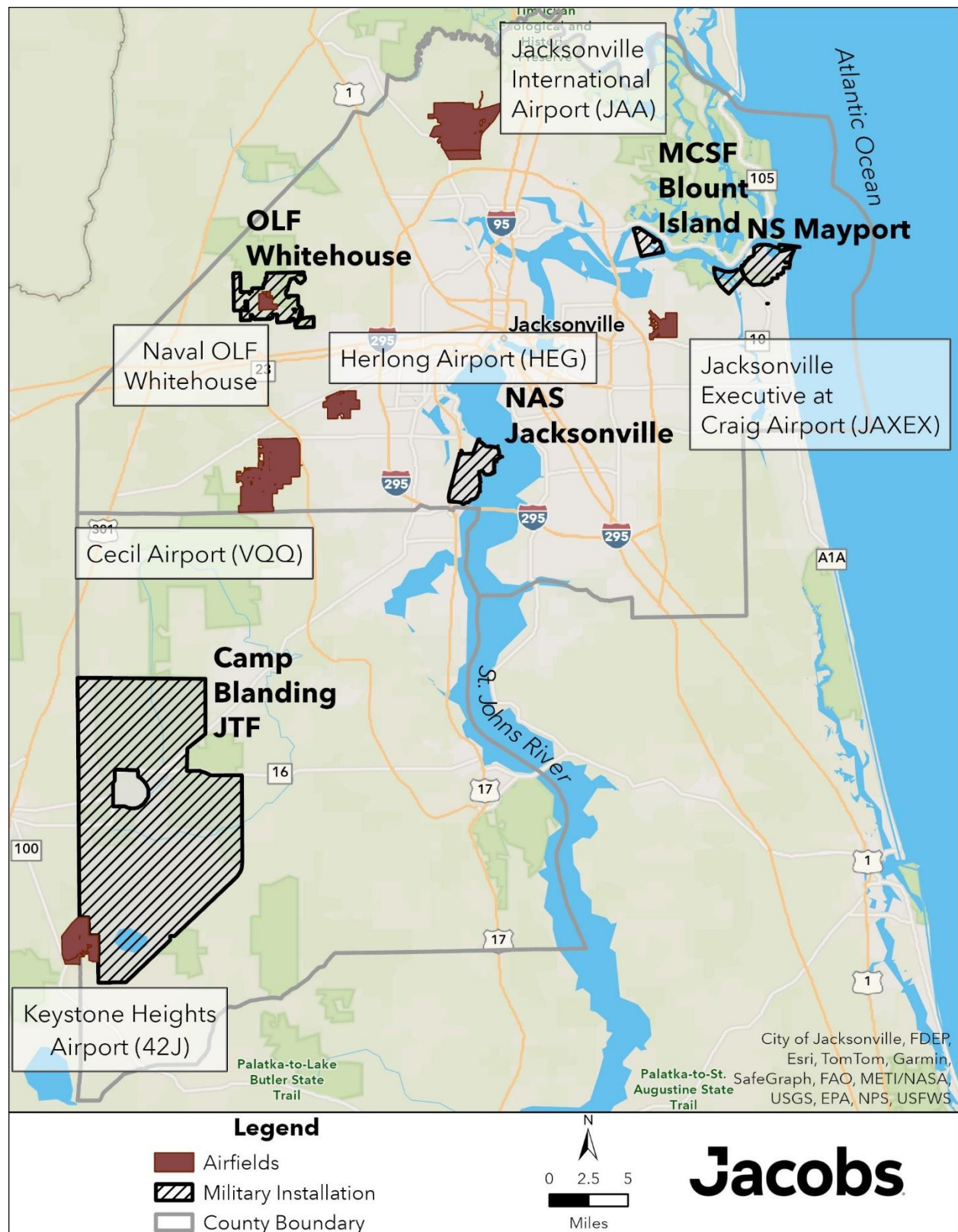


Table 3-6. Regional Airports and Airfields

Airport Name	Owner	Description
OLF Whitehouse	NAS JAX	▪ Military airfield ▪ Used for low-level pilot training ▪ Holds simulations for landing aircraft carriers as it serves as a realistic dark night environment ▪ Serves as a training environment for night vision goggle training for helicopter pilots ▪ Requires dark skies (minimal light pollution) ▪ Requires development restrictions ▪ Serves as a staging ground for the Federal Emergency Management Agency (FEMA) and other entities during and after hurricanes or other emergency events
Keystone Heights Airport (42J)	Keystone Heights Airport Authority	▪ General aviation airport ▪ Airfield utilized by Camp Blanding before/during/after emergencies (e.g., hurricanes)^c ▪ Various military branches use this facility for training exercises ▪ Supports Camp Blanding ▪ \$56 million economic impact¹

^a FDOT 2023^b FAA 2025^c Keystone Heights Airport n.d.

Figure 3-14. Regional Airport Locations



In addition to the airports within the study region, NAS JAX also owns and operates three bombing ranges:

- **Pinecastle Impact Range** is the only Navy-controlled Range on the East Coast and is critical for training. Located in south Marion County, it has a high impact area consisting of fixed wing bombing and helicopter laser ranges.
- Located in Palatka, the **Rodman Range** is used for rotary wing training and supports infrared countermeasures and electronic warfare.
- The **Lake George Range** is located on Lake George in Marion County and supports rotary wing training, with infrared counter measures and electronic warfare training occurring over the eastern portion of the lake.

While the three ranges are not included in this scope of this MIRR, they are important to note because of the airspace needs within the region. In addition to the increasing air traffic within the region, there is additional need for airspace so Navy pilots departing from NAS Jacksonville can safely reach the ranges.

Besides Jacksonville International Airport and Cecil Airfield, Northeast Florida contains other airfields that are important for supporting the missions of the installations. These airfields support the training of personnel and provide possible landing areas for large carriers such as the Boeing P-8 Poseidon. Stakeholders noted that the proximity of the airfields to the installations supports readiness and continuity of operations. For example, while NS Mayport maintains its own airfield, operational flights can also be redirected to nearby regional airports when needed. Similarly, increased activity by the P-8 Poseidon has led to Cecil Airport being considered as an alternative landing site for the aircraft. The airfields where the P-8 Poseidon lands may change, but help preserves NAS JAX mission.



Railroads

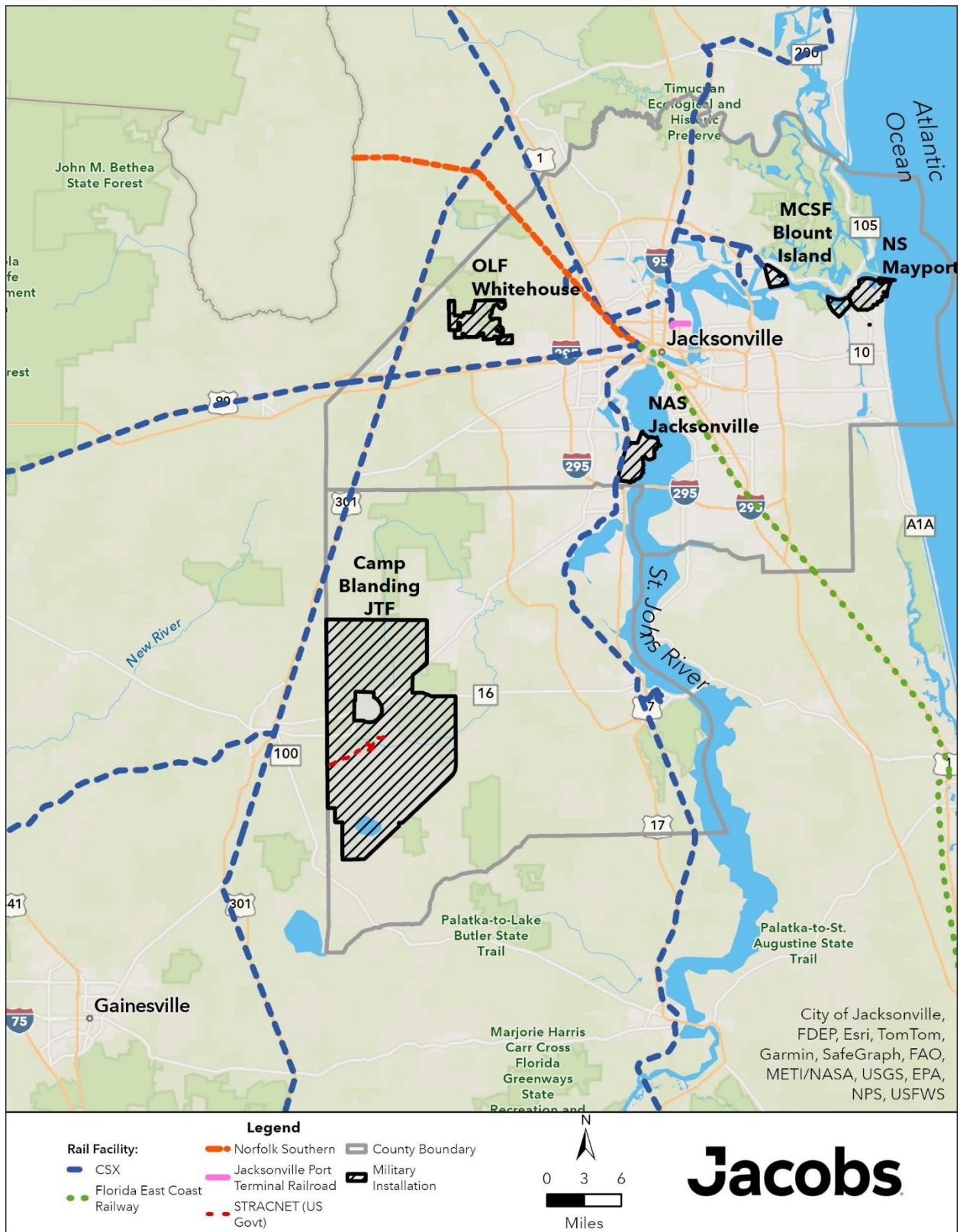
In Northeast Florida, the rail infrastructure plays a critical role in transporting equipment and materials at both MCSF Blount Island and Camp Blanding JTF. Rail infrastructure is generally privately owned; the majority of rail in the region is owned by CSX.

According to stakeholders, the regional railroads extension and maintenance are essential for sustaining military logistics. At Camp Blanding, the CSX rail line terminates at Space Florida facilities within the installation. Installation stakeholders noted that while the railhead does function, it requires reconstruction at a projected cost of \$60 million. At Blount Island, the CSX line and its associated bridge connection enables movement of equipment and supplies, supporting both daily operations and surge deployments. Continued attention to the capacity, maintenance, and modernization of these freight assets is warranted to ensure reliable mission support across the region.

Figure 3-15 shows the railroads within the region.



Figure 3-15. Railway Facility Locations



3.3.5 Roads and Bridges

Roads and bridges are essential for connecting the installations to community and regional support and resources. Across the region, roads and bridges give direct access to the installation for personnel residing offsite. For installations such as Blount Island where there are approximately 2,000 personnel moving on and off the base daily (with greater numbers during ship operations), ensuring resilient roads and bridges is essential. The constant travelling of employees combined with having a single access road contributes to congestion and places the installation's mission at risk. Similar examples are present at the other installations around Northeast Florida, displaying the high priority placed on roads and bridges.

Much of these roads and bridges are integral to the state's transportation network, supporting traffic and providing essential routes for evacuation during emergencies. FDOT is the primary agency responsible for the construction, maintenance, and operation of the state roadways, including interstate highways, Florida's Turnpike, and state roads. Together with local governments, FDOT ensures these roads are maintained and operational to meet the needs of the state's residents and visitors. County and city governments manage and maintain local roads and some state roads within their jurisdictions.



Major Roadways

The major roads listed in Table 3-7 (and shown on Figure 3-16) that serve the installations are owned and maintained by FDOT, while secondary roads are maintained by Duval and Clay counties or local municipalities. Most major roads provide access only to the installations and become congested in times of high traffic. As the region continues to grow, discussions at Camp Blanding stakeholder meetings revealed that new connections were already being built to enhance connectivity. The First Coast Expressway (SR 23) recently opened an 18-mile-long stretch that connects I-10 in Duval County with I-95 in St. Johns County in the south. This expansion is a long-term plan that will cross parts of Duval, Clay and St. Johns counties, increasing options to travel across Northeast Florida and possibly reducing the congestion while improving the redundancy seen with transportation.

Table 3-7. Critical Regional Roadways

Roadway	Installation Access	Owner	Description
Heckscher Drive (SR-105)	MCSF Blount Island	FDOT	- Connects I-95 to Jimmy Buffet Memorial Highway (A1A) - Sole point of access to both MCSF Blount Island and JAXPORT Blount Island Terminal - SIS-designated connector road (from I-95 to Blount Island)
Jimmy Buffet Memorial Highway (A1A)	NS Mayport	FDOT	- Statewide runway that runs along the east coast of Florida - Roadway connects south of base to eastern gate of installation (Gate 5) and is sole point of connection to the Village of Mayport



Table 3-7. Critical Regional Roadways

Roadway	Installation Access	Owner	Description
			Noted flooding and erosion issues
I-95		FDOT	Serves as a North/South Evacuation Route along east coast through Jacksonville
I-10		FDOT	Serves as an East/West Evacuation Route
I-295	NAS Jacksonville, MCSF Blount Island, NS Mayport	FDOT	- Loops around Jacksonville - SIS-designated corridor
SR 16	Camp Blanding	FDOT	- East-west roadway that ranges from US-301 to US-17 - SIS-designated MAF from US-301 to Camp Blanding - Passes through the towns of Starke and Green Cove Springs
CR 218	Camp Blanding	Clay County	Runs east/west in Clay County
CR 215	Camp Blanding	Clay County	Provides a connection to SR 16 and is a shortcut through Jacksonville
CR 225	Camp Blanding	Clay County	- Connects US-301 to SR 16 - SIS-designated MAF
First Coast Expressway (SR 23)	Camp Blanding	FDOT	18-mile-long stretch that was recently opened in 2025; toll road that connects I-10 in Duval with I-95 in St. Johns County
CR 216		Clay County	Runs 5.2 miles between CR214 (Ashbury Lake) and CR 315 (Green Cove Springs)
US Route 301		FDOT	A north-south highway that runs from Sarasota Florida through Jacksonville Florida and other cities in other states
Roosevelt Blvd.	Camp Blanding / NAS Jax	FDOT	- North-south roadway that connects Orange Park to Jacksonville - Runs parallel to CSXT Mainline railroad - Single point of access to NAS JAX - SIS corridor
SR 202		FDOT	Connects US Route 1 and I-95 to Jimmy Buffet Memorial Highway (A1A)
SR 228		FDOT	Connects US 301 to City of Jacksonville-area



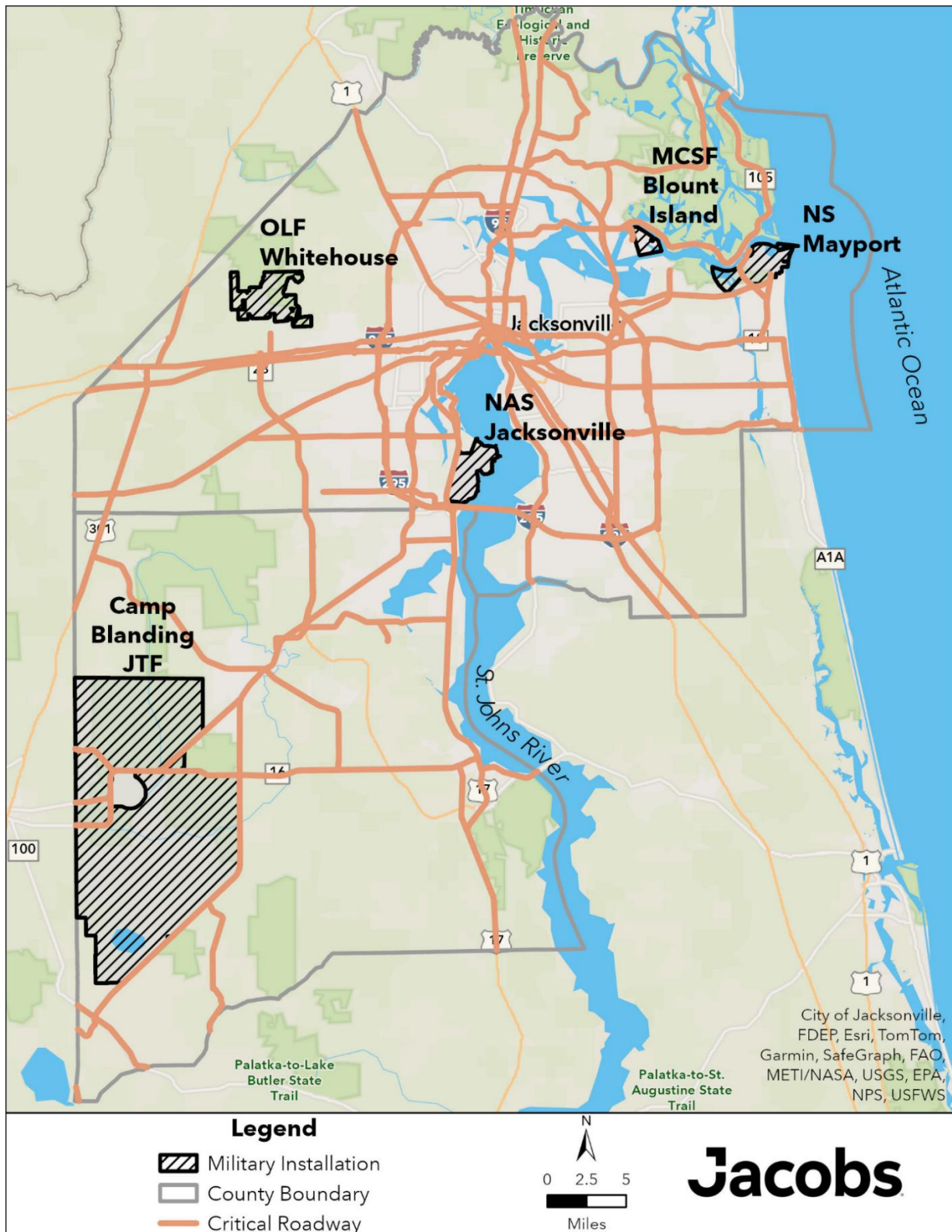
Table 3-7. Critical Regional Roadways

Roadway	Installation Access	Owner	Description
SR 134		FDOT	- Runs east/west in Duval County - Connects US 17 to I-295, First Coast Expressway, and SR 228

For example, a disruption along Hecksher Drive (SR 105) would significantly impact the mission at Blount Island, as it serves as the only access route to the installation. Any interruptions along this roadway, such as traffic or flooding, can negatively impact personnel movement and potentially delay deployments.



Figure 3-16. Critical Roadways





Bridges

Bridges in Duval and Clay counties also play an important role in supporting the installations missions (Table 3-8 and Figure 3-17). Like the major roadways, the bridges provide access to installation employees who do not live on base and must commute from other areas of Northeast Florida. These bridges also provide a seamless connection to the mainland. For example, Hecksher Drive consists of multiple bridges such as Sisters Creek Bridge and Simpsons Creek Bridge as it crosses St. Johns River to connect Blount Island to the mainland. For NAS JAX, Buckman Bridge serves as a connection across the St. Johns River. If operation of any of these bridges is interrupted, ease of access to the bases is affected. In terms of NAS JAX, if the Buckman Bridge was shut down for high winds, the Shands Bridge will be the nearest bridge that can be used to cross the St. Johns River, increasing the length of time to evacuate.

Table 3-8. Critical Regional Bridges

Bridge	Road	Year Built	ADT	Base Access	Owner	Description
Main Street Bridge (John T. Alsop Jr. Bridge)	US-1	1941, rebuilt 1998	13,800	N/A – Regional Bridge Asset	FDOT	Is a drawbridge that serves as the backup evacuation route to I-95 (Fuller Warren Bridge)
Buckman Bridge	I-295	1970, rebuilt 1995	64,250	NAS JAX	FDOT	- This bridge crosses over the St. Johns River and connects west and east Jacksonville - It is an important feature of access for NAS JAX - Backups on the Buckman can influence traffic
Alvin G. Shands Bridge	SR 16	1961	18,500	NAS JAX	FDOT	- Crosses St. Johns River - Currently being replaced with a new bridge that matches the Buckman Bridge's clearance to improve marine commerce in the region
Fuller Warren Bridge	I-95	2003, 2021	170,000	NS Mayport, MCSF Blount Island,	FDOT	- Crosses the St. John River as part of the I-95 Expressway. - Serves as an evacuation route

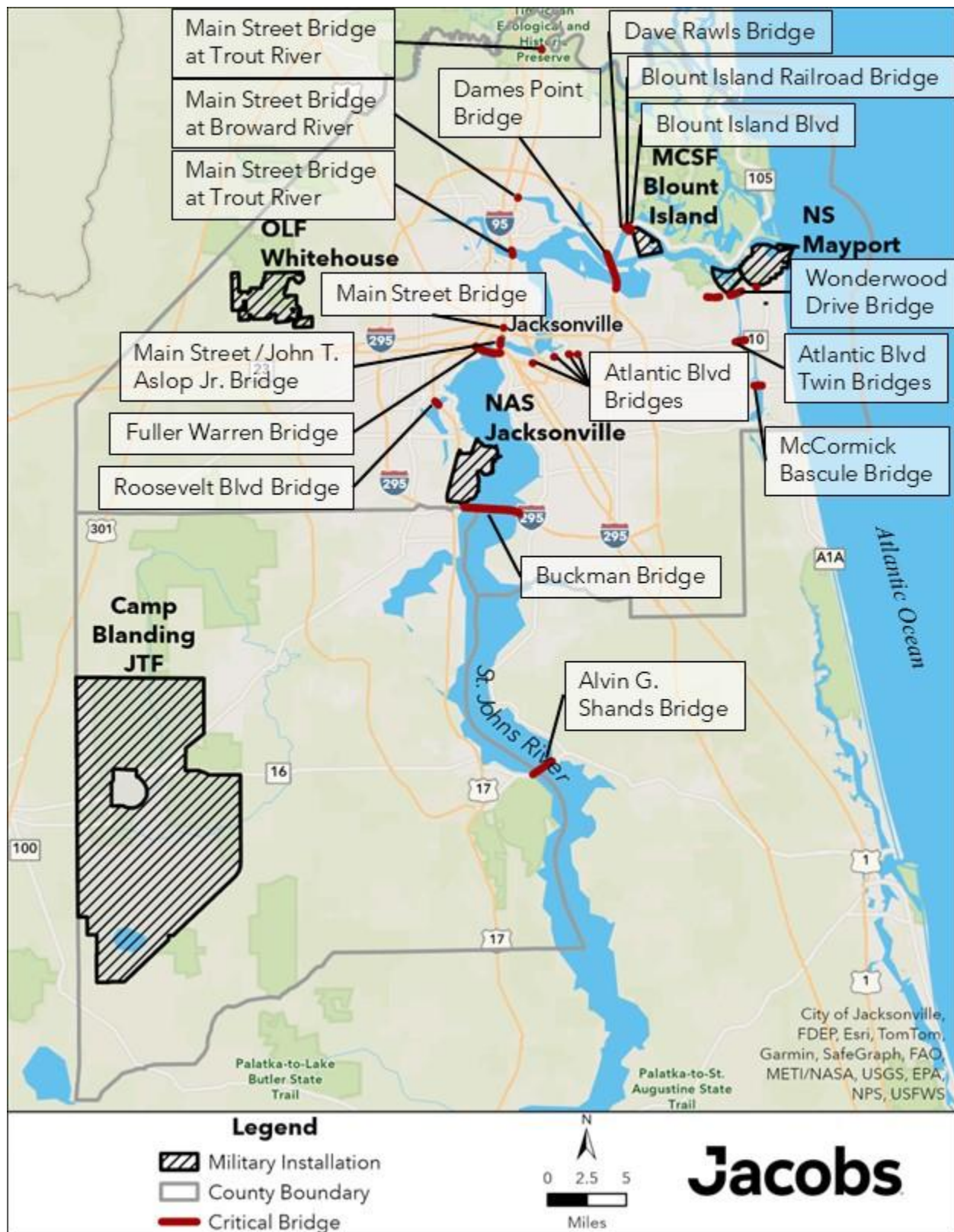
Table 3-8. Critical Regional Bridges

Bridge	Road	Year Built	ADT	Base Access	Owner	Description
				NAS JAX		
Blount Island Blvd. Bridge		1974	6,900	MCSF Blount Island	Duval County	▪ Crosses St. Johns River north of Blount Island ▪ Connect Blount Island to Heckscher Drive
Dave Rawls Blvd. Bridge		1991	6,900	MCSF Blount Island	Duval County	▪ Crosses St. Johns River north of Blount Island ▪ Connect Blount Island to Heckscher Drive
Blount Island Railroad Bridge	N/A	No data	N/A	MCSF Blount Island	CSX	▪ Connects mainland railroad to Blount Island's rail facilities ▪ Facilitates shipping of equipment and materials in and out of the installation ▪ Rail line is on the FDOT SIS list
Napoleon B. Broward Bridge		1989	84,321	MCSF Blount Island, NS Mayport	FDOT	▪ Also called the Dames Point Bridge
Charles E. Bennet Memorial (Wonderwood) Bridge	SR-116	2003	25,500	NS Mayport	FDOT	▪ Crosses the intracoastal waterway
Atlantic Blvd Twin Bridges						
McCormick Bridge	US-90	2008 (westbound) 2009 (eastbound)	20,140	NS Mayport	FDOT	▪ Crosses the intracoastal waterway

Source: FDOT 2024

ADT = average daily traffic

Figure 3-17. Critical Bridges



Appendix A includes detailed views of the roads and bridges near each installation.



3.4 Natural Resources

Natural resources support the installation through a variety of ways: protecting the installations from encroachment, preserving lands for ecosystem functions, serving as barriers against flooding, hosting threatened and endangered (T&E) species and supporting compliance efforts, or providing ecosystem services such as water quality or air quality benefits. Natural resources consist of the following asset types:

- **Conservation lands.** These lands of any type (for example, wetlands or forests) are deeded to preserve lands for a specific function.
- **Shorelines.** The shorelines of and around the installations protect the installations from wave action and erosion.
- **Surface waters.** Surface waters provide direct mission support for installations with maritime activities. Navigable, clean surface waters are important for mission execution.
- **Wetlands.** Wetlands around the installations directly and indirectly benefit the installations, buffering them from natural hazards and providing beneficial ecosystem services.



Conservation Lands

Conservation lands are areas that are deeded for the purpose of preserving the land for a specific purpose such as protecting installations from encroachment or specific environmental benefits. While the installations themselves are all conservation lands, this asset type and discussion will focus on the lands around the installations (Figure 3-18).

Conservation lands provide multiple benefits in the context of the installations. They provide a buffer for the installations from encroachment from incompatible land uses and activities, protecting both the installations and their neighbors and enabling the installations to conduct their activities without disturbing their neighbors. Conservation lands also provide a variety of co-benefits, such as ecosystem services that promote clean water and air and/or house critical biodiversity, including T&E species. In addition, these lands support community recreation, hosting a combination of activities such as hunting, fishing, trapping, hiking, and camping.

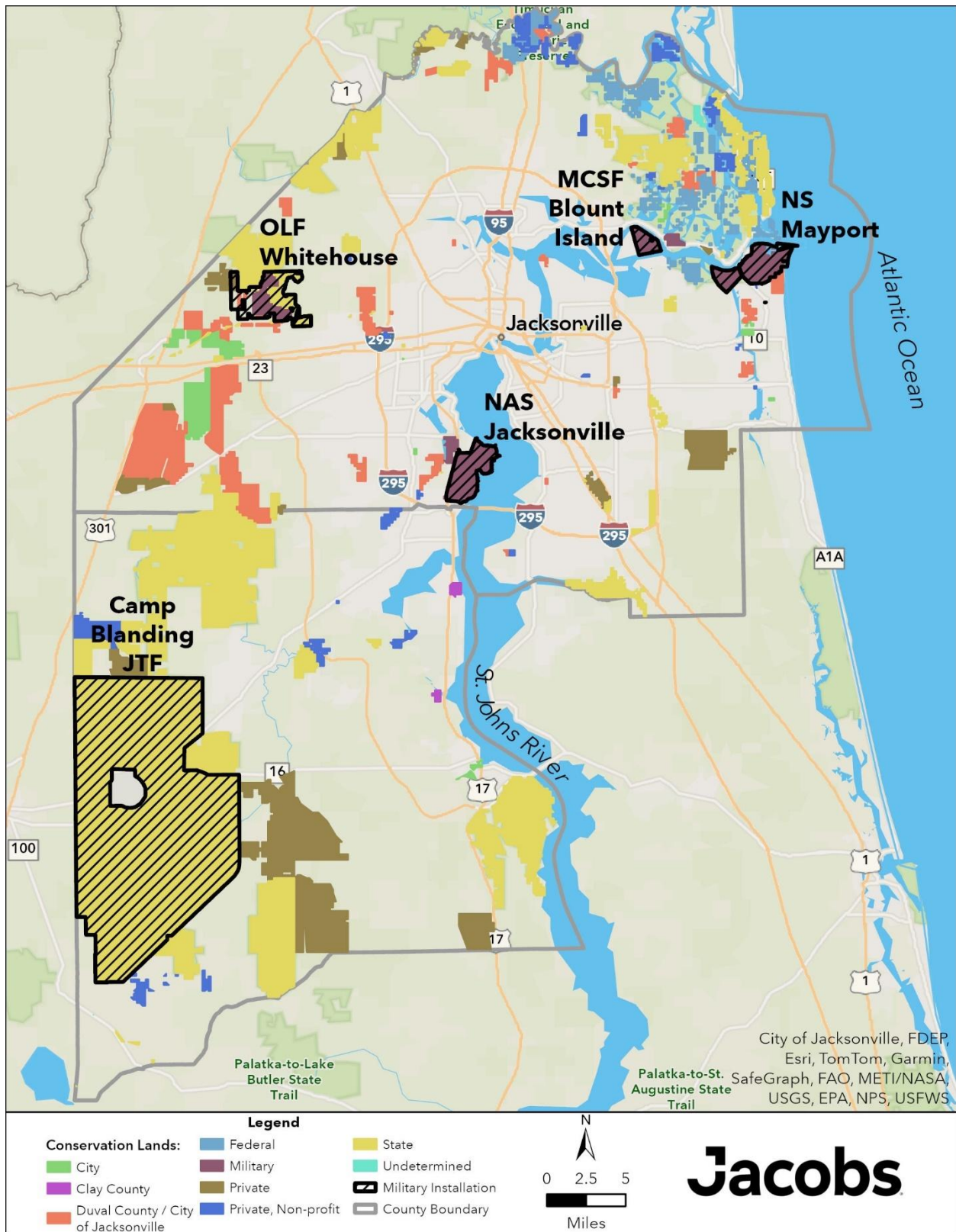
Conservation lands are managed by a variety of organizations, ranging from the federal government to those at state and local levels. They may also be managed by non-profit entities. State entities including FWC, the Florida Department of Environmental Protection (FDEP), or local governments.

Camp Blanding

Camp Blanding jointly manages the Camp Blanding Wildlife Management Area with FWC, which has an office located on-base. The Camp Blanding WMA consists of 56,197 acres – this includes Camp Blanding JTC itself and the associated artillery impact area (which is always closed to the public) as well lands north and south of the installation (FWC 2025). The northern lands consist of mature pine forests and hardwood forests while the southern lands consist primarily of sandhills and dry prairie. Both areas host a variety of recreational activities, including hunting, fishing, wildlife viewing, and hiking. The Florida Trail loops through the southern portion of the WMA; occasionally, backpackers stray from the trail and enter the impact areas.



Figure 3-18. Conservation Land Locations



The Camp Blanding WMA is home to 26 T&E species, four of which are classified as T&E at the federal level and the remaining 22 classified at the state level. Of the four federal species, two have a significant presence on base: the red-cockaded woodpecker and the indigo snake. The red-cockaded woodpecker was reclassified in 2022 from endangered to threatened and does not pose an impediment to training (USFWS n.d.). According to installation personnel, the indigo snake has not been seen on the installation for some time; personnel think there was a potential disease vector reducing the populations. Of the state T&E species, the gopher tortoise poses an encroachment challenge for the base. Because the gopher tortoise population on base exceeds 2,000, it is classified as a “highly resilient” population by the State – this means that the tortoises and their burrows are protected by the state (USFWS 2021). As a result, the installation proactively manages the tortoises, as well as other T&E populations, to ensure that training activities can occur without negatively impacting the species’ population.

In addition to managing land within the installations, efforts have also been made to acquire property outside their boundaries for conservation purposes and to further protect the installation from encroaching development. These lands are managed by a number of groups, including the North Florida Land Trust and the state Internal Improvement Trust Fund. Appendix B includes a map of conservation lands around Camp Blanding JTF.

OLF Whitehouse

The conservation lands around OLF Whitehouse play an important role in maintaining the dark skies required for the training activities at the OLF. The airfield is bounded on its northern and eastern borders by Cary State Forest, which encompasses approximately 13,384 acres in Duval and Nassau counties. Managed by the Florida Forest Service, the forest is used for timber harvesting and recreation (FFS 2024). The presence of the forest is important for preserving dark skies around the installation. South of the installation, the Jacksonville Camp Milton Historic Preserve and JEA-owned Miller Farm help maintain the dark skies needed. Appendix B includes a map of conservation lands around the OLF.

NAS Jacksonville

Located immediately west of NAS Jacksonville, Tillie K. Fowler Regional Park is a regional park owned by the Navy and leased to the City of Jacksonville. It is a mixture of primarily floodplain swamp and bottomland forest (NAVFAC 2019) and is used by the community for recreation. Because of its location, it is within the installation’s Accidental Potential Zone and its preservation is important for preserving air missions and prevent incompatible uses. Appendix B contains a map of the conservation lands in the immediate vicinity of NAS Jacksonville.

NS Mayport

NS Mayport is bordered on its west side by installation-owned wetlands that are held in conservation. These wetlands protect the installation from encroachment. On its eastern border, the installation is bounded by Kathryn Abbey Hanna Park. Owned by the City of Jacksonville, the park provides recreation opportunities to community members. It also serves a buffer against wave impacts during storm events. Appendix B contains a map of the conservation lands in the immediate vicinity of NS Mayport.





Shorelines

Shorelines are typically mission-critical assets that help the installations conduct their operations. Shorelines provide a variety of benefits for the installations – they are often used for maritime operations and training and protect the infrastructure from wave impacts and erosion. Depending on their location, they may also be used by installation personnel for recreation.

In the context of this MIRR, functioning and healthy shorelines are critical for the three coastal installations (MCSF Blount Island, NS Mayport, and NAS JAX), for which they are the first line of defense against wave impacts. Tidal flooding and storm surge can overwhelm shorelines, shutting down operations within the installation. Shorelines frequently consist of areas with different ownership, with some sections belonging to the installation and others outside the fence line. While the MIRR focuses outside the fence line, the following text discuss shorelines both in and around the fence line, as the combination of two protect the installations.

NOAA defines 15 different types of shorelines in the Environmental Sensitivity Index (NOAA n.d.). Shorelines in the ESI are defined by their sensitivity to oil or chemical spills. While not directly applicable here, the shoreline characterizations within the ESI are widely used (including within the Resilient Florida program). The following definitions are pulled from the shoreline mapping scope of work (Aslaksen et al. 2019), which offers guidance on digital shoreline mapping and surveying to support the National Geodetic Survey Coastal Mapping Program. The types of shorelines within the study area are defined as follows:

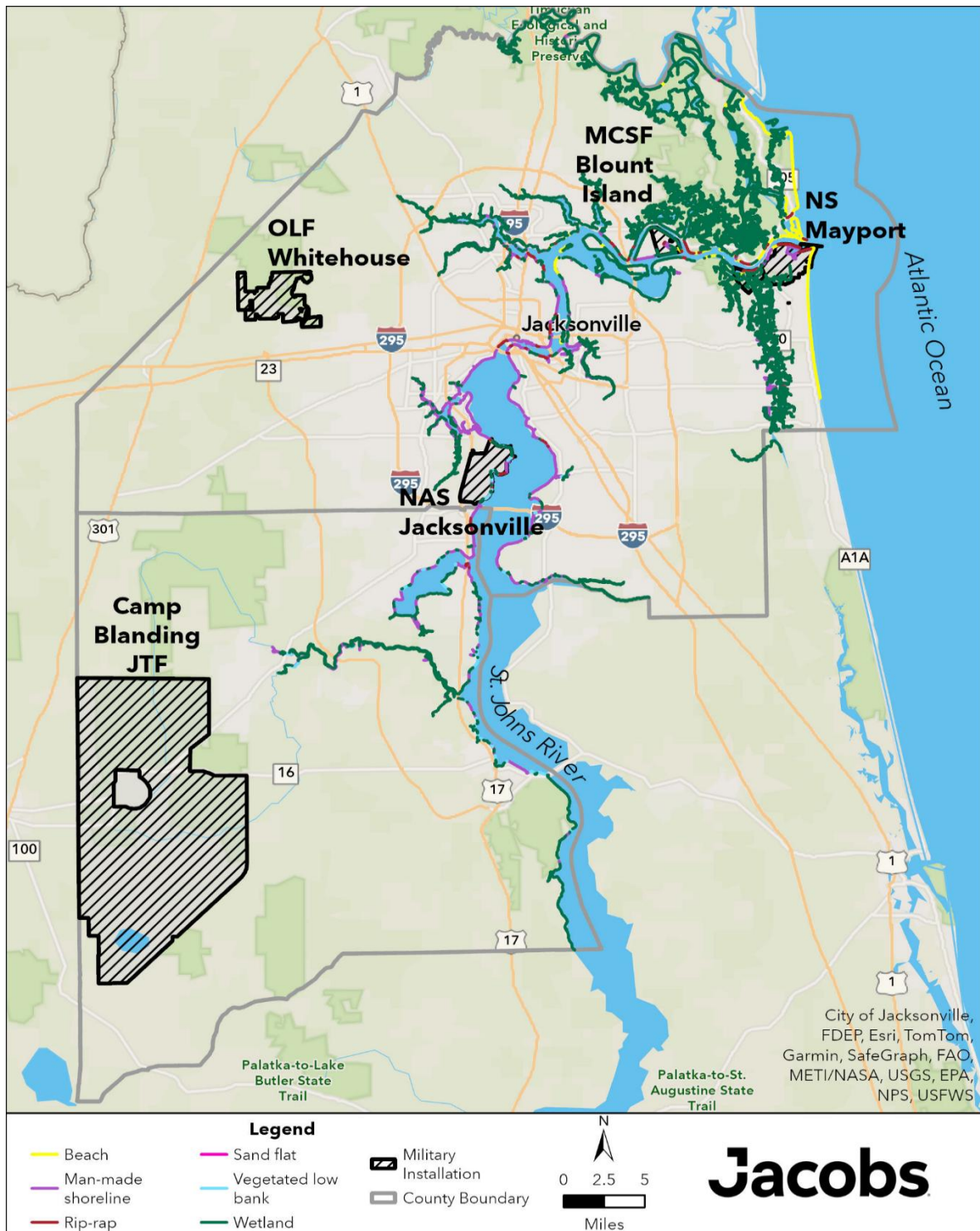
- **Man-made:** Composed of artificially constructed features or non-natural materials. Manmade shorelines typically consist of bulkheads or seawalls.
- **Beaches:** Zone of unconsolidated material that extends landward from the low water line to the place where there is marked changes in material or physiographic form, or to the line of permanent vegetation (usually the effective limit of storm waves). A beach includes foreshore and backshore.
- **Rip-rap:** A layer of broken rock, cobbles, boulders, or fragments of sufficient size to resist the erosive forces of flowing water and wave action.
- **Sand flats:** an extension of unconsolidated sediment located in the lower intertidal zone, characterized by the constant resuspension of sediment by tidal flood and ebb currents (López-Calderón et al. 2016).
- **Vegetated low banks:** areas along shorelines that are characterized by a significant amount of vegetation, which can help protect against erosion and provide habitat for various wildlife.
- **Wetlands:** a wetland area is classified as one of two categories, marsh/swamp or mangrove/cypress.
- **Mangrove or Cypress:** An area composed of one of several genera of tropical trees or shrubs that produce many prop roots and grow along low-lying coasts in shallow water or a deciduous conifer that thrives in swamps and tidal flows. Mangroves are typically found in the tropical or sub-tropical regions. They occur both in estuaries and along open coastlines. Mangroves dominate three quarters of tropical coastlines. Because of their sensitivity to subfreezing temperatures, mangroves in the continental U.S. are limited to the Florida peninsula and isolated growths along the coast of southern Louisiana and south Texas.



- **Marsh or swamp:** An area made up of spongy land saturated with water. It may have a shallow covering of water, usually with a considerable amount of vegetation appearing above the surface.

Figure 3-19 shows shoreline locations in the study area. Appendix C provides detailed views of the shorelines around MCSF Blount Island, NAS Jacksonville, and NS Mayport.

Figure 3-19. Shoreline Locations



NS Mayport

NS Mayport's northern and western shores are along the St. Johns River, with tributaries of the river infiltrating into the southern side of the installation. Exposed rip-rap protects Helen Cooper Floyd Park on the northwestern side of the installation and additional rip-rap protects the runway and the fuel farm on the northeastern side. Erosion was observed on the shorelines north of the fuel farm. Also offering protection to the shoreline are artificial structures, which are prevalent along the north-central part of the installation and the Mayport Basin, an inlet from the Atlantic Ocean. Sandy shorelines can be found in various parts along the northern part of the installation, such as near the recreational charters and docks, around the shoals near Helen Cooper Floyd Park, and along the access road to Helen Cooper Floyd Park from Jimmy Buffer Memorial Highway (A1A). The majority of the shorelines on the southern side of the installation are marsh, with the exception being scrub-shrub wetlands. The eastern side of the installation is along the Atlantic Ocean. This beach-type shoreline has fine- to medium-grained sand and is classified as a critical erosion area by FDEP (FDEP 2025). In total, there are approximately 55 miles of shoreline around NS Mayport. Shoreline erosion was noted on the sandy shorelines along A1A and east of Gate 5, along the shoreline north of the fuel farm (Jacobs 2024).

Blount Island

With Blount Island's location on St. Johns River, the shorelines surrounding the installation are primarily marsh. The approximately 7.5 miles of shoreline along the installation itself are more variable. There are beaches near the southeast corner of the installation, offering access to the river. These sandy shorelines are experiencing erosion and the installation is actively looking at nature-based solutions projects with the U.S. Army Corps of Engineers Engineering With Nature Program. Seawalls and rip-rap structures line the Back River, a canal leading into the installation's Command Port Operations. The remaining shoreline is marsh.

NAS Jacksonville

The shorelines surrounding the installations are primarily bulkhead walls and/or other artificial shorelines. The approximately 7 miles of shoreline along the installation itself vary significantly, depending on the location. Concrete bulkhead walls protect the aircraft maintenance hangers located eastward. East and northeast of the airfield, shorelines are primarily marsh and wetlands. This area is also a noted erosion hotspot for the installation. South of the installation's buildings and east of the residences, shorelines consist of a mixture of rip-rap, bulkhead walls, and vegetation.



Surface Waters

Surface waters are critical pieces of regional hydrology and provide a variety of ecological, economic, and recreational purposes. For the three coastal installations (MCSF Blount Island, NAS JAX, and NS Mayport), these waters are critical components of the missions (Figure 3-20). Waters of sufficient quality and quantity support healthy shoreline and wetland systems, which also support the installations' missions. The St. Johns River is used by MCSF Blount Island for moving its ships in and out of the region and provides a buffer for NAS Jacksonville. The Atlantic Ocean is critical for NS Mayport and its ships to deploy and it also supports flight and drone operations and training.





Wetlands

FDEP defines wetlands as “areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils” (FDEP 2023). Wetlands provide a variety of benefits to the installations:

- **Flood management.** Wetlands provide a buffer from riverine or coastal flooding (depending on their location). They help reduce storm surge height.
- **Encroachment buffers.** The designation of wetlands as protected areas benefits the installations by providing an effective barrier against encroachment from incompatible development.
- **Erosion minimization.** Wetlands both reduce wave heights and trap and hold soils in place, minimizing erosion and protecting the borders of the installations and the infrastructure behind them.
- **Water quality enhancement.** Wetlands serve as natural filters, improving water quality. High quality water without contaminants can protect the health of personnel working or training on the water and boosts morale by offering recreational activities.
- **Physical security.** Wetlands are generally difficult to traverse – as a result, they can function as a low-cost barrier to unwanted intrusion onto the installations. It should be noted that NS Mayport and MCSF Blount Island monitor the wetlands on their borders.

Figure 3-21 shows the wetlands around each of the installations. Appendix D provides detailed views of the wetlands around each installation.

NAS JAX

The northeast corner of NAS JAX consists of tidal marsh that provides a buffer that protects the runways. The wetlands east of the installation within and south of Tillie K. Fowler Regional Park protect the installation from flooding at the Ortega River. At OLF Whitehouse, approximately 599 acres of the property itself consists of wetland communities – depression marsh, dome swamp, and wet prairie (NAVFAC 2019). The wetlands around the OLF help protect it from encroachment and maintain the dark skies needed for training.

Camp Blanding JTC

Approximately 22% of the installation consists of wetlands. In addition, the installation is bordered by thousands of acres of wetlands. These communities are important because they support regional hydrology and fire suppression.

NS Mayport

NS Mayport is bounded on its western side by saltwater marshes. These marshes buffer the installation from rising tides and help preserve the mission by preventing incompatible development west of the base. Stakeholders noted that sea level rise is causing the marshes to recede.



Figure 3-20. Regional Surface Waters

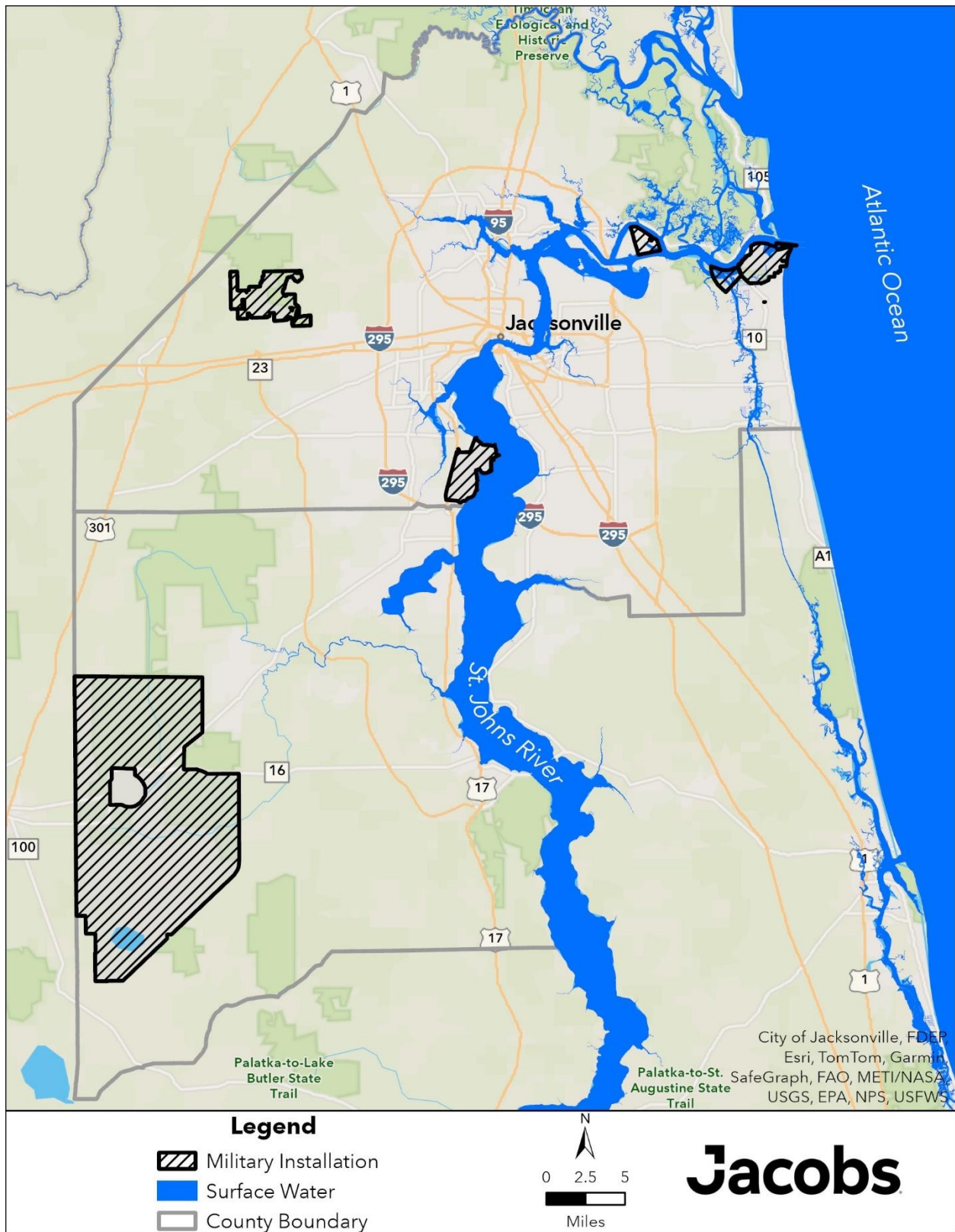
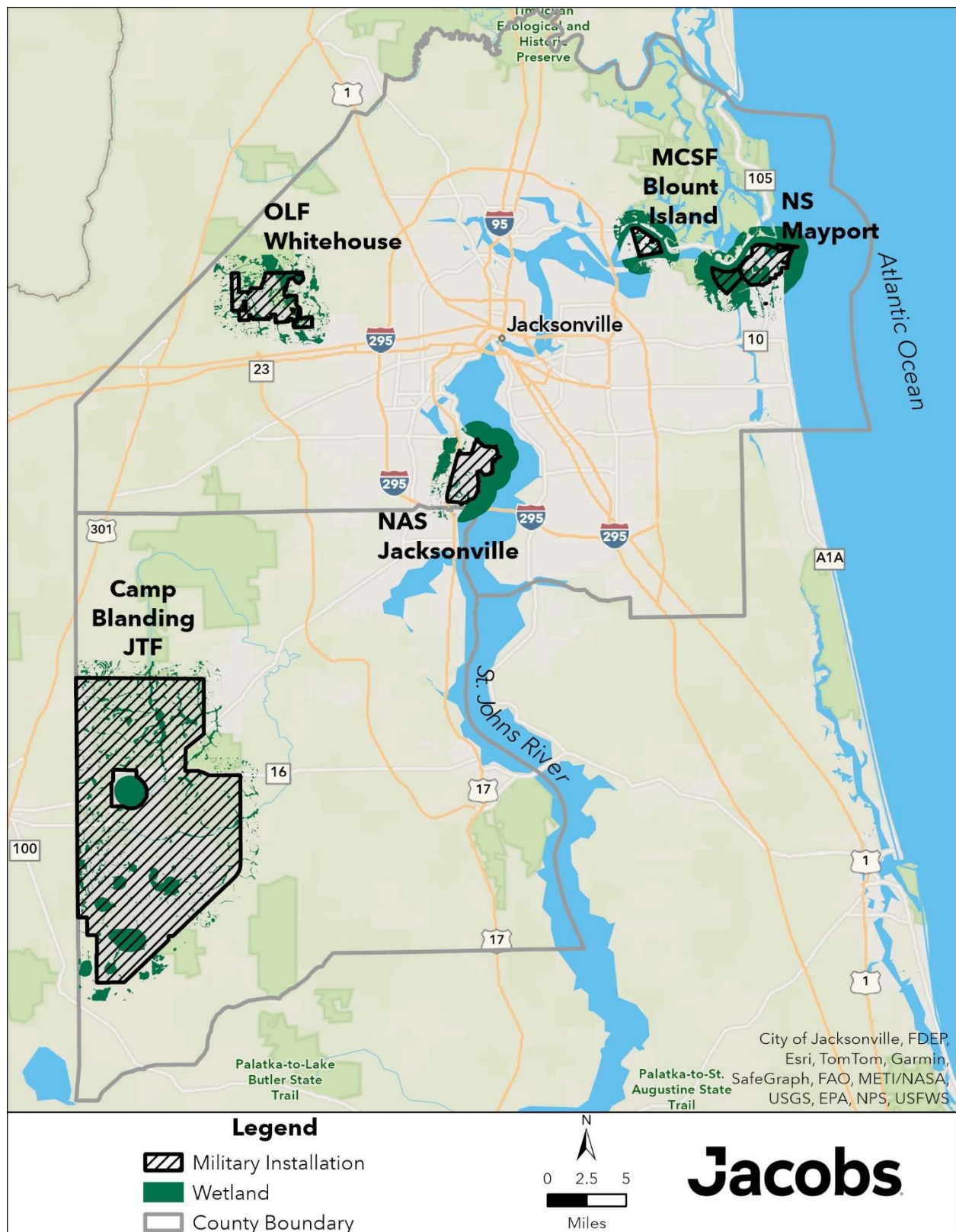


Figure 3-21. Wetlands Locations



4 Mission-Critical Asset Profiles

For this MIRR, critical assets are defined as the physical facilities, systems, or services that are vital to the installations' missions, whereas the failure of these assets would compromise the ability of an installation to execute its mission. The level of asset criticality depends on the level of support that provide the installations' operations and missions. Figure 4-1 shows the asset mission criticality.

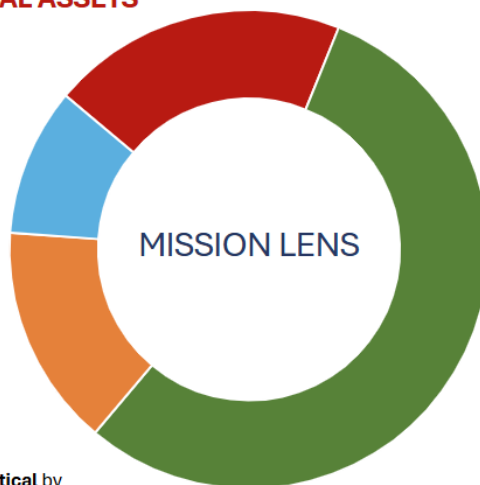
Figure 4-1. Mission Criticality Categories

PRIMARY MISSION-CRITICAL ASSETS

- **Directly support the installation's primary mission**
(failure/outage/disruption causes unacceptable disruption to mission operations)
- Specifically identified as **mission-critical** by installation
- Custom to each installation
- Local scale

SECONDARY MISSION-CRITICAL ASSETS

- **Directly support the installation's secondary mission**
(failure/outage/disruption causes unacceptable disruption to mission operations)
- Specifically identified as **mission-critical** by installation
- Custom to each installation
- Local scale



MISSION-SUPPORTIVE ASSETS

- **Indirectly support the installation's missions** (failure/outage/disruption causes inconvenience to mission operations, but short-term workarounds keep operations going)
- Identified as supportive for high-performing operations by installation and community stakeholders
- Local or regional scale

ADDITIONAL VULNERABILITIES

- Any additional vulnerabilities noted by stakeholders to natural, social, and economic infrastructure, or inside the fenceline

ADJACENT INFRASTRUCTURE

- Not relevant to installation but within study area

Using the information provided by stakeholders and research (as compiled herein), criticality profiles were developed for each of the four installations within the study area and vetted with the Technical Advisory Committee and Steering Committee. Each criticality profile provides a list of primary mission-critical, secondary mission-critical, and mission-supportive assets that was developed based on their relevance to the installations' mission(s), operations, and location. The following subsections detail the criticality profile for each installation.

4.1 Camp Blanding JTC Mission-Critical Assets

The primary mission of Camp Blanding JTC is to furnish a Level 2 Garrison Training and Impact Area and serve as the training center for the Florida National Guard. The associated training activities—live weapons and ground maneuver training ranges—require a significant amount of space. As a result, the installation's location in rural Clay County and the corresponding space within and around the installation are crucial for mission assurance. Utilities, railroads, roadways, and emergency response facilities (EOCs, police stations, and fire stations) are all crucial for the activities occurring on base.

Table 4-1 contains the criticality profile for Camp Blanding JTC. Figure 4-2 shows mission critical assets for Camp Blanding JTC.

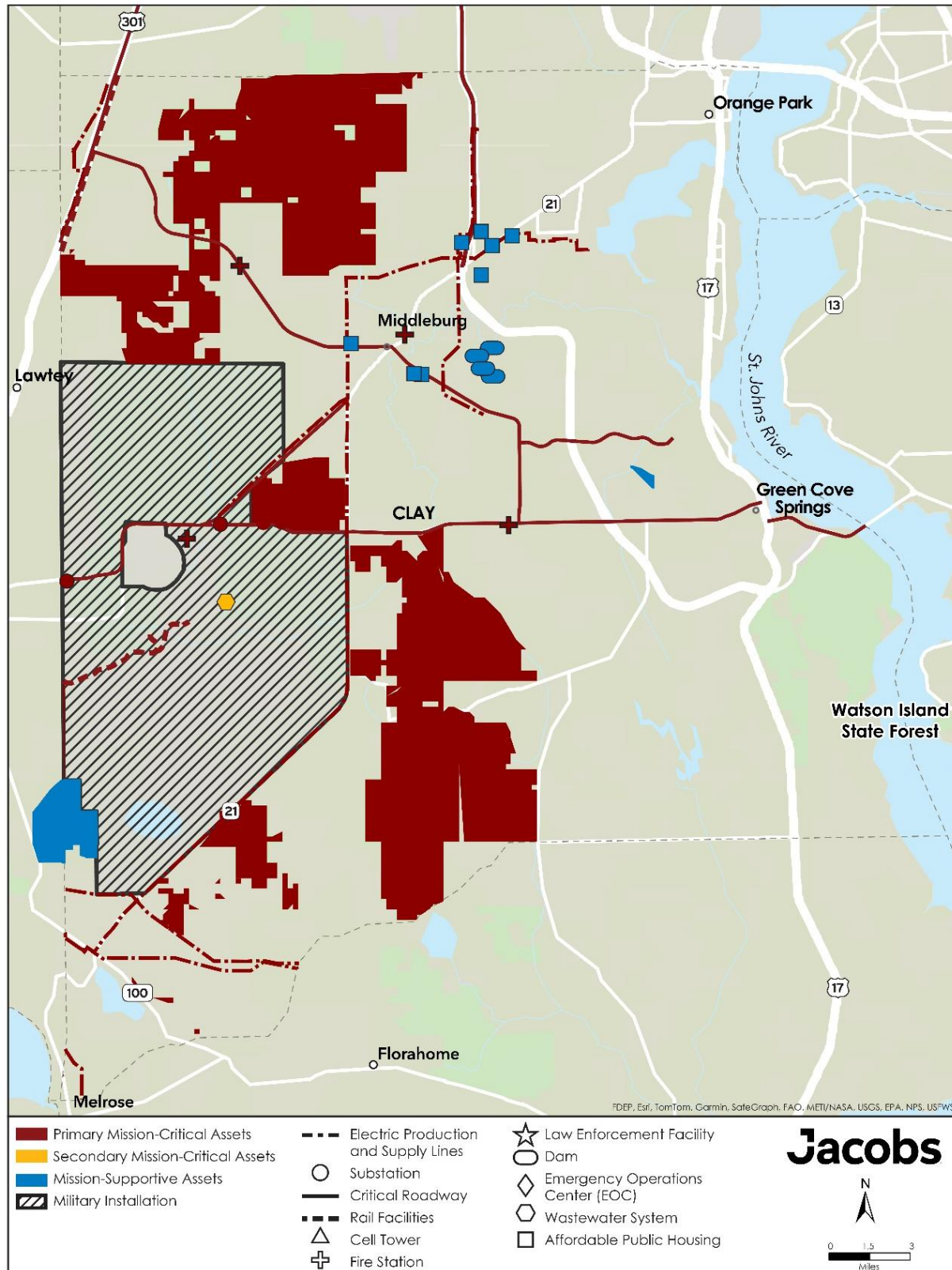


Table 4-1. Mission Criticality Profile – Camp Blanding JTC

Primary Mission	Secondary Mission	Mission-Supportive
- Support live weapons and maneuver training ranges for combat arms training and exercise (Level 2 Garrison Training and Impact Area) - Serve as the Florida National Guard Training Center	- Support state and federal activities - Provide a training ground for various federal and state agencies - House Florida’s backup EOC - Provide a staging area for emergency response	Assets that support the livelihood and health of installation personnel and/or provide indirect support to primary and/or secondary missions
Primary Mission-Critical Assets	Secondary Mission-Critical Assets	Mission-Supportive Assets
Location-Specific Positioning - Conservation lands Assets Providing Direct Support - Electric Production and Supply Facilities - Roads and Bridges - Rail Facilities - Communications Facilities - Fire Stations - Police stations - Stormwater systems - EOCs (Clay County)	Assets Providing Direct Support - Potable Water Facilities - Wastewater Treatment and Conveyance Facilities	Personnel Support - Affordable Housing - Childcare Facilities Assets Providing Indirect Support - Solid and Hazardous Waste Facilities



Figure 4-2. Mission Critical Assets for Camp Blanding JTC



4.2 MCSF Blount Island Mission-Critical Assets

The primary mission of MCSF Blount Island is to support the global pre-positioning of the Marine Corps through the rapid loading and deployment of ships. The secondary mission of the installation is to provide logistics support and maintain vessels.

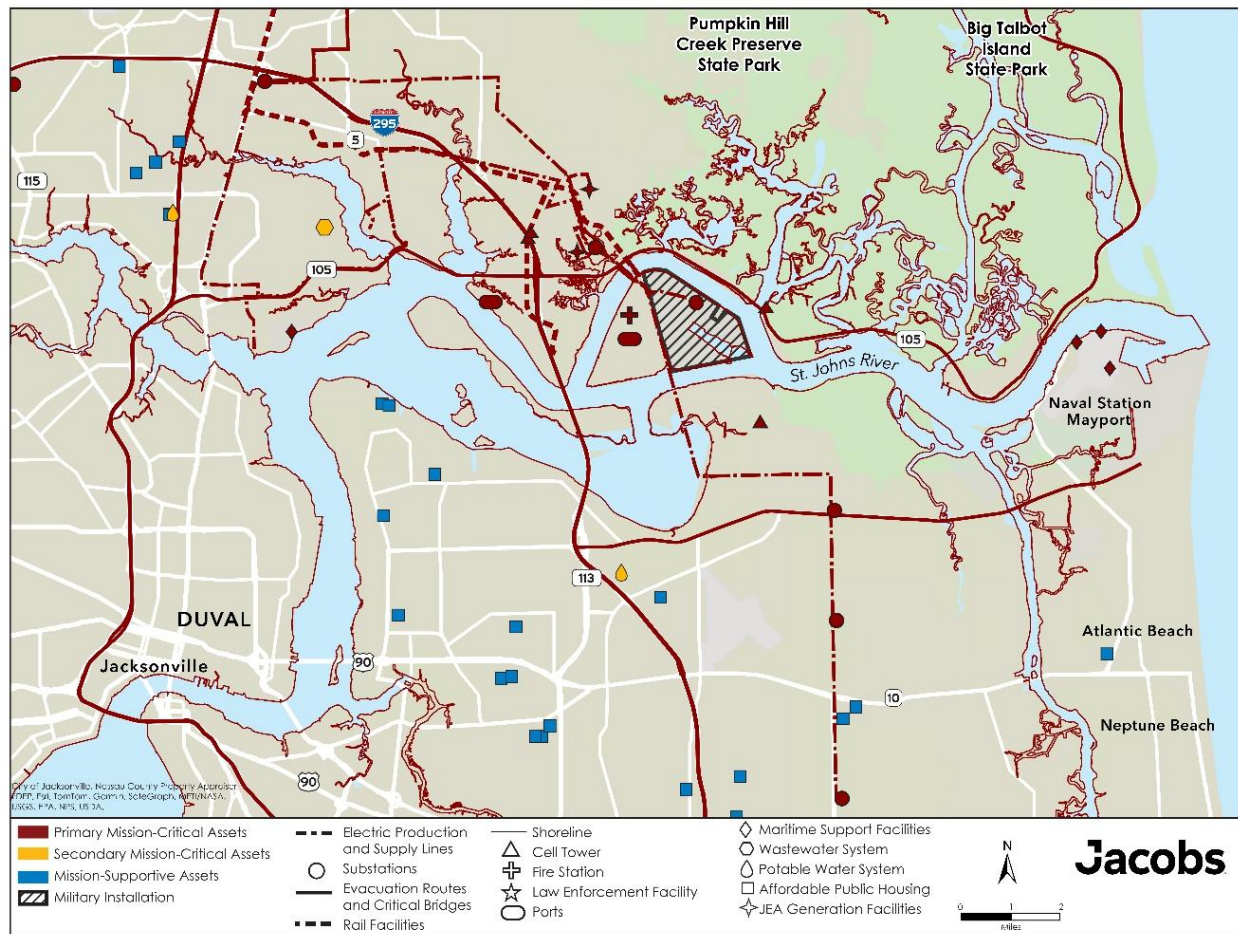
Priorities for the installation were based on the assets and services needed to rapidly load ships. The installation's position near the mouth of the St. Johns River is crucial for quickly moving vessels to maintenance facilities for repair or to the Atlantic Ocean for deployment. In addition, the installation's proximity to JAXPORT supports loading of ships and other maritime activities. Electric power, roadways, rail, and communications facilities all support the logistics activities.

Table 4-2 contains the complete profile of the installation's mission criticality. Figure 4-3 show mission critical assets for MCSF Blount Island.

Table 4-2. Mission Criticality Profile – MCSF Blount Island

Primary Mission	Secondary Mission	Mission-Supportive
- Support readiness of Marine global pre-positioning - Support crisis response through rapid loading and deployment of ships	- Enable carrier/amphibious operations - Provide logistics support - Provide exercise and deployment support - Maintain vessels	Assets that support the livelihood and health of installation personnel and/or provide indirect support to primary and/or secondary missions
Primary Mission-Critical Assets	Secondary Mission-Critical Assets	Mission-Supportive Assets
Location-Specific Positioning - Surface waters (St. Johns River) - Shorelines (St. Johns River) - Maritime Support Facilities (offsite dry dock facilities, tugboats, fuel depots, and harbor pilots) - Ports (JAXPORT) Assets Providing Direct Support - Electric Production and Supply Facilities - Roads and Bridges - Rail Facilities - Communications Facilities - Fire Stations	Assets Providing Direct Support - Potable Water Facilities - Wastewater Treatment and Conveyance Facilities	Personnel Support - Affordable Housing - Childcare Facilities Assets Providing Indirect Support - Solid and Hazardous Waste Facilities



Figure 4-3. Mission Critical Assets for Camp Blanding JTC

4.3 NAS Jacksonville Mission-Critical Assets

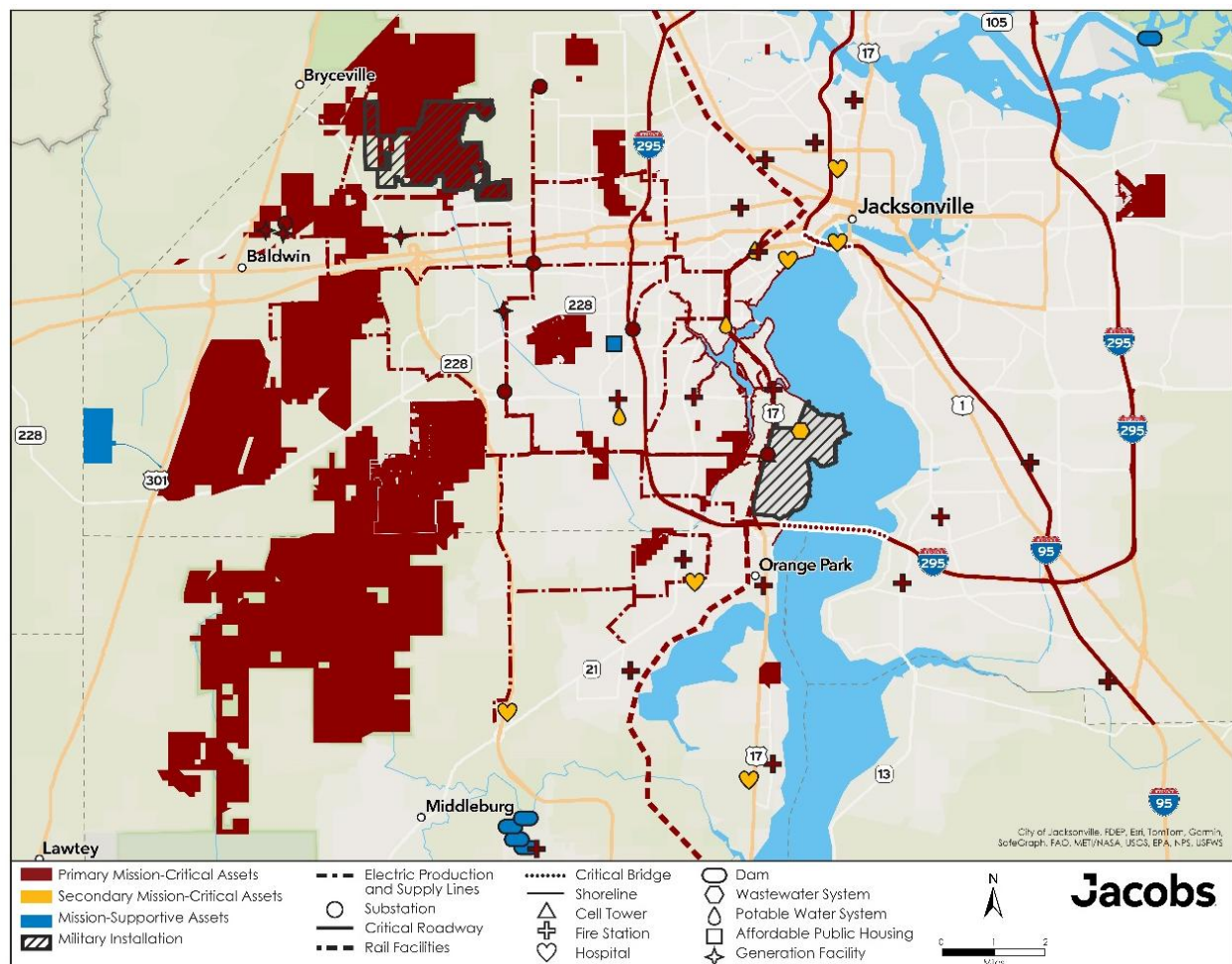
NAS Jacksonville is a hub for naval aviation and its missions appropriately relate to the training, operations, logistics, and maintenance activities associated with aviation. Its function as the Navy hub of the Southeast U.S. also results in broader secondary missions that consist of supporting tenant and regional commands, providing healthcare through the Naval Hospital, and supporting other federal agencies. The shorelines of the installation protect the runways and hangars from wave impacts and erosion. The proximity to OLF Whitehouse, Cecil Airfield, and training ranges is also critical.

Table 4-3 details the mission criticality profile for NAS Jacksonville. Figure 4-4 shows mission critical assets for NAS Jacksonville.



Table 4-3. Mission Criticality Profile – NAS Jacksonville

Primary Mission	Secondary Mission	Mission-Supportive
- Conduct training and operations - Provide logistical and maintenance support - Serve as a hub for naval aviation	- Provide healthcare (Naval Hospital) - Support community/homeland defense (Customs/Border Patrol) - Support regional commands - Provide FEMA staging site	Assets that support the livelihood and health of installation personnel and/or provide indirect support to primary and/or secondary missions
Primary Mission-Critical Assets	Secondary Mission-Critical Assets	Mission-Supportive Assets
Location-Specific Positioning - Conservation lands (OLF Whitehouse) - Shorelines (St. Johns River) Assets Providing Direct Support - Electric Production and Supply Facilities - Roads and Bridges - Rail systems - Airports - Natural gas supply systems - Fire stations	Assets Providing Direct Support - Drinking water systems - Wastewater treatment facilities and lift stations - Communications facilities - Hospitals	Personnel Support - Affordable housing - Childcare Facilities Assets Providing Indirect Support - Solid and hazardous waste facilities - Stormwater systems

Figure 4-4. Mission Critical Assets for NAS Jacksonville

4.4 NS Mayport Mission-Critical Assets

NS Mayport provides the home base for Navy fleet and aviation assets. From the installation, the fleet can rapidly deploy across the Atlantic Ocean. The installation's location at the confluence of the St. Johns River and the Atlantic ocean, coupled with its deepwater turning basin, provides the perfect location for deployment. The shorelines and wetlands of the installation protect it from the wave impacts that accompany its coastal location while its location on the St. Johns River also yields easy access to the maritime support facilities that support fleet activities. The proximity of the installation to NAS Jacksonville also is crucial because of their intertwining missions.

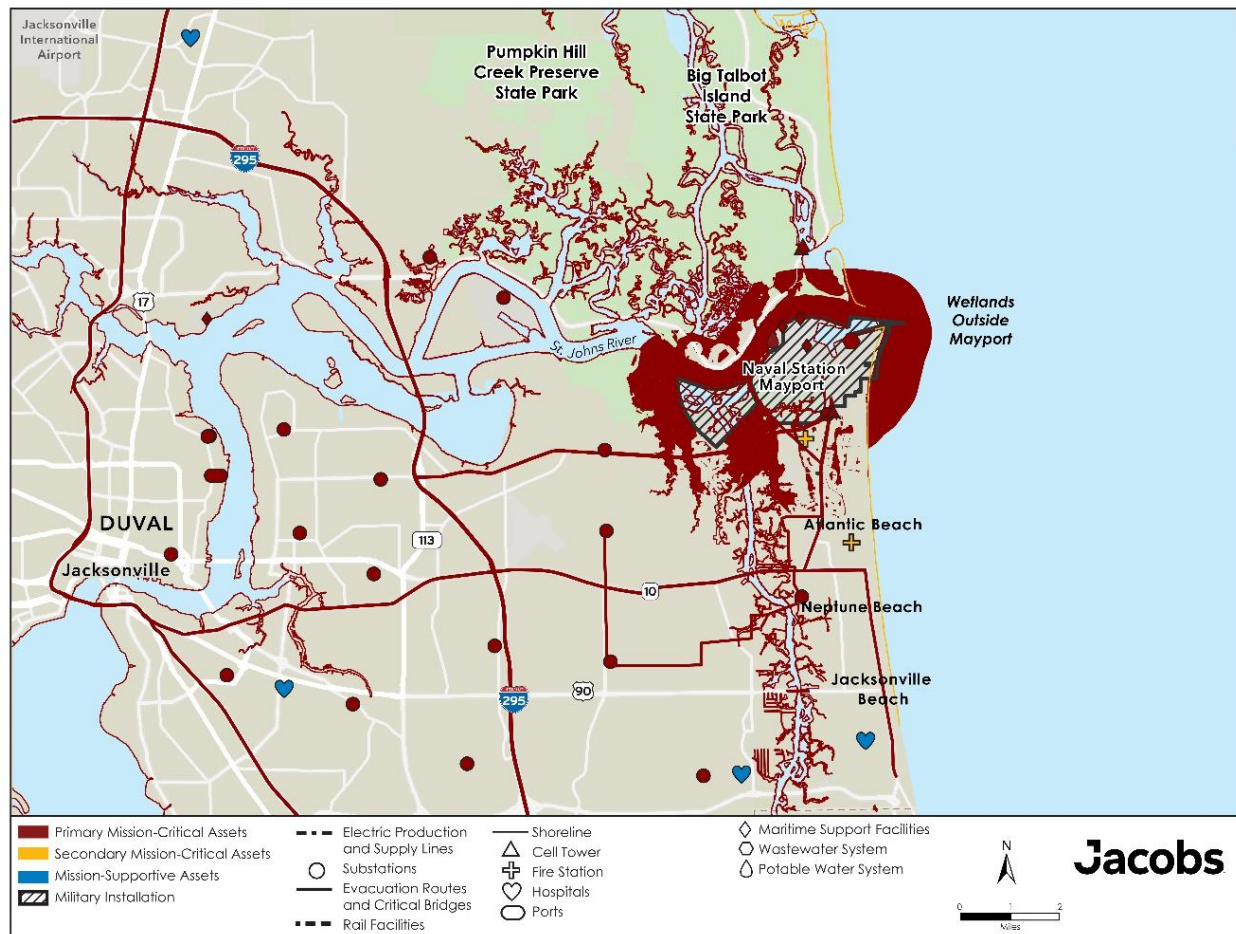
Table 4-4 details the mission criticality profile for NS Mayport. Figure 4-5 shows mission critical assets for NS Mayport.



Table 4-4. Mission Criticality Profile – NS Mayport

Primary Mission	Secondary Mission	Mission-Supportive
- Surface fleet homeporting - Aviation basing - Fleet readiness & sustainment	- Enable carrier/amphibious operations - Enable Joint/Coalition operations & exercises - Support humanitarian & disaster response - Support major tenant commands	Assets that support the livelihood and health of installation personnel and/or provide indirect support to primary and/or secondary missions
Primary Mission-Critical Assets	Secondary Mission-Critical Assets	Mission-Supportive Assets
Location-Specific Positioning - St. Johns River - Wetlands - Shorelines (St. Johns River) - Maritime Support Facilities (fuel depots and offsite dry dock facilities) - JAXPORT Assets Providing Direct Support - Electric Production and Supply Facilities - Roads and Bridges - Communications Facilities - Potable Water Facilities - Wastewater Treatment and Conveyance Facilities	- Shorelines (Atlantic Coast) - Fire Stations	- Childcare Facilities - Hospitals

Figure 4-5. Mission Critical Assets for NAS Jacksonville



5 Next Steps

Defining the mission-critical assets for the Northeast Florida MIRR is one of the key components of the initial resilience assessment. This analysis, coupled with the hazards analysis, provides the foundation for the VA.

The VA will include a technical analysis of the impacts that hazards can have on the mission-critical assets defined herein. Following the methodology for Unified Resilience Assessment, the VA will include:

- An analysis of asset exposure (proximity) to identified hazards.
- A sensitivity analysis that includes asset sensitivity to identified hazards.
- A risk assessment that includes an analysis of likelihoods and impacts of asset failure on the installations, as well as the community, the environment, and the regional economy.

Using the results of the VA, the project team will develop adaptation strategies for mission-critical assets and systems with the goal of enhancing mission assurance.



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Appendix A. Critical Roads and Bridges Maps



Figure A-1. Critical Roads and Bridges Around Camp Blanding JTF

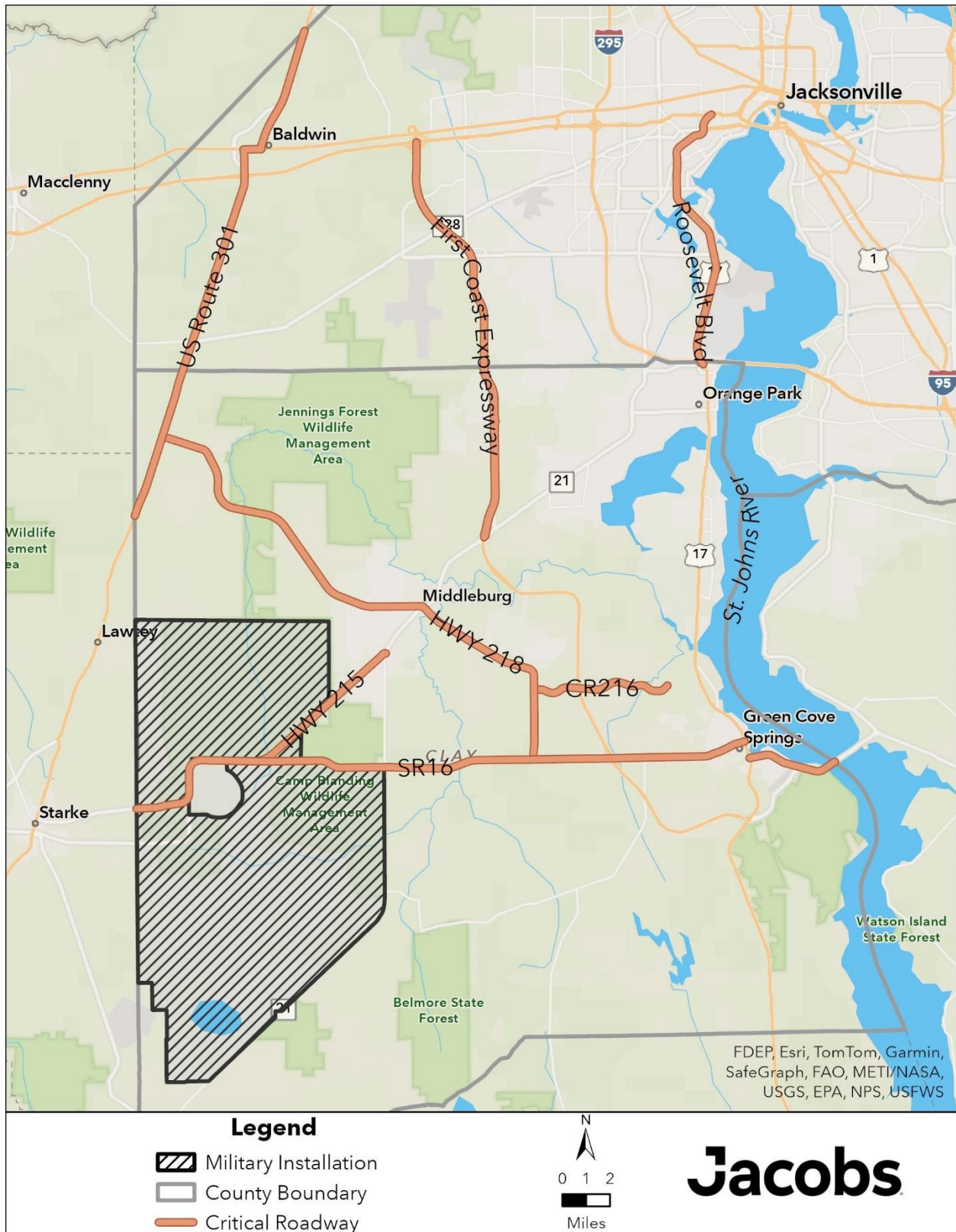
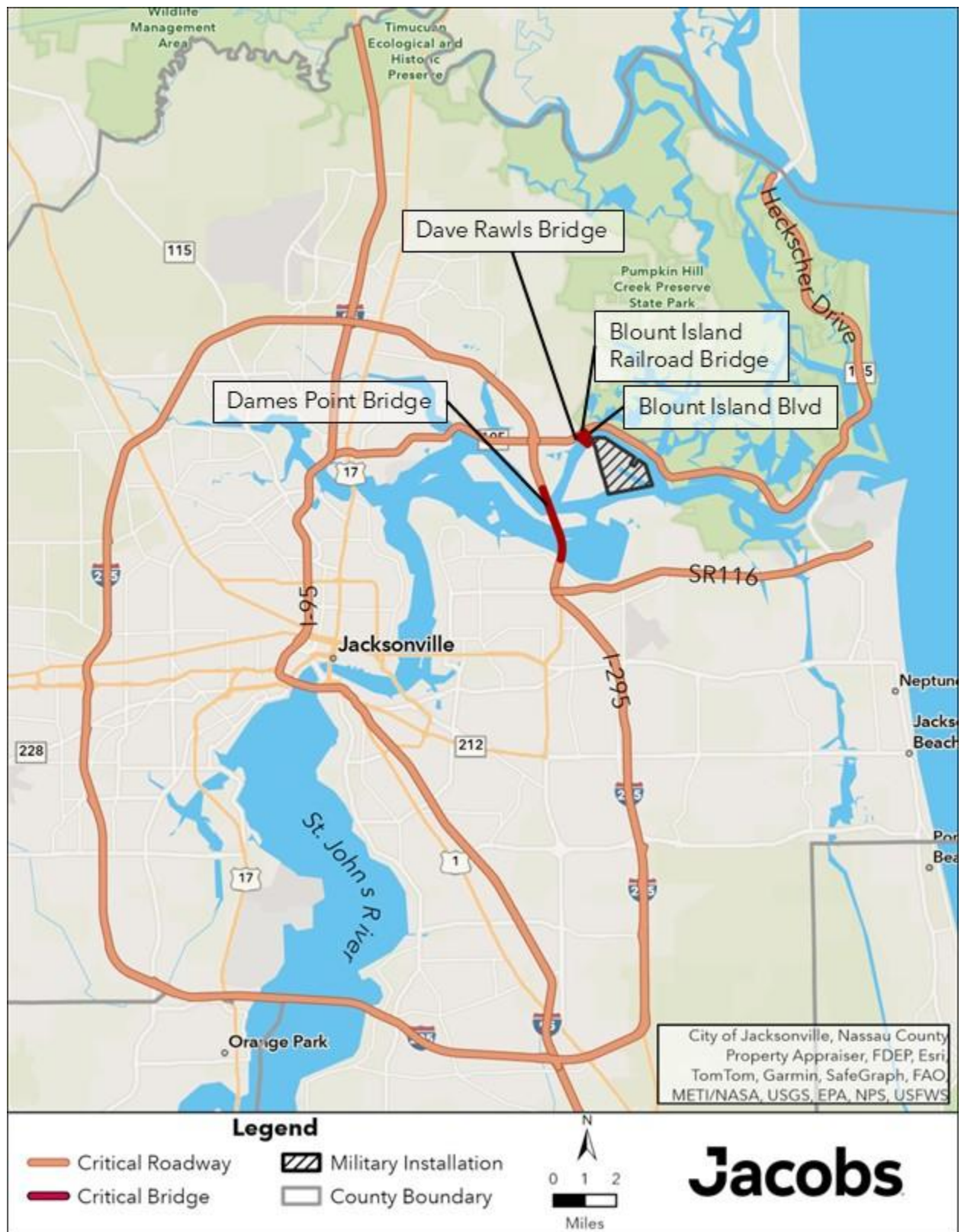


Figure A-2. Critical Roads and Bridges Around MCSF Blount Island



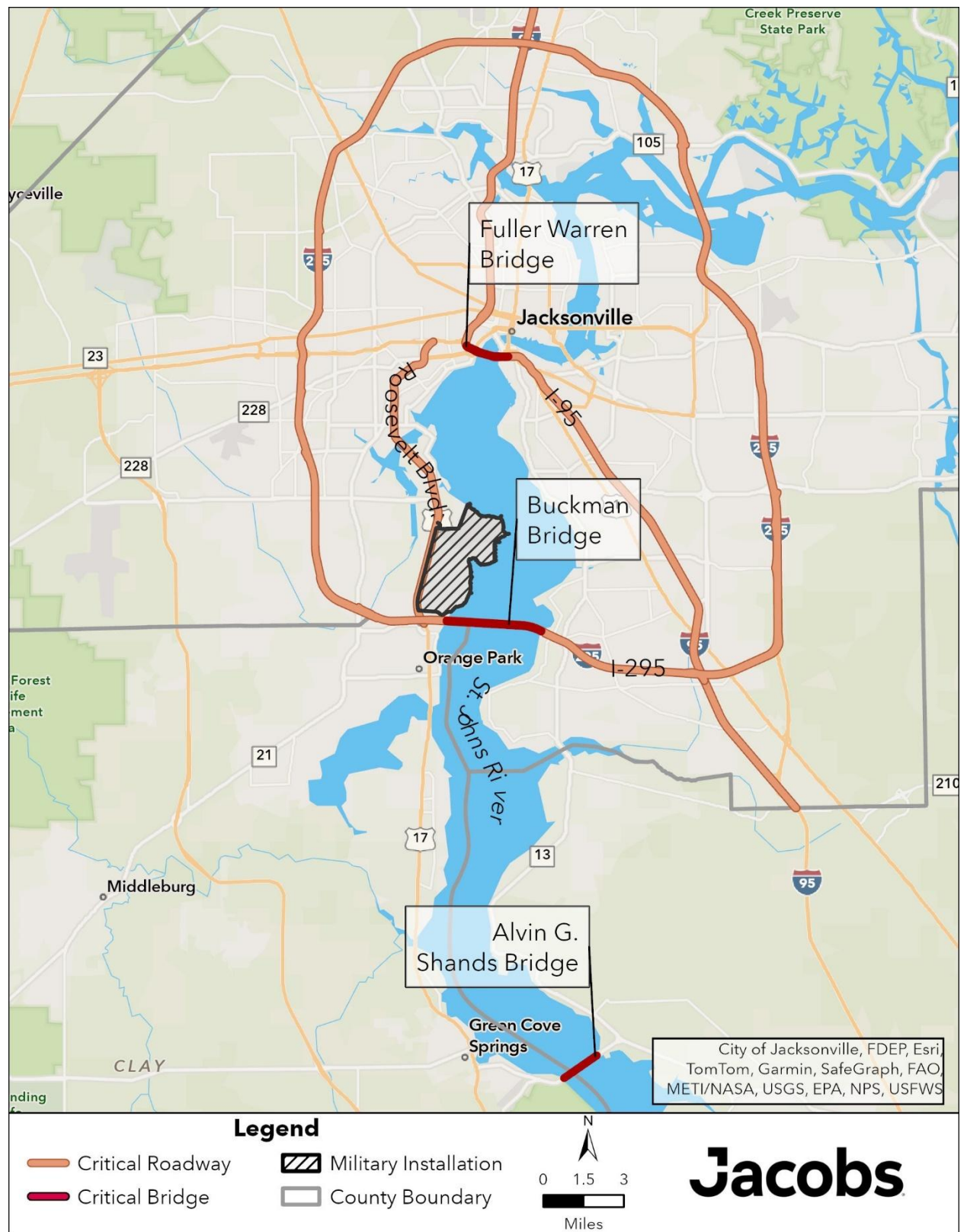


Figure A-4. Critical Roads and Bridges Around NS Mayport

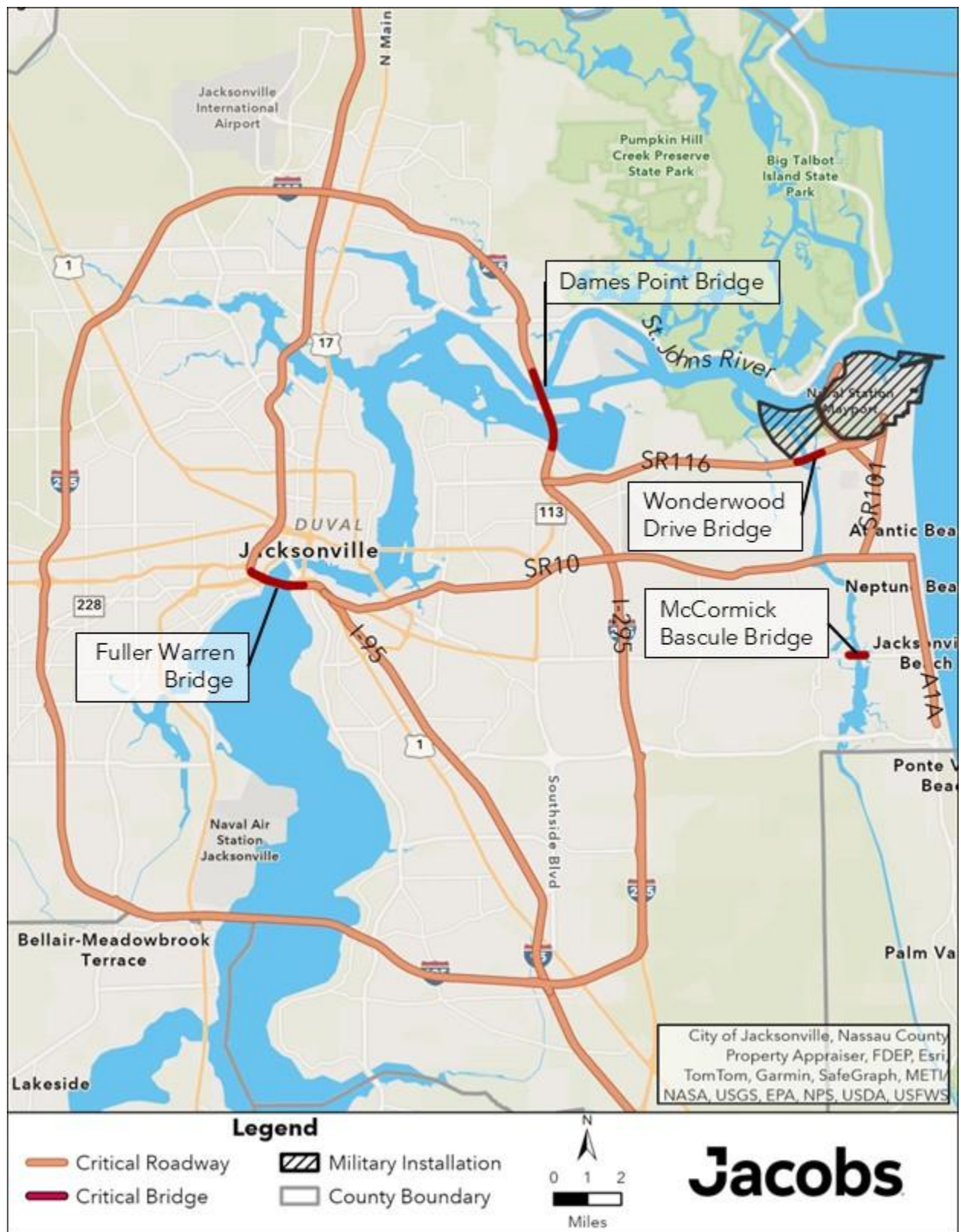
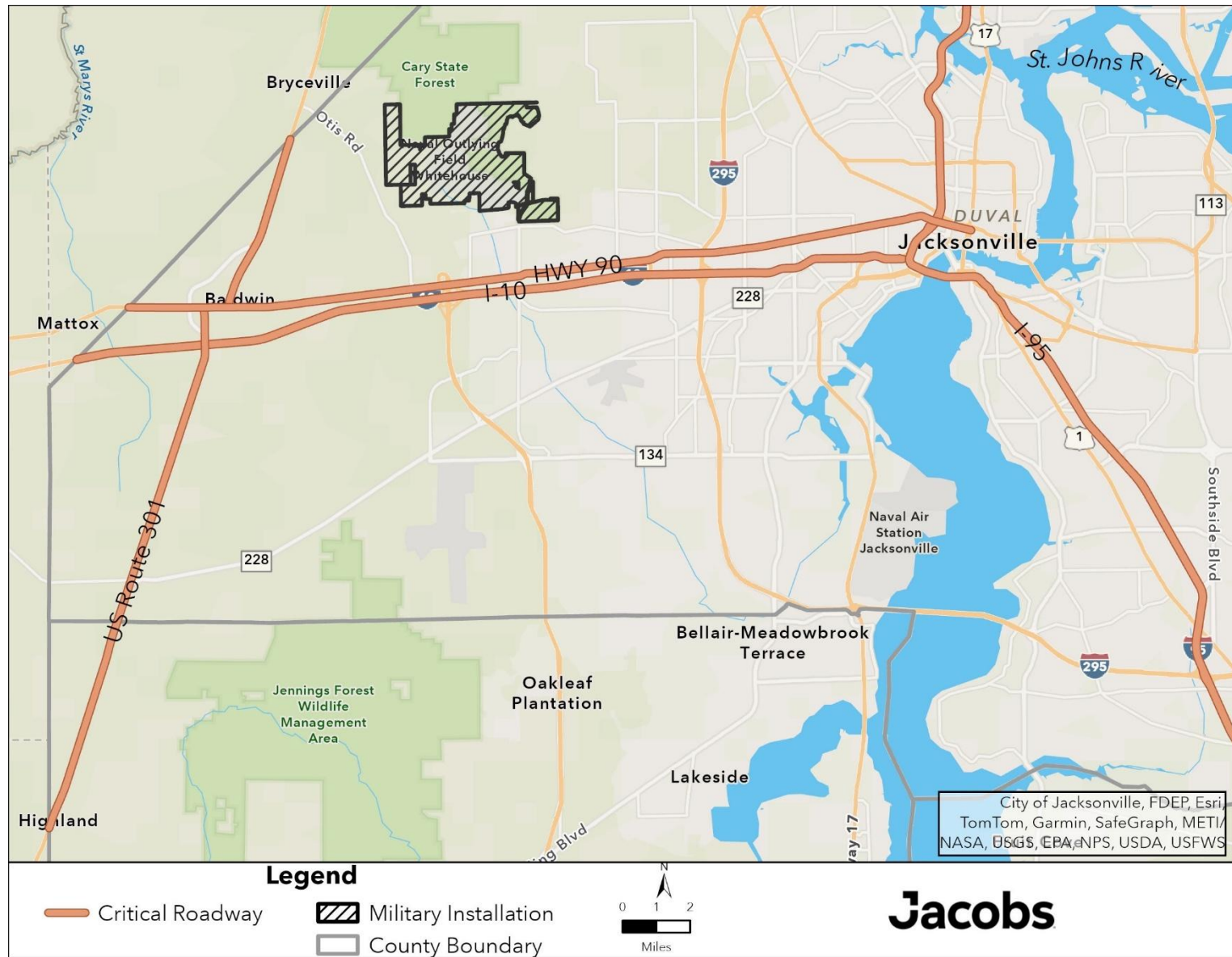


Figure A-5. Critical Roads and Bridges Around OLF Whitehouse



Appendix B. Conservation Land Maps



Figure B-1. Conservation Lands Around Camp Blanding JTF

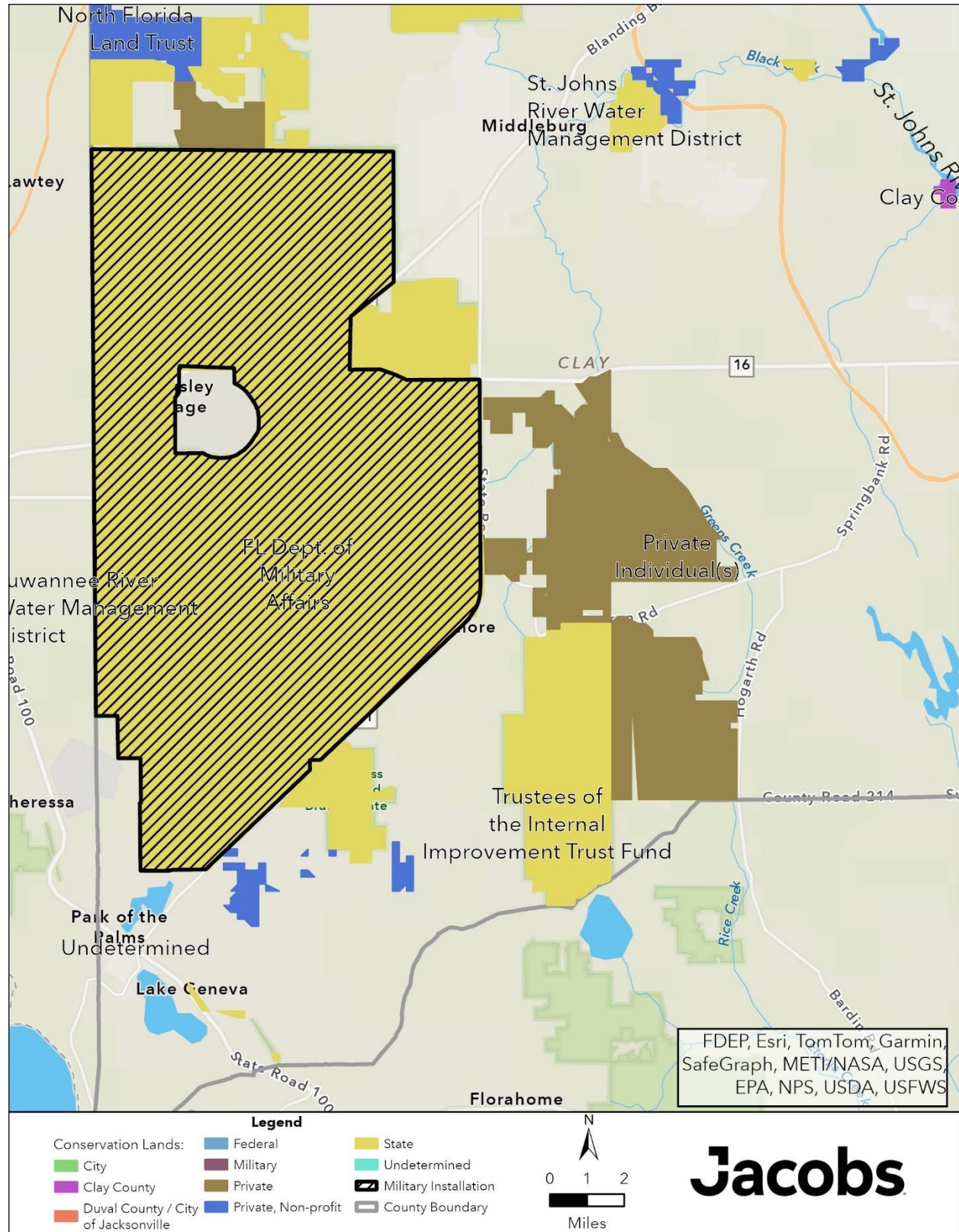


Figure B-2. Conservation Lands Around MCSF Blount Island

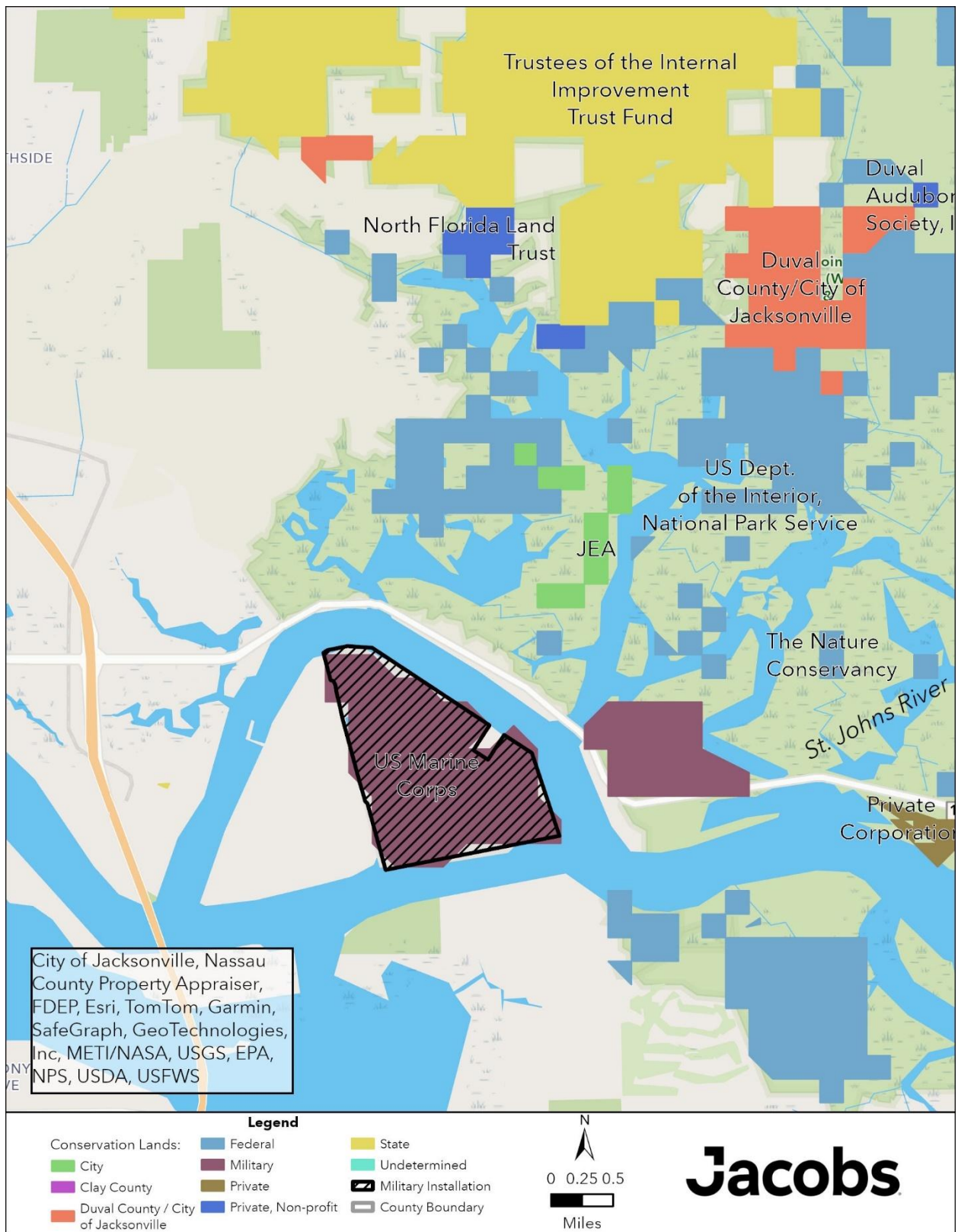


Figure B-3. Conservation Lands Around NAS Jacksonville

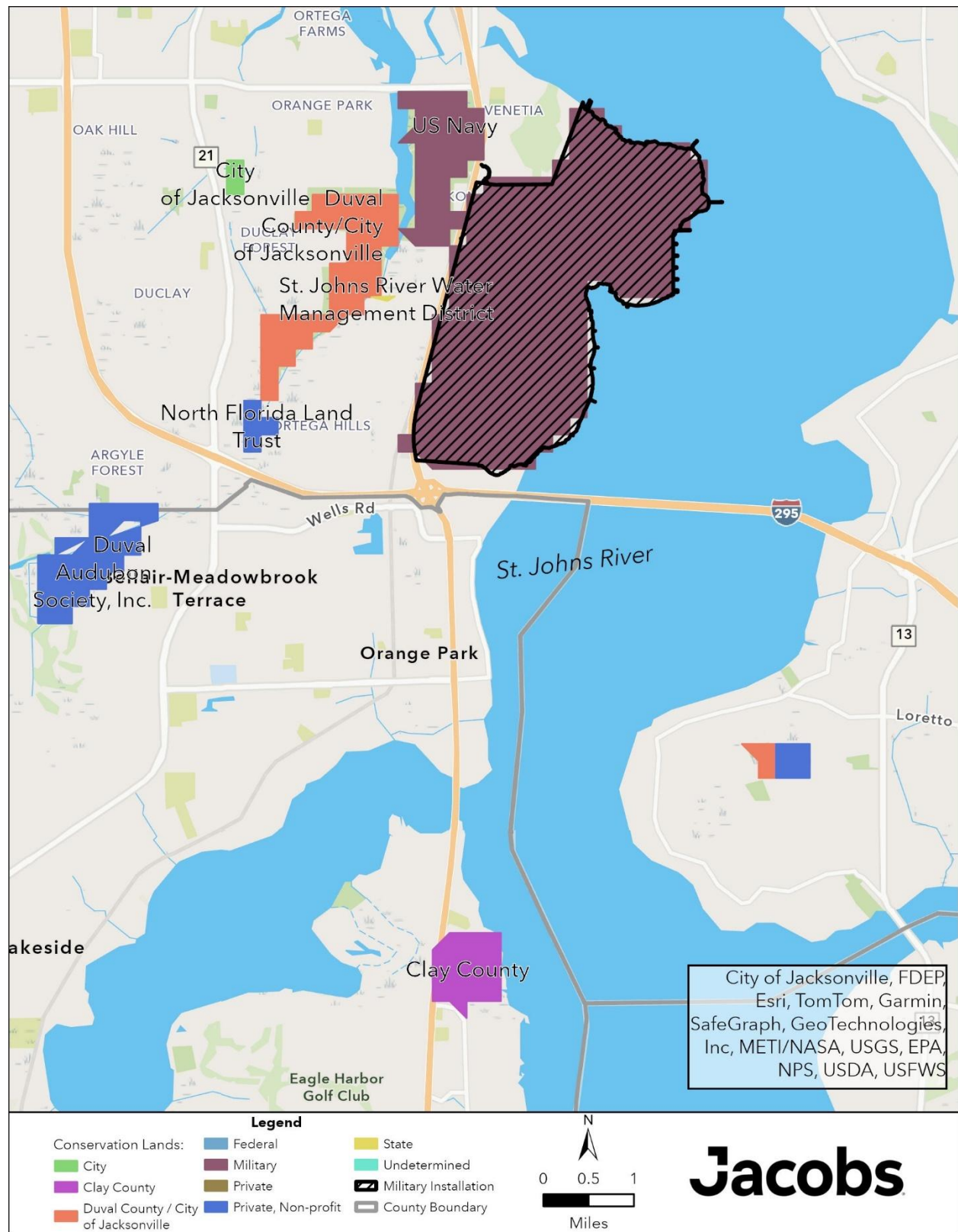


Figure B-4. Conservation Lands around NS Mayport

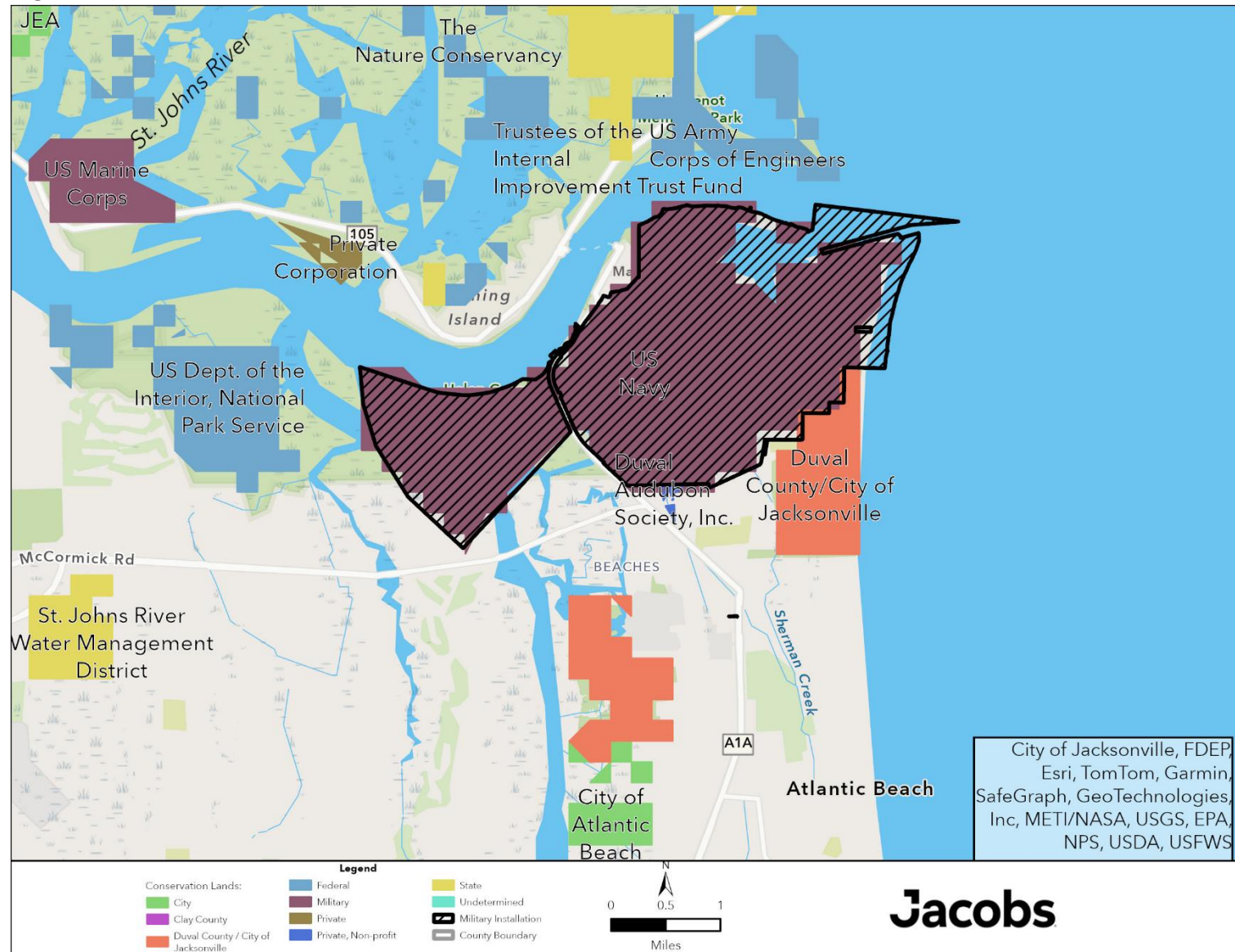
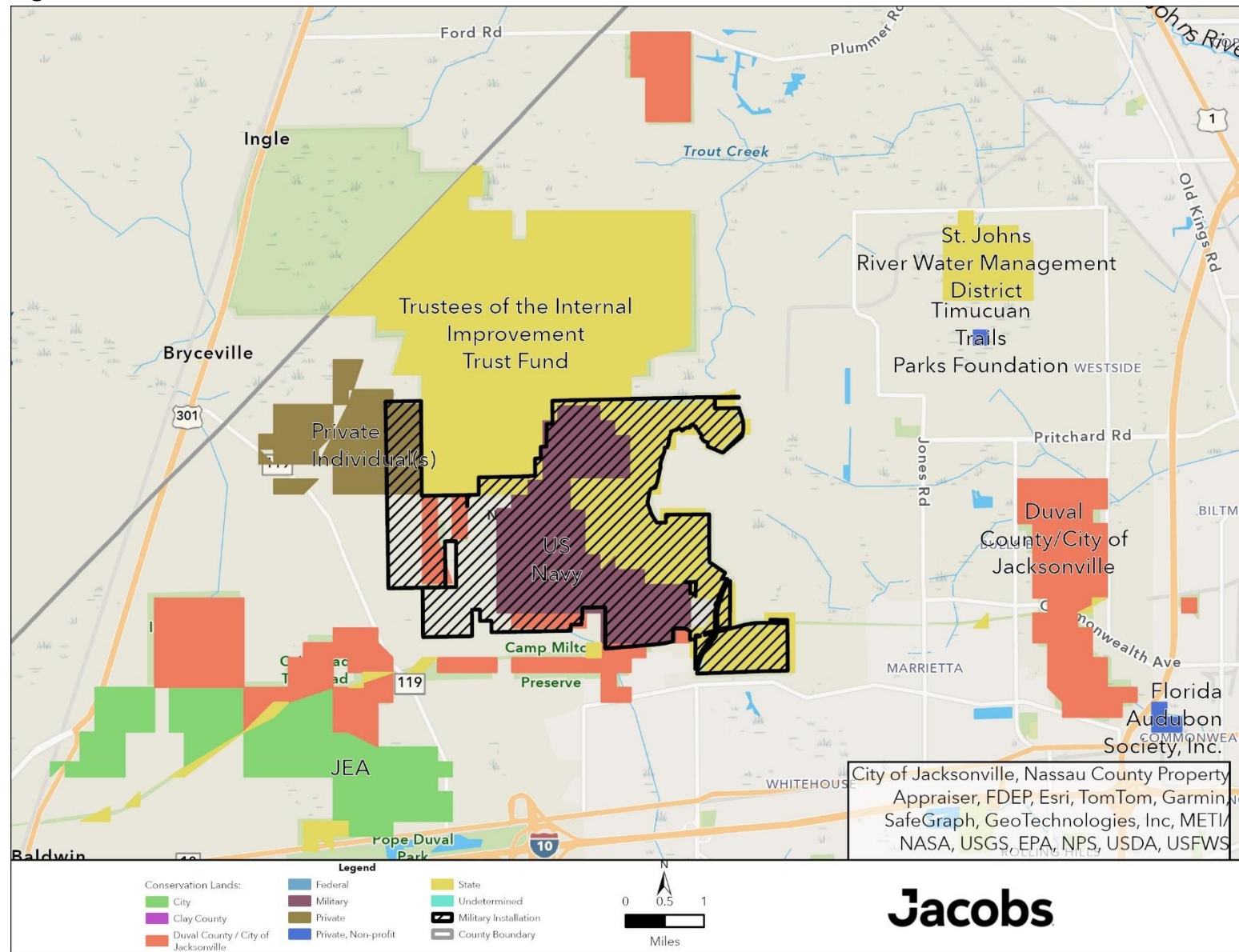


Figure B-5. Conservation Lands Around OLF Whitehouse



Appendix C. Shorelines Maps



Figure C-1. Shorelines Around MCSF Blount Island

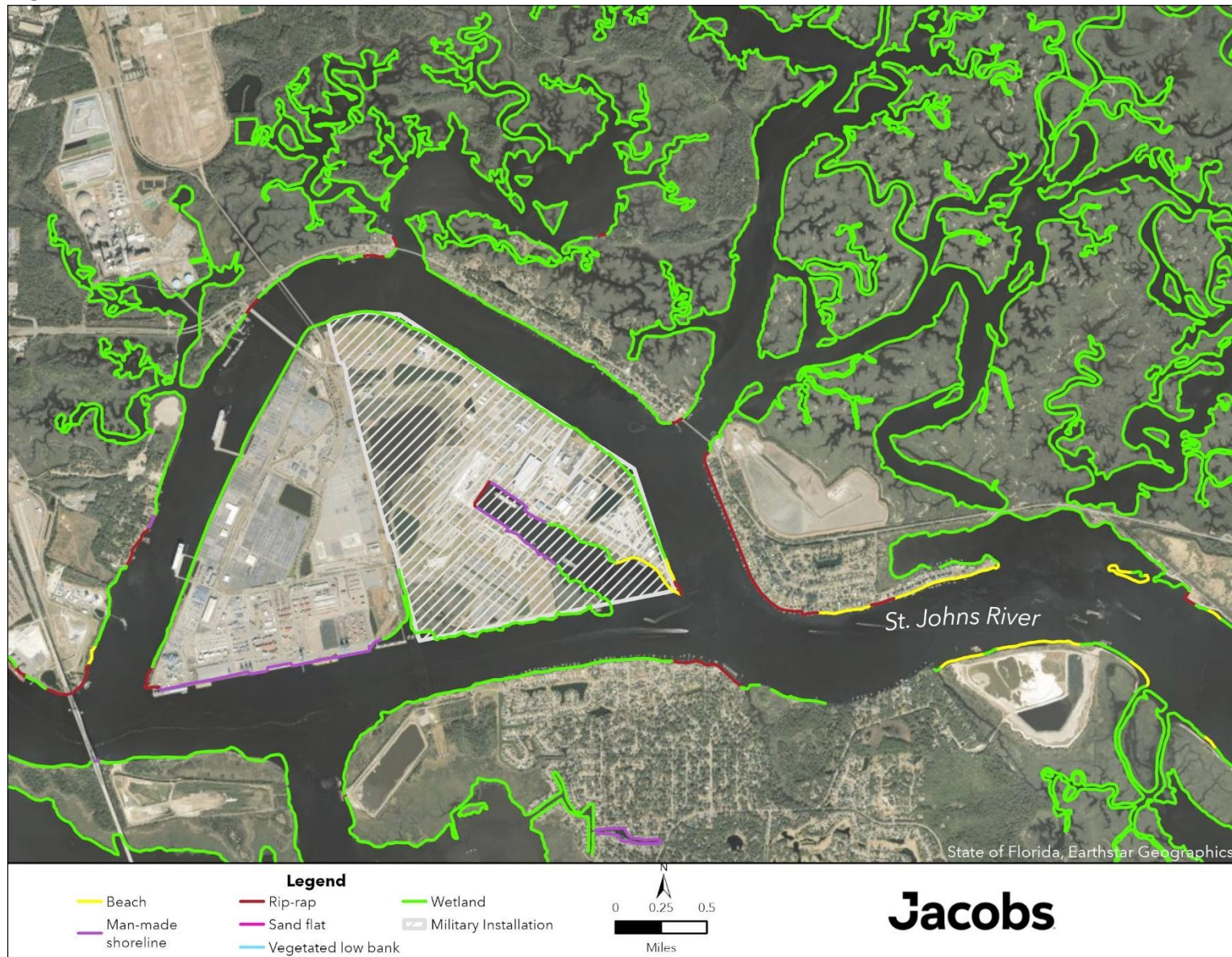
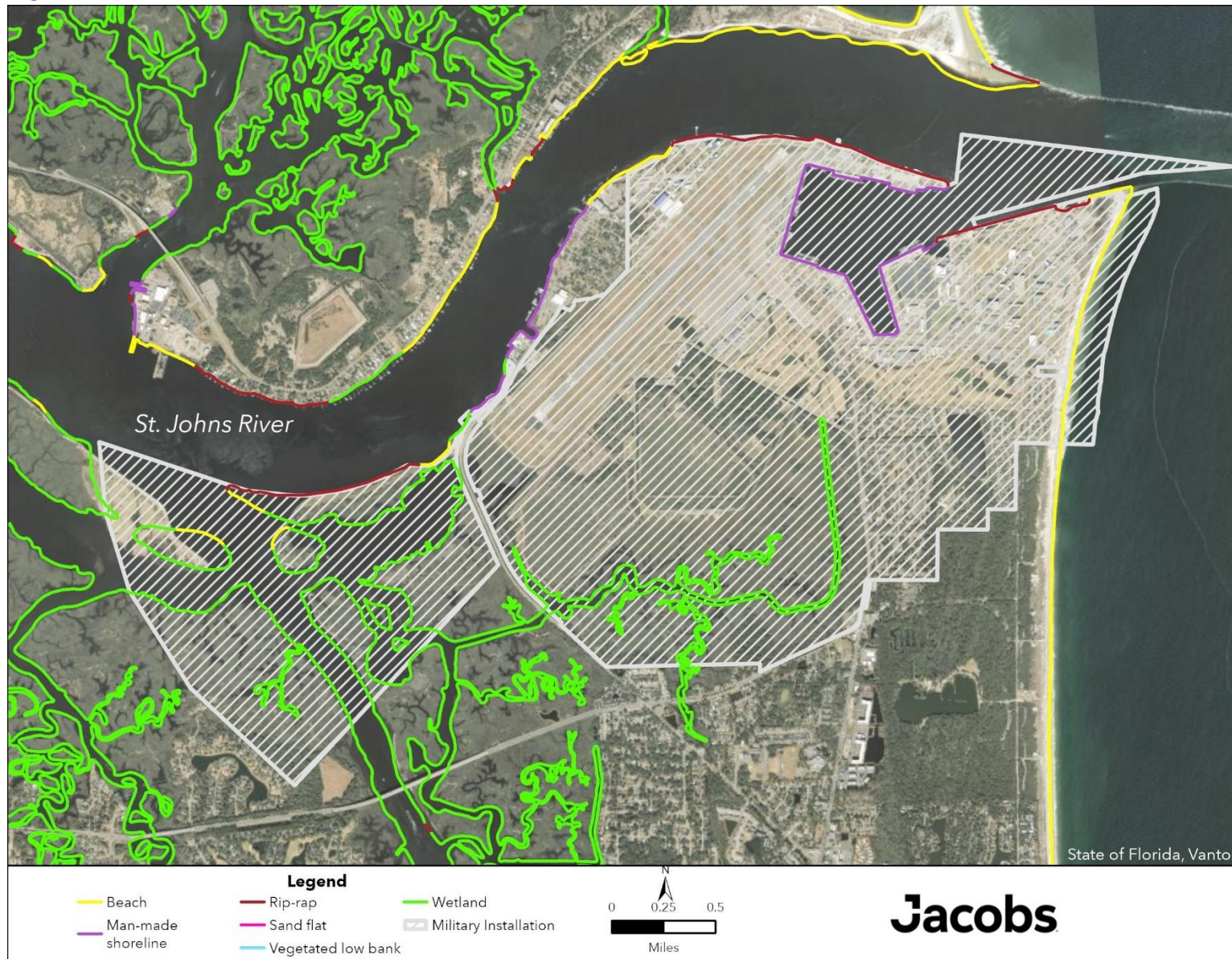


Figure C-2. Shorelines Around NAS Jacksonville



Figure C-3. Shorelines around NS Mayport



Appendix D. Wetlands Maps



Figure D-1. Wetlands Around Camp Blanding JTF

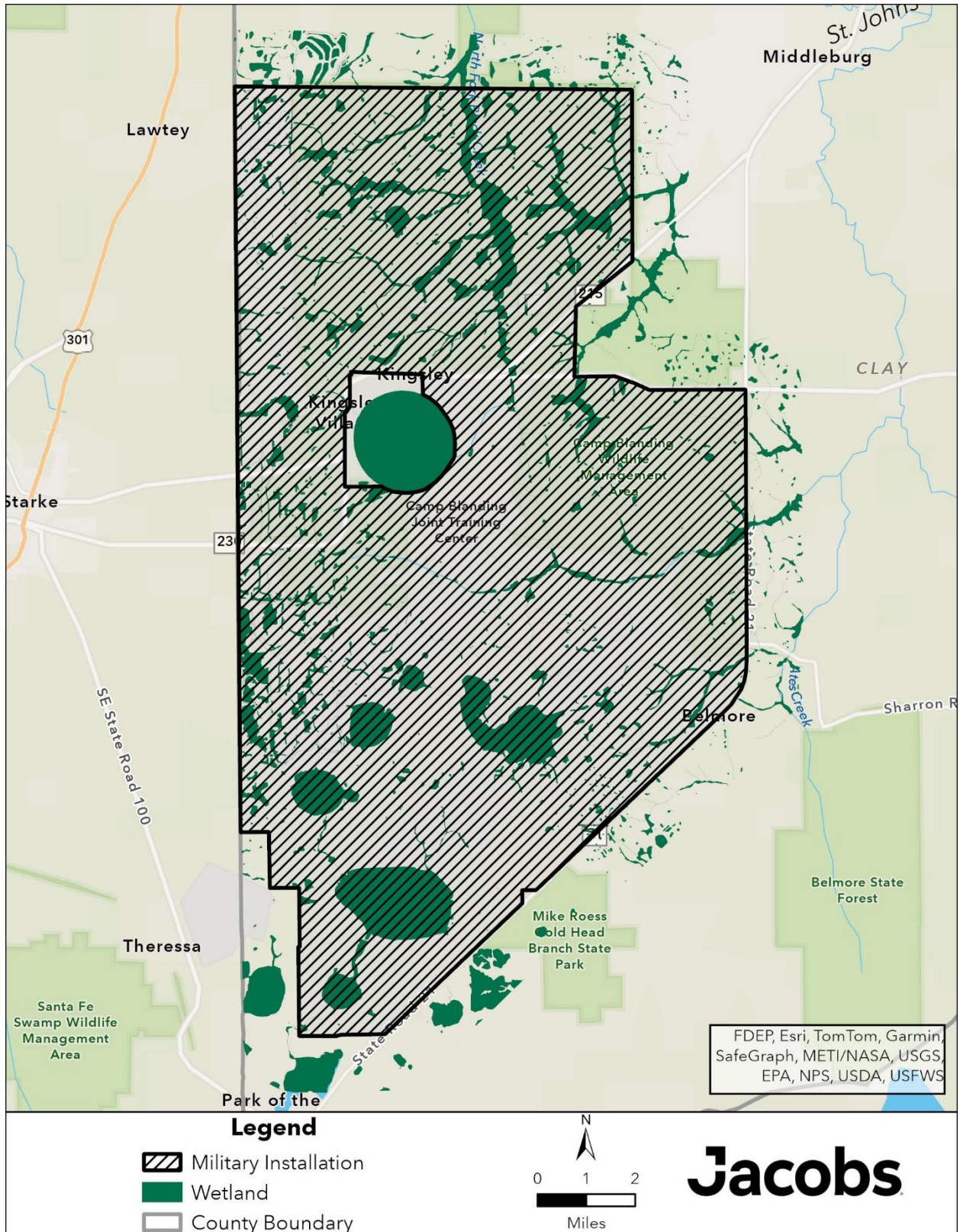


Figure D-2. Wetlands Around MCSF Blount Island

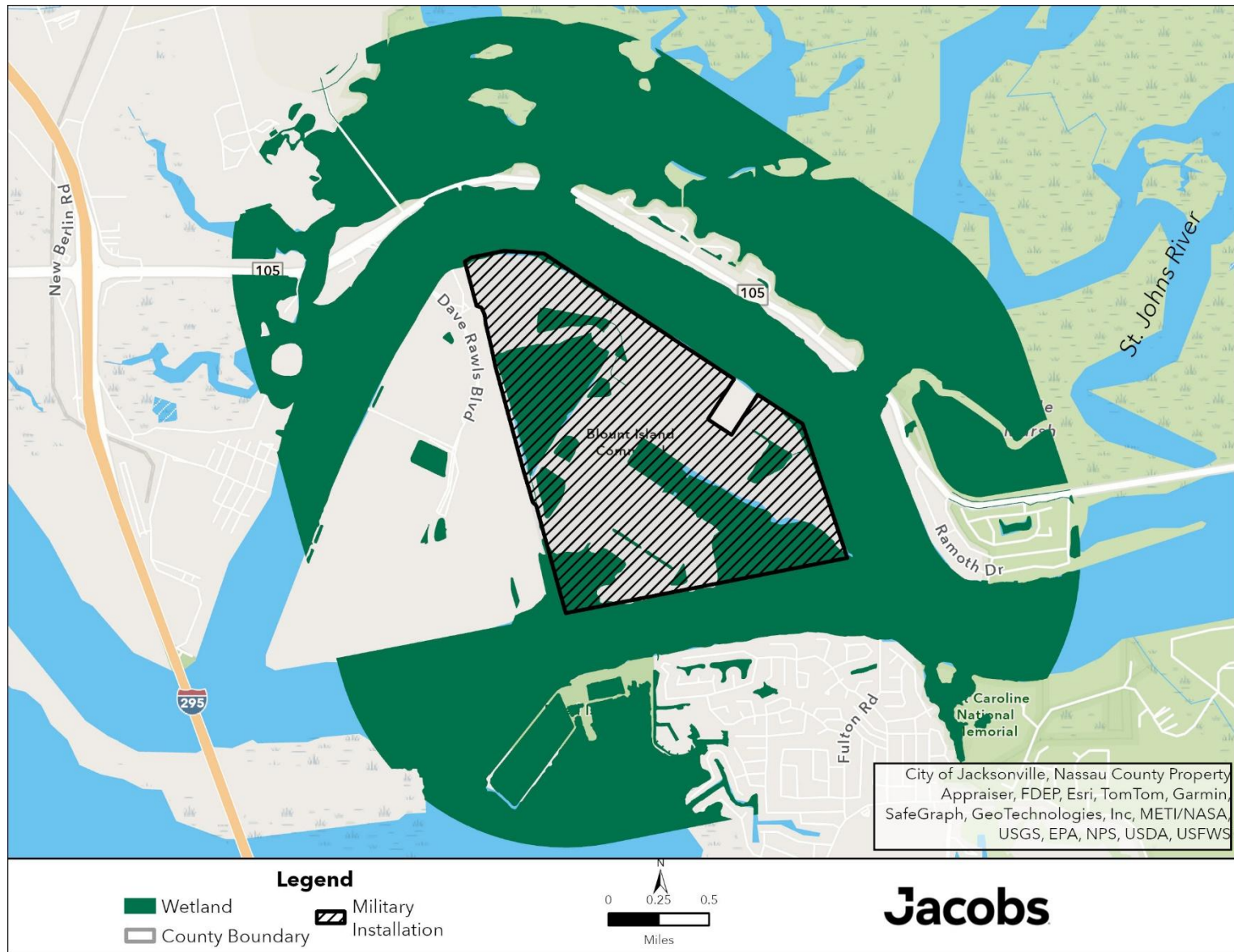


Figure D-3. Wetlands Around NAS Jacksonville

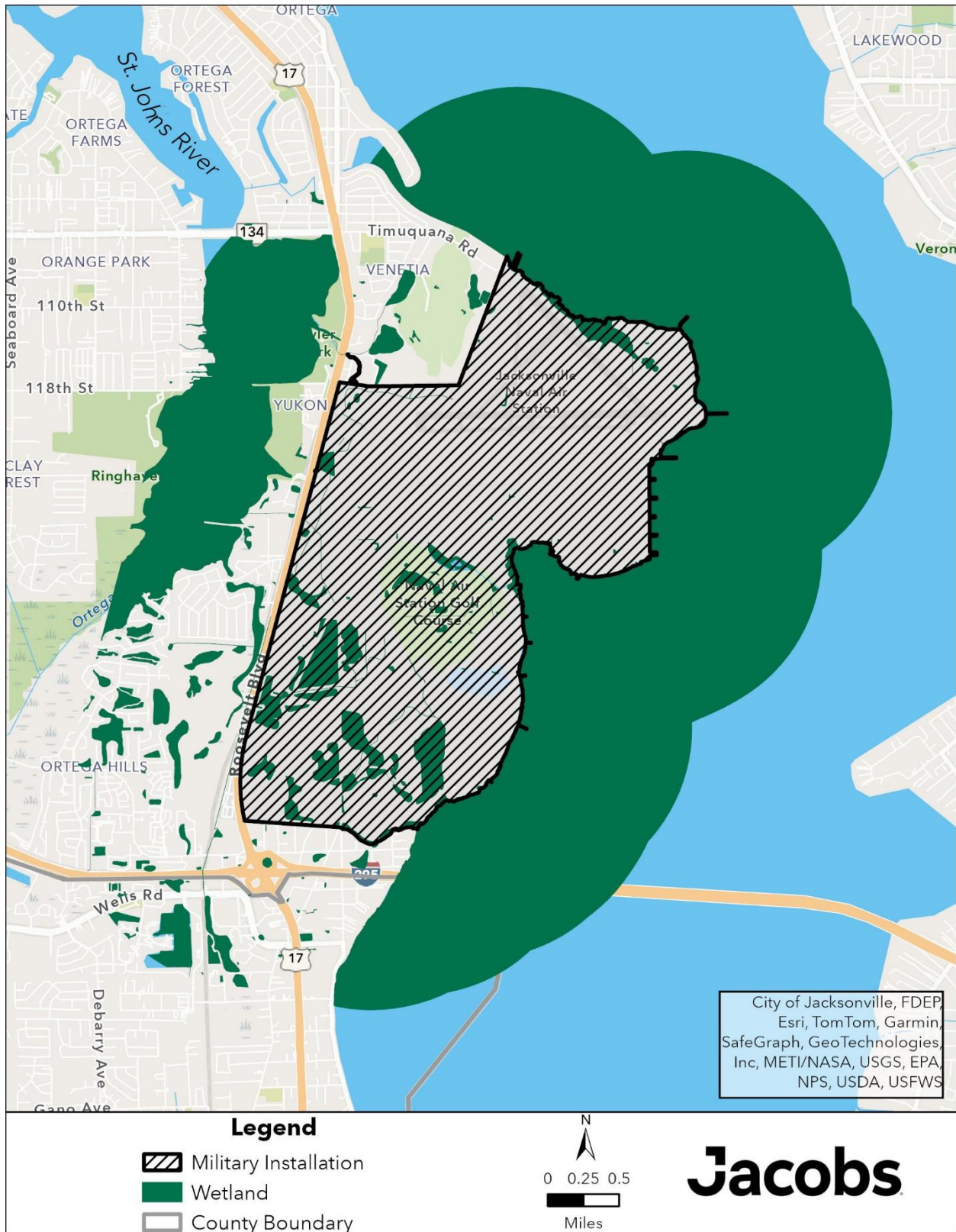


Figure D-4. Wetlands Around NS Mayport

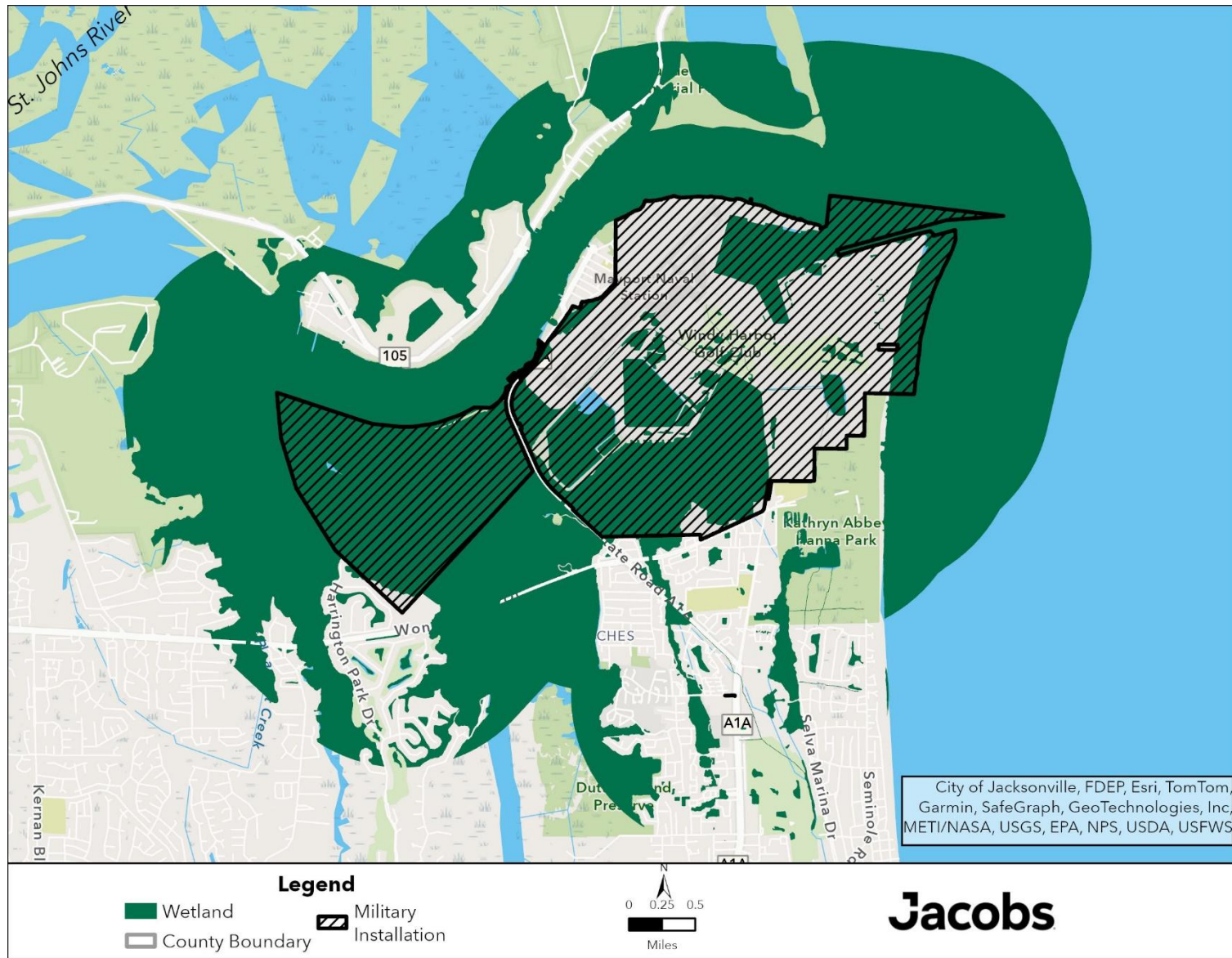


Figure D-5. Wetlands Around OLF Whitehouse

