

Marine Corps Support Facility Blount Island

Adaptation Package #4: Improving Electrical Utility System Resilience

This package includes three strategic projects that in combination improve utility resilience for MCSF Blount Island. It encompasses substation hardening, system upgrade, site improvement, and partnership recommendations that can be led by utility service providers and neighboring entities.



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The content herein reflects the views of the Northeast Florida Regional Council and does not necessarily reflect the views of the Office of Local Defense Community Cooperation or the Department of Defense.

How to Read this Document

Project Summary Packages provide details on recommendations, background, and context to facilitate and accelerate implementation. The summaries are presented by mission-critical priority assets in the study area. The recommendations may include physical projects, new partnerships, and modernized policies identified over the course of the project. Presented in three sections, **Background and Context, Recommendations, and Implementation Tools**, each summary package can be used to brief decision makers and to complete funding requests and/or grant applications.

The first section, **Background and Context**, situates the reader to the Military Installation Readiness Review (MIRR) project, the study area location, and the military installations. It includes the following subsections:

- **Mission of the Installation of the Package**, which reminds the reader of the installations' purpose and importance of readiness
- **Mission-Critical Priority Assets** for the installation as identified through stakeholder engagement and vulnerability assessment
- **Current Conditions** of the mission-critical asset of the package, which illustrate the issues in local context
- **MIRR Adaptation Strategy Framework**, which is aligned to the region's vision for a Resilient First Coast and is the foundation of this body of work

The second section, **Recommendations**, dives into the issues challenging the region and study area and presents recommendations in the form of investments through projects, policy modernization, and/or by forging new partnerships among diverse stakeholder groups. This section is informed by the vulnerability assessment findings, stakeholder insight on ongoing projects and priorities, and best practices research. Information on the following topics is included in this section:

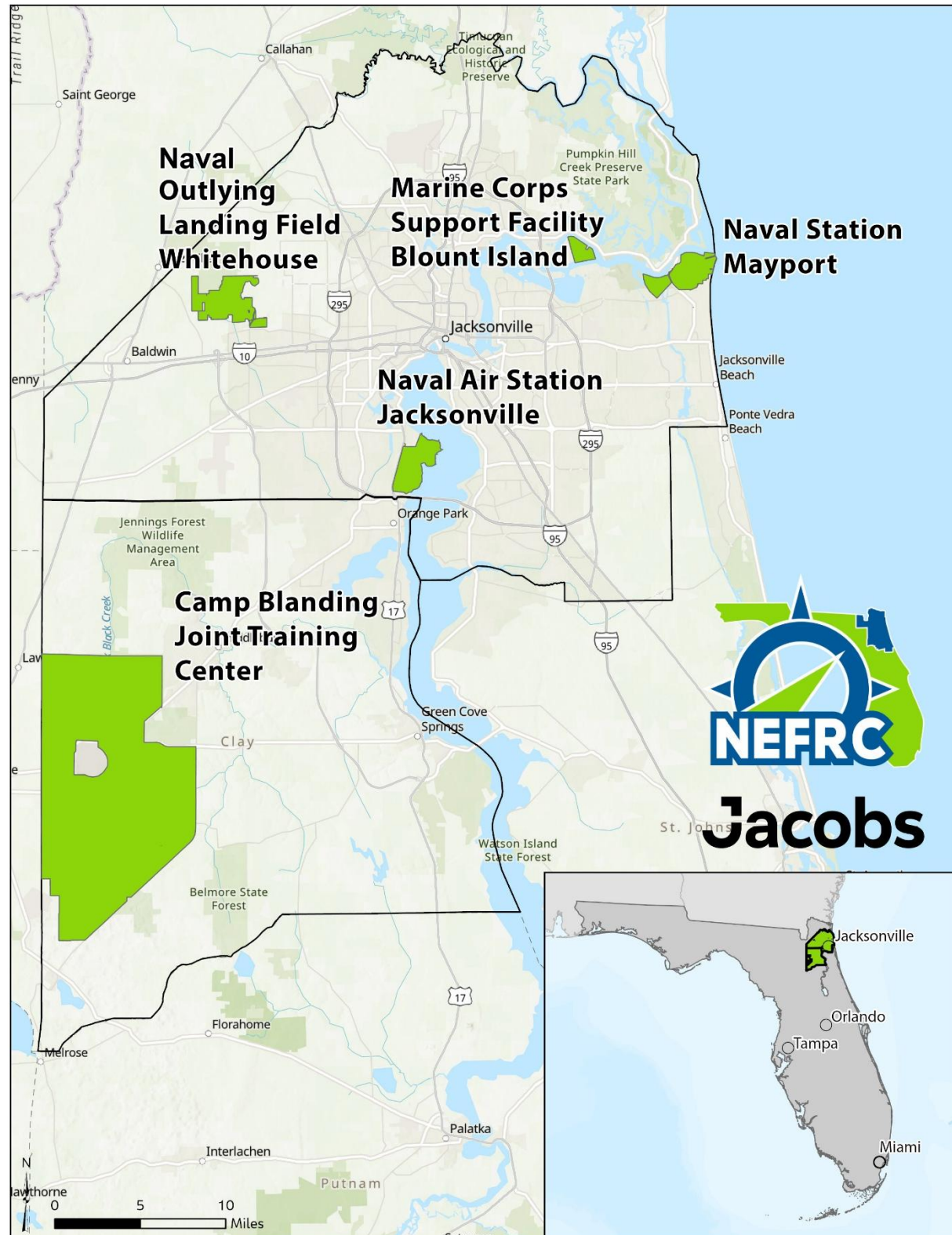
- **Shocks and Stresses** affecting the mission-critical asset
- **Project Objective**, which captures the adaptation goal for the following recommendations to support mission readiness through community resilience
- **Stakeholders and Current Efforts** highlighting successful foundational work upon which to build
- **Recommended Strategic Projects, Policies, and Partnerships**, including the owners and partners, vulnerability being addressed, co-benefits, foundational existing projects (as applicable), and timeline to comment implementation
- The **Metrics and Cost-Benefit Analysis** section, which illustrates how the recommendations were evaluated to determine appropriateness, viability, and achievement of project goals; this tool is available as new projects are identified by implementation partners

The final section, **Implementation Tools**, is provided as a resource to move from planning to action:

- **Financial Strategy Toolkit with Funding Opportunities**, which presents a matrix of opportunities and tools to finance and fund recommendations. Some recent grant opportunities are highlighted; however, given the changing conditions of federal sources and requirements, these should be viewed as initial suggestions for further review and applicability at the appropriate time.
- **References** are presented for user convenience.

Background and Content

Figure 1. Northeast Florida MIRR Study Area Map



In 2024, the Northeast Florida Regional Council (NEFRC) obtained a MIRR grant from the Department of Defense's Office of Local Defense Community Cooperation to identify and analyze the assets, hazards, and corresponding vulnerabilities and risks that affect the military installations in Duval and Clay counties. This study includes Camp Blanding Joint Training Facility, Marine Corps Support Facility (MCSF) Blount Island, Naval Station Mayport, and Naval Air Station Jacksonville (Figure 1). The goal is to increase the resilience and readiness of these installations from the impacts of extreme weather events, infrastructure challenges, and other vulnerabilities, thereby promoting mission assurance. The adaptation projects are structured into comprehensive summary packages, with each focused on a specific mission-critical asset or system.

MCSF Blount Island

MCSF Blount Island occupies more than 1,100 acres on Blount Island along the St. Johns River in Jacksonville, Florida, near the Atlantic Ocean. The installation is adjacent to the Jacksonville Port Authority's Blount Island Marine Terminal. The federal installation and port terminal are separate facilities, but they share regional dependencies, including roadway access, utilities, dredging, shoreline protection, emergency response and maritime transportation. Coordination among the Marine Corps, JAXPORT and regional partners helps preserve continuity for defense and commercial port operations. The installation combines deepwater maritime access with road and rail connections, waterfront infrastructure, maintenance and staging areas, and a specialized slipway supporting Maritime Prepositioning Force ship operations. These capabilities support equipment maintenance and staging, strategic mobility and distribution, connecting Northeast Florida's maritime and transportation network to a Marine Corps mission with global reach.

Mission

MCSF Blount Island and Blount Island Command are distinct organizations with complementary responsibilities.

MCSF Blount Island is the host installation under Marine Corps Installations East. It provides and sustains the facilities, utilities, security, installation services, workforce support and maritime access required for mission continuity. The installation is home to Blount Island Command.

Blount Island Command is an operational logistics command subordinate to Marine Corps Logistics Command. It generates, sustains, modernizes and distributes ready-for-issue, service-managed equipment and supplies across the Marine Corps' global positioning network. The network integrates prepositioning programs, sustainment nodes and distribution pathways, including equipment and supplies positioned afloat and ashore and contracted capabilities, so Marine, joint and combined forces can rapidly receive, integrate and employ combat capability.

At MCSF Blount Island, teams manage equipment throughout its lifecycle. They plan production, maintain accountability and asset visibility, coordinate maintenance and modernization, support ship offload and backload operations, and prepare equipment for distribution. During scheduled ship maintenance cycles and other production periods, equipment may be inspected, repaired, modernized, reconfigured and regenerated according to Marine Corps requirements. Together, the installation and command are more than a ship-loading point.

They form an integrated sustainment and industrial hub that converts infrastructure, technical expertise and strategic access into positioned combat capability.

The work is carried out by an integrated workforce of Marines, Sailors, federal civilians and defense contractors. Marine Corps Support Facility Blount Island has a reported population of approximately 1,600 people across the host installation, Blount Island Command and tenant organizations. That population includes nearly 700 service members, about 200 federal civilian employees and about 700 on-site contractors. Because the total includes hundreds of reservists, it does not represent a typical daily on-site count. The number of people present varies with reserve activity, ship offload and backload operations and other mission surges. Together, this workforce sustains the installation and enables Blount Island Command to generate, modernize, maintain accountability for and distribute ready-for-issue equipment and supplies across the global positioning network.

Blount Island is not merely a port facility; it is a production, sustainment, positioning, and strategic-distribution node. Loss of regional supporting infrastructure can therefore translate into delayed regeneration or movement of ready-for-issue equipment and reduced responsiveness of the Marine Corps' global positioning network.

Installation Interconnections

Marine Corps Support Facility Blount Island's most immediate interconnections are regional. Mission continuity depends on reliable access to the Atlantic Ocean through the St. Johns River; maintained shipping channels and waterfront infrastructure; road and rail transportation; utilities and communications; emergency response; and a skilled military, civilian and contractor workforce. The installation routinely coordinates with the city of Jacksonville, JAXPORT, state and local emergency management and public safety agencies, maritime and defense industries, educational institutions and other regional partners.

Naval Air Station Jacksonville, Naval Station Mayport and Camp Blanding are part of Northeast Florida's broader military and resilience network. These installations and organizations support regional planning, training, emergency preparedness, workforce development and a shared understanding of infrastructure risks. They are regional partners, not elements of Blount Island's command structure.

Blount Island also depends on upstream logistics nodes beyond Northeast Florida. Marine Corps Logistics Command, headquartered at Marine Corps Logistics Base Albany, Georgia, includes depot-level maintenance capabilities that rebuild, repair, modify and restore Marine Corps ground equipment. The Charleston, South Carolina, defense complex provides access to a broader joint transportation and munitions network supported by extensive roadway, rail and deepwater-port infrastructure. New equipment and supplies also enter the sustainment enterprise through Marine Corps acquisition and fielding processes, including Marine Corps Systems Command. Blount Island's mission depends on the movement of equipment and supplies over highways and rail lines and through upstream production, maintenance, storage and distribution nodes as well as through its maritime approaches. A disruption to an inland transportation corridor or an upstream logistics node can affect Blount Island operations even when the installation, St. Johns River and Atlantic approaches remain accessible.

These functional dependencies should not be confused with command relationships. Marine Corps Support Facility Blount Island operates under Marine Corps Installations East, while

Blount Island Command operates under Marine Corps Logistics Command. Their missions also require coordination with Headquarters Marine Corps, Military Sealift Command, Marine Corps Systems Command, supported Marine components and operating forces, the joint distribution enterprise, industry partners and allied or partner-nation organizations as directed. Those organizations may serve as logistics providers, lifecycle partners, customers or mission partners without falling within the installation's command structure.

Globally, Blount Island's strategic value is best understood through the Marine Corps' global positioning network rather than through a fixed list of overseas sites. The network combines Maritime Prepositioning Force ships, approved ashore programs such as the Marine Corps Prepositioning Program-Norway, contracted capabilities, sustainment nodes and distribution pathways across multiple theaters. Blount Island Command supports, but does not command, the ships, Marine expeditionary forces or overseas operating forces that receive and employ the equipment.

Marine Corps Support Facility Blount Island is therefore a strategic sustainment and mobility node within a much larger logistics network. It links Northeast Florida's maritime access, infrastructure, workforce and industrial capacity with inland maintenance, munitions and distribution networks and with global maritime and ashore positioning. Its resilience depends not only on the facility and its access to the St. Johns River, but also on the roads, railways, utilities, ports, production capacity and partner organizations that allow equipment and supplies to reach, move through and depart the installation. Together, those connections enable the Marine Corps to accelerate force closure, extend operational reach, respond to crises and sustain combat capability worldwide.

Identification of Priority Assets for MCSF Blount Island

Priorities for the installation were based on the direct assets and local services required to support the missions (Figure 2). Priority assets include the shorelines around the installation that protect it from wave action, the electrical and communication systems that support the installation's logistics activities, the roadways and railways that connect the installation to the broader region (including Hecksher Drive, I-295, Dave Rawls Boulevard, and Blount Island Boulevard), and JAXPORT.

Primary Mission Critical asset types for Maritime Prepositioning Force, Logistics & Sustainment, and Sealift Integration

- Location-Specific Positioning
 - Rivers (St. John's River)
 - Shorelines
- Assets Providing Direct Support
 - Electric Production and Supply Facilities
 - Roads and Bridges
 - Railway systems
 - Communications systems
 - Ports (JAXPORT)
 - Fire Stations
 - Tugboats and harbor pilots
 - Fuel Depot
 - Offsite dry dock facilities - The local dry dock facilities are private contracting companies
 - Natural Gas system

Secondary Mission Critical asset types for Joint Logistics Hub, Exercise & Deployment Support, and Vessel Maintenance

- Assets Providing Direct Support
 - Water systems
 - Wastewater systems

Mission Supportive for the livelihood and health of installation personnel, indirect support to primary and secondary missions.

- Personnel Support
 - Affordable Housing
 - Childcare Facilities
- Assets Providing Indirect Support
 - Solid and Hazardous Waste Facilities

Figure 2. Primary and Secondary Mission Critical Assets for MCSF Blount Island



This package addresses the specific shocks and stresses of the mission critical electrical assets for MCSF Blount Island.

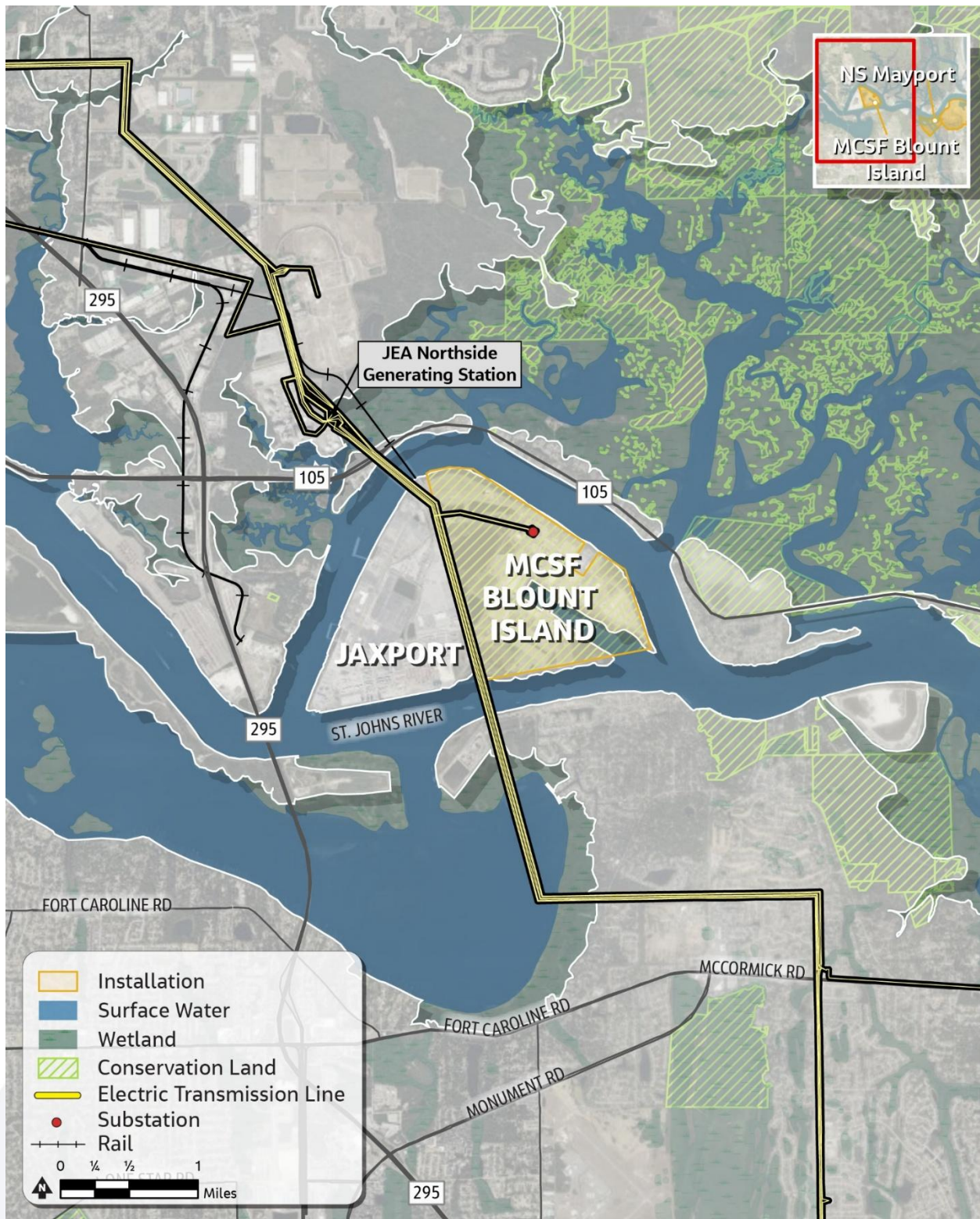
Current Conditions that affect the Electric System

Historically, the electric system serving MCSF Blount Island developed within the JEA grid as a centralized, fossil-fuel-based system (coal, oil, natural gas) with radial distribution focused on baseline reliability. Infrastructure was largely above ground and built to mid-20th-century standards, making it vulnerable to hurricanes, flooding, and outages. On-base supply depends almost entirely on off-base generation with limited localized backup.

Today, the system is more advanced, with stronger regional redundancy, modern grid controls, storm-hardened poles, selective undergrounding, and a cleaner generation mix that includes natural gas and some solar (Figure 3). However, MCSF Blount Island still relies on a relatively small number of substations and feeder lines to deliver power across a geographically constrained and low-lying site, leaving critical assets exposed to coastal flooding. Increasing hazard intensity—particularly stronger hurricanes, heavy precipitation events, and extreme heat—places additional strain on the system by elevating peak demand, accelerating equipment degradation in corrosive marine environments, and increasing the probability of weather-related outages.

In the future, these pressures are expected to intensify, compounding threats to aging infrastructure and low-lying assets. As a result, resilience efforts such as substation hardening, distributed energy resources (microgrids, storage), and heat- and flood-adapted design will be essential to maintain reliable operations under future climate conditions.

Figure 3. Electric Infrastructure Location Map



MIRR Adaptation Strategy Framework

The NEFRC envisions a resilient, prosperous, and inclusive region where communities work collaboratively across jurisdictional boundaries to strengthen economic vitality, safeguard natural and built systems, and enhance quality of life for current and future generations. In 2022, the Council launched **Resilient First Coast** to collaboratively address climate-related challenges across its seven member counties—Baker, Clay, Duval, Flagler, Nassau, Putnam, and St. Johns. This regional effort received strong support to develop a plan focused on addressing climate impacts and related threats to the region. Guided by this vision, the Regional Resilience Action Plan (RRAP) was published in 2025, providing a unifying framework that translates shared regional goals into coordinated action (NEFRC 2025).

The RRAP establishes a durable foundation for implementing this vision—enabling member governments and partners to prioritize investments, leverage funding opportunities, and advance solutions that build long-term resilience to environmental, economic, and social challenges across Northeast Florida. As such, the MIRR adaptation projects are built upon this framework to ensure alignment and promote successful implementation of the recommended strategies.

RRAP Goals and Objectives

Figure 4. Regional Resilience Action Plan Vision (NEFRC 2025)



Figure 5. Regional Structure for Resilience as Framework for the MIRR

Create a Durable and Adaptive Built Environment

- Minimize magnitude and cost of damage to infrastructure
- Improve development practices and policies
- Decrease utility service disruptions and recovery time
- Improve transportation and mobility

Develop a Thriving Regional Economy

- Improve education and employment opportunities
- Increase housing stability
- Enhance tourism and historic preservation
- Increase smart growth and development

Ensure a Vibrant Quality of Life

- Improve public health and wellness
- Enhance supply of food, energy, and other critical resources
- Increase public participation and engagement
- Minimize disparity

Promote a Healthy Natural Environment

- Reduce heat stress
- Increase biodiversity and ecological services
- Maximize quality of soil, air, and water
- Minimize erosion, flooding, and storm impacts

Connecting this Built Environment Asset to the Regional Economy, Natural Environment, and a Vibrant Quality of Life

This framework provides the structure for how assets were organized and evaluated. This resilience project is centered on assets in the Built Environment pillar, so the acknowledgments below indicate how it is connected to the Regional Economy, Natural Environment, and Quality of Life.

Figure 6. Connection of This Asset to the Community





Recommendations



Documenting Shocks and Stresses with a Vulnerability Assessment

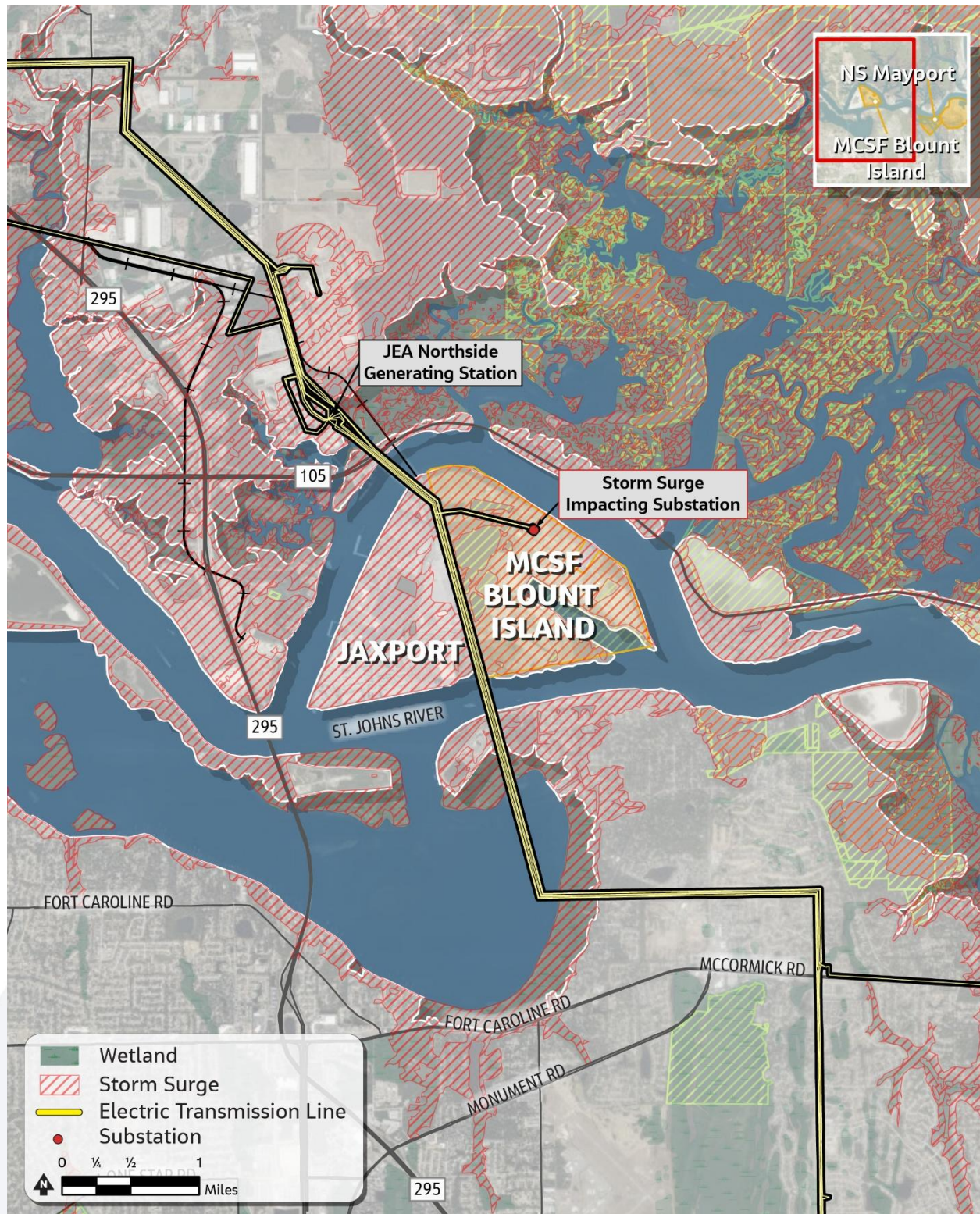
Shocks and stresses to the mission-critical assets supporting MCSF Blount Island include rainfall-induced flooding, coastal flooding from sea level rise (SLR) and storm surge, traffic congestion, lack of redundancy in transportation and utility system connection points, aging infrastructure of transportation assets, and erosion of shorelines of the island.

- 1. Installation electric and potable water systems lack redundancy and are exposed to coastal flooding.**
2. Heckscher Drive is a single point of access to the installation and experiences transportation congestion, pedestrian safety challenges, and exposure to SLR. Transportation congestion (traffic) is a significant issue on Heckscher Drive and Dave Rawls Boulevard, causing delays getting on and off base. They are the primary access roads for the installation.
3. JFRD Fire Station 48 provides emergency response services to MCSF Blount Island and the surrounding area. Marine-based response is significantly delayed due to the location of the fire boat dock on Heckscher Drive.
4. Aging infrastructure is a concern for the access bridges of Dave Rawls Boulevard and the railroad.
5. Shoreline erosion is occurring along the installation's perimeter, particularly in the Navy Point area.
6. Communications infrastructure lacks redundancy and has experienced outages due to construction activities in the area.
7. Freight transportation and logistics is supported primarily by rail, with opportunity for diversification in backup delivery logistics and options.

This project package addresses redundancy for improved electrical system resilience for the installation (Item1). Figure 6 shows the location of mission critical electrical infrastructure and its potential exposure to storm surge flooding.

Project Need: Reduce Flood Risks and Improve Infrastructure Capacity for Future Demand

Figure 7. Risk to Mission Map



Electrical Asset Vulnerabilities Creating Risk to Mission

The Northside Generating Station (Northside Gen) Substation and MCSF Blount Island Substation, operated by JEA, supply power to MCSF Blount Island, with Northside Gen serving as the primary feed and the MCSF Blount Island Substation being the hub that distributes power across the island.

Northside Gen Substation is located on higher ground and benefits from surrounding wetlands, managed by the Florida Department of Environmental Protection, that provide natural storm surge protection. The MCSF Blount Island Substation is vulnerable to storm surge and compound flooding from the St. Johns River and adjacent wetlands, posing risks to control buildings and access routes.

Together, these substations represent a single point of failure for the island's energy system, as there is no redundant power feed. An outage at either facility would result in a complete power outage on the island, impacting both the installation and JAXPORT operations (Table 1).

Table 1. Electrical Assets Summary

Asset Name	Owner	Location	Mission Criticality	Relevant Shocks & Stresses	Level of Urgency
Northside Generating Station Substation	JEA	North of the Blount Island	Primary	Storm Surge, Lack of Redundancy	Immediate
MCSF Blount Island Substation	JEA	Intersection of the Fairleads Blvd. and Gateco Blvd.	Primary	Storm Surge, Lack of Redundancy	Immediate

Stakeholders and Current Efforts

MCSF Blount Island is working with JEA, the City of Jacksonville, and regional and federal partners to strengthen resilience against storm surge, compound flooding, and power system disruptions affecting the MCSF Blount Island and Northside Gen substations, as well as the broader electrical grid. Key characteristics of the substations include:

- **System reliability and capacity:** The grid has experienced no significant outages and currently has adequate capacity to meet demand despite limited redundancy.
- **Backup power:** Diesel generators provide up to 5 days of fuel with the ability to replenish as needed.
- **Limited onsite generation:** Existing battery storage cannot support critical loads; microgrid solutions were previously evaluated but deemed cost-prohibitive.
- **Stakeholder coordination and priority service:** Close coordination with JAXPORT, a shared infrastructure user, and the area is a priority for JEA in emergency repairs and capital improvements.
- **Hardened transmission:** Overhead transmission lines from Northside Gen have been strengthened to withstand high winds.

- **Limited redundancy:** A distribution-level backfeed from Cemex Dames Point provides partial backup power capability.
- **Monitoring and maintenance:** Substations are integrated into JEA's centralized monitoring system and maintained through standard inspection programs.

Beyond its primary function of serving the installation, these substations and the grid system also present opportunities to strengthen broader energy resilience for JAXPORT, the region's largest seaport and key economic driver.

There are currently no major electrical capital improvement projects underway at the substations beyond routine monitoring, inspection, and asset management activities. However, shoreline stabilization and wetland enhancement projects are ongoing at the installation to help reduce flood and storm-surge risks. Additionally, both substations are included in key long-term resilience initiatives. JEA's Systemwide Electrical Resilience Plan prioritizes flood hardening, replacing aging and vulnerable assets, and upgrading system-wide design standards. In addition, the City of Jacksonville's Resilient Jacksonville Plan emphasizes the use of nature-based solutions, preservation of wetlands, and coordination with JEA to protect critical electrical infrastructure. Also, there is a process currently in the bid process to add dual fuel capability (diesel and natural gas) to the existing back up generators as well as five new generators.

Table 2 gives details on projects and efforts that are currently ongoing or have been identified as a need within the region as it relates to reducing flood risks and improving infrastructure capacity for future demand.

Table 2. Current Projects and Efforts as They Relate to MCSF Blount Island's Electrical System

Existing Project	Entity	Location	Purpose	Timeline
Shoreline improvements for Mission Resilience	MCSF Blount Island; NOAA	Shoreline along the St. Johns River	Seek regulatory approvals for NBS for shorelines and establish a framework for shoreline protection and reduce the impact from erosion and SLR	Ongoing, will be completed in 2027
Living Shoreline - Enhancement	USFWS	Nature based shoreline within and around the installation	Implement NBS at the remaining natural shoreline and protect the habitat.	Unknown
Strategic Shoreline Hardening	City of Jacksonville; Duval County; SJRWMD; USACE	Shoreline along the Atlantic Ocean and the St. Johns River within Duval County	Against flooding, SLR, chronic flooding, and protect infrastructure	Remain at the planning level
Substation Hardening	JEA	MCSF Blount Island and Northside Gen substations	Electrical system resilience	Completed study. Remain at the concept level

Existing Project	Entity	Location	Purpose	Timeline
P-035 Dual Fuel Generator Project	MCSF Blount Island; Department of Energy	MCSF Blount Island / Blount Island Command	Help MCSF become more resilient by adding generators and possibly solar systems and also would add redundancy by converting back up generators to dual fuel.	Ongoing
Powerline Raising Project	JAXPORT	Powerlines near Blount Island	Enhance navigation capacity	Completed study. Remain at the concept level

NBS = nature-based solutions

SLR = Sea Level Rise

NOAA = National Oceanic and Atmospheric Administration

SJRWMD = St. Johns River Water Management District

USFWS = U.S. Fish & Wildlife Service

Review of Strategic Partnerships and Policies

Current utility service arrangements reflect a clear division of responsibilities: JEA owns and operates primary electrical, water, and sewer infrastructure up to the meter, while MCSF Blount Island is responsible for secondary and branch systems within the installation. While this structure reduces the installation's operational burden for routine utility management, it also limits the installation's formal authority over resilience investments and system-level decisions affecting upstream infrastructure, including substations and primary distribution lines.

Recent coordination discussions with MCSF Blount Island personnel and JEA representatives highlight that the installation is currently served by a single JEA substation with no redundant backup, representing a significant vulnerability. Any disruption to this substation—whether due to equipment failure, storm impacts, or flooding—would affect the entire installation. This condition reinforces MIRR-identified concerns regarding single points of failure in mission-critical infrastructure systems.

In addition, meeting discussions and mutual support findings underscore that storm surge and flooding risks to the supporting electrical infrastructure, particularly the substation, are expected to worsen over time, increasing the urgency for coordinated resilience planning. These risks are compounded by broader infrastructure interdependencies, including drainage systems and access routes, which require cross-sector coordination between utilities, local government, and emergency management agencies.

Although no Intergovernmental Support Agreement (IGSA) or similar formal agreement currently exists to address electrical substation resilience or potable water system vulnerabilities, both the mutual support analysis and stakeholder discussions indicate that formalizing coordination mechanisms may be beneficial. Establishing such agreements could strengthen collaboration on capital planning, clarify roles in resilience investments, and support pursuit of state or federal funding for infrastructure improvements.

Ongoing coordination also includes operational communication related to outage response and restoration prioritization, with recognition of MCSF Blount Island's strategic importance to national defense logistics. JEA's responsibility for operations and maintenance (O&M) before the meter and the installation's responsibility after the meter provides a functional framework for day-to-day service; however, the arrangement highlights the need for enhanced coordination on upstream vulnerabilities that fall outside the installation's direct control.

In parallel, internal discussions at MCSF Blount Island have explored opportunities to improve communications infrastructure redundancy, including the potential to establish a secondary communications feed from Fernandina Beach, further reflecting MIRR priorities to reduce single points of failure across critical systems.

Overall, while existing partnerships effectively support routine operations and maintenance, both the MIRR mutual support assessment and stakeholder engagement indicate that future conditions—particularly increased flood risk and continued reliance on a single substation—may require more formalized coordination and targeted investment. Strengthening these partnerships through structured agreements, joint planning efforts, and aligned funding strategies will be essential to improving electrical redundancy, reducing risk exposure, and ensuring uninterrupted mission capability at MCSF Blount Island.

Adaptable Built Infrastructure Projects

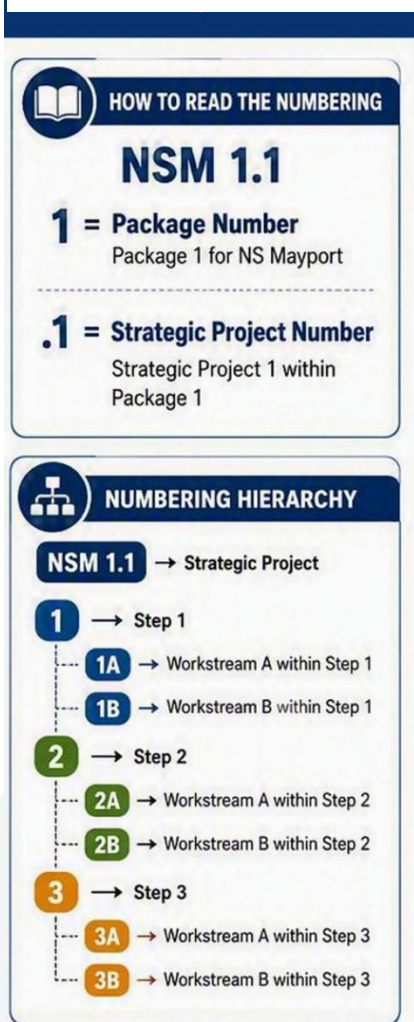
Figure 8. Adaptation Strategies Map



Strategies included in the adaptation plan have been organized by short, mid, and long-term timeframes for implementation. The strategy numbers in the maps correspond to the details provided in their respective sections, which outline a comprehensive approach to strengthening energy resilience and support long-term mission continuity. These strategies focus on enhancing existing system performance, reducing vulnerabilities, and advancing modern, flexible infrastructure solutions that can adapt to future demands and environmental conditions. Order-of-magnitude cost estimates will be provided in 2026 dollars to the extent possible, with up to 50% contingency unless otherwise noted.

Potential Project Leads and Partners are mentioned by organization in the following narratives. The intent is to identify the correct stakeholders that have agency, authority, and interest in the work that is being proposed. Being listed as a lead or partner provides the opportunity to collaborate, advise, and be involved in the adaptation efforts, but does not mandate participation. Funding and financing of projects are not indicated as the responsibility of the project lead or partners, and the monetary tools for obtaining such are in the Implementation section of this package.

Figure 9. Strategic Project Framework



The strategic projects are organized by installation, package, project, step, and actions. The 2-3 letter code indicates the installation. The first number indicates which package this project is in. The second number indicates the project number in the package.

Within each project, the timeline of activities is indicated through the steps (Step 1, Short-term, etc.), and the order of activities is narrated in the sub-steps (1A, 1B, etc.). Through this organization, each strategic project illustrates its project number, timeline, and actions in the narrative.

Strategic Project BI 4.1. Interagency Utility Coordination Advancement

This project establishes a coordinated operational framework to enhance utility service delivery, response times, and system resilience between JEA and MCSF Blount Island. The initiative is designed to address potential fragmentation inherent in the current multi-node relationship between JEA, Naval Facilities Engineering Systems Command (NAVFAC), MCSF Blount Island Public Works Department (PWD), and supporting contractors. While existing utility contracts effectively deliver service to the installation boundary, there may be opportunities to further enhance coordination, communication, and role clarity across organizational interfaces.

The installation operates as a city-scale utility environment with complex and evolving energy demands, requiring a high degree of reliability and responsiveness. Given the distributed nature of responsibilities across multiple organizations, there is an opportunity to further align processes related to escalation pathways, incident response coordination, and shared operational awareness between grid operators and on-base utility managers. Strengthening these areas can help support operational continuity, particularly during peak demand events, infrastructure maintenance activities, or mission-driven load fluctuations.

The installation lacks a fully independent, full-capacity external supply pathway. The Marine Corps has programmed a \$30.5 million energy-resilience investment at MCSF Blount Island through Project P-035. The project includes approximately 1 MW of solar photovoltaic generation, 1.125 MW of battery energy storage, 4 MW of new standby generation, conversion of approximately 1.5 MW of existing backup generation to dual-fuel capability, electrical-distribution improvements, advanced metering, cybersecurity and Risk Management Framework work, and commissioning. The project addresses the potential for outages to delay equipment production supporting the Maritime Prepositioning Force and growing Global Positioning Network mission. MIRR recommendations should therefore evaluate the residual mission-assurance gap after P-035 implementation rather than treating current backup generation and microgrid potential as a static baseline.

This project offers targeted operational, governance, data-sharing, and infrastructure coordination strategies intended to improve alignment across stakeholders, enhance responsiveness, and support long-term resilience planning if they are not already in place. The recommendations are meant to build upon existing contractual frameworks and organizational roles, focusing on coordination enhancements and operational integration rather than structural changes.

Current Stakeholder Projects

- FY2026 DoD Energy Resilience and Conservation Investment Program Project P-035, Power Generation and Electrical Infrastructure Resilience

Potential Project Leads and Partners

- MCSF Blount Island PWD
- Naval Facilities Engineering Systems Command (NAVFAC)
- JEA
- Defense Logistics Agency (DLA Energy – Supporting Role)
- Base Operations and Supporting Utility Contractors

Estimated Cost

To be determined by owner

Step 1: Coordinated Operational Integration Planning (Short-term)

1A. Establish Primary Integration Leads

- Confirm the primary integration leads are the account manager at JEA and MCSF Blount Island's Facility Support Branch personnel to serve as the central coordination point for utility-related requests, incidents, and planning activities. Assign responsibility for intake management, internal routing across engineering and operations teams, and tracking of service response performance metrics. Create a consistent "single front door" for issue resolution to improve coordination efficiency and clarity of ownership.

1B. Define or Update Scenario-Based Responsibility Matrix

- Partners can develop and formalize a shared responsibility matrix that outlines roles across common operational scenarios, including off-base outages, feeder issues, on-base distribution events, and infrastructure planning activities. Integrate the matrix into standard operating procedures and coordination protocols.

1C. Implement Joint Utility Operations Communication Cadence

- Partners can establish recurring coordination meetings at tactical (biweekly), operational (monthly), and strategic (quarterly) levels. Use these forums to coordinate maintenance activities, review system performance, and align upcoming infrastructure needs and risks. Utilize a Disaster Preparedness Checklist and include maintenance efforts for awareness. Incorporate discussion of storm readiness, outage response coordination, and resource planning into regular engagement cycles.

1D. Enhance Storm Forecasting and Pre-Staging Coordination

- Partners can strengthen coordination protocols with JEA to support advance planning for severe weather events, including joint review of storm forecasts and system vulnerability assessments. Establish pre-staging strategies for crews, equipment, and response resources to improve restoration timelines following potential service disruptions. Align communication protocols to ensure timely notification and coordinated action before, during, and after storm events.

Step 2: Data Visibility, Response Optimization, and System Flexibility Tool Utilization (Mid-term)

2A. Incorporate Data-Driven and Predictive Decision-Making Tools

- Partners can explore the use of secure predictive condition monitoring and asset-management analytics, including AI-enabled tools where appropriate, to forecast demand fluctuations, infrastructure stress points, and potential failure scenarios. Enable proactive operational adjustments, including load-management strategies and maintenance prioritization, based on data-driven insights. Support long-term planning through improved modeling of mission-driven energy demand and infrastructure-performance trends.

2B. Establish Predefined Escalation Framework

- Partners can develop and document a tiered escalation protocol with defined triggers, timelines, and designated points of contact across operational, management, and leadership levels. Ensure alignment between JEA and MCSF Blount Island teams to enable efficient escalation during extended outages or high-impact events. Provide clarity and consistency in response procedures while maintaining flexibility for varying incident conditions.
- Continue any ongoing investments in sectionalizing switches, isolation devices, or similar infrastructure upstream of the installation to limit the impact of localized faults. Enable the ability to isolate affected segments of the feeder without interrupting service to the entire installation where feasible.

Step 3: Long-Term Resilience and Partnership Planning (Long-term)

3A. Develop Joint Utility Resilience Plan

- Collaboratively identify opportunities to enhance resilience through redundant feeder configurations, backup energy integration, and potential microgrid capabilities. Align planning efforts to support continuity of operations during grid disruptions, extreme weather events, or infrastructure failures. Establish a shared roadmap for future infrastructure investments and system upgrades.
- Align planning efforts to support continuity of operations during grid disruptions, extreme weather events, or infrastructure failures. Establish a shared roadmap for future infrastructure investments and system upgrades that builds upon P-035 and addresses any residual mission-assurance gaps remaining after its implementation.

3B. Implement Embedded Liaison Coordination Model

- Facilitate periodic engagement between JEA engineering teams and MCSF Blount Island PWD personnel to support ongoing coordination and planning alignment. Encourage participation in planning discussions, infrastructure projects, and operational reviews to improve cross-organizational understanding.

Strategic Project BI 4.2. Substation Hardening and Flood Resilience Enhancement

This project strengthens the resilience of the Blount Island Substation (MCSF Blount Island) and its upstream dependency at JEA Northside Generation Station (Jacksonville, FL) against storm surge, extreme rainfall, tidal flooding, and high-wind events. The effort focuses on hardening critical electrical infrastructure, improving flood management systems, and enhancing fault detection and recovery capabilities. JEA serves as the lead for tracking and implementing flood and wind hardening of critical equipment at both locations, with a specific emphasis on prioritizing upgrades to aging infrastructure.

Current Stakeholder Projects

- FY2026 DoD ERCIP Project P-035, Power Generation and Electrical Infrastructure Resilience

Potential Project Leads and Partners

- JEA
- Naval Facilities Engineering Systems Command (NAVFAC)
- MCSF Blount Island

Estimated Cost

To be determined by owner

Step 1: Critical Infrastructure Hardening (Short-term)

1A. Harden and Floodproof Critical Substation Infrastructure

- JEA can implement elevation and floodproofing measures for transformers, switchgear, and control systems at the Blount Island Substation and Northside Generation Station, raising equipment above projected flood elevations and installing waterproof enclosures and perimeter flood barriers to reduce storm surge and saltwater intrusion. Prioritizing replacement and reinforcement of aging infrastructure as part of a hardening program reduces risk of failure during extreme weather events while improving overall system reliability. NAVFAC and MCSF Blount Island PWD can coordinate site-specific execution and ensure compatibility with installation infrastructure and mission requirements. Until hardening is in place, continued use of mobile substations can be used during emergencies.
- These improvements should be evaluated as measures that reduce the vulnerability of the existing supply pathway, rather than as substitutes for a fully independent, full-capacity external supply pathway or the on-site resilience capabilities programmed under P-035.

1B. Protect Control and Communication Systems

- JEA can reinforce redundant communication pathways between Northside Generation Station and Blount Island Substation, ensuring persistent monitoring and control capability during disruptions. NAVFAC and MCSF Blount Island PWD should consider hardening and/or

relocating SCADA systems, protection relays, and control panels within the Blount Island Substation control facilities to maintain operational continuity during flood events.

Step 2: Smart Flood Management and Active Drainage Systems (Mid-term)

2A. Enhance Stormwater and Flood Management

- MCSF Blount Island PWD can upgrade drainage infrastructure within the Blount Island Substation footprint and adjacent low-lying areas, including regrading, expanded conveyance capacity, and improved drainage pathways to reduce standing water and mitigate compound flooding from storm surge, rainfall, and tidal influences. MCSF Blount Island PWD installs backflow prevention systems at installations stormwater outfall structures, preventing reverse flow during surge events and reducing inundation risk to critical electrical infrastructure.

2B. Smart Drainage and Active Flood Control

- MCSF Blount Island PWD can deploy automated pump systems and water-level sensors within the substation yard to actively remove floodwaters during storm events. JEA integrates intelligent drainage controls and monitoring capabilities into broader utility system visibility platforms, enabling real-time awareness and coordinated response. MCSF Blount Island PWD operates and maintains these systems to ensure continuous readiness and performance during high-risk conditions.

Step 3: Fault Detection, Recovery, and Predictive Resilience (Long-term)

3.1 Strengthen Recovery and Emergency Power Capability (Fault Detection)

- JEA deploys advanced fault detection, automated switching, and system segmentation technologies across the Blount Island Substation and its grid interface, enabling rapid identification, isolation, and restoration of outages following storm events. JEA and MCSF Blount Island PWD coordinate restoration priorities and pre-stage spare components, particularly for aging or high-risk assets identified through JEA tracking efforts. JEA and MCSF Blount Island PWD align recovery protocols across Northside Generation Station and Blount Island Substation to accelerate service restoration.

3.2 AI-Driven Predictive Analytics

- JEA implements AI-driven predictive analytics platforms across Northside Generation Station and Blount Island Substation, using real-time sensor data, historical flood patterns, and asset condition data to forecast equipment failure risks and inform proactive maintenance and upgrade decisions. JEA integrates centralized dashboards for shared situational awareness, incorporating weather forecasts, tidal conditions, drainage performance, and system health data. All stakeholders leverage these tools to support pre-storm planning, operational adjustments, and coordinated emergency response.

Strategic Project BI 4.3. Island-Wide Energy Contingency Planning and Emergency Preparedness

This project provides the foundation for upgrading contingency planning for energy demand through a coordinated planning process. The goal is to realize a fully integrated, island-wide energy contingency framework that combines technology, operations, and governance to ensure reliable power delivery and rapid recovery for one of the region's most critical logistics and port environments.

MCSF Blount Island is an energy-dependent hub, running multiple complex operations 24 hours a day, 7 days a week. Through partnership with JAXPORT, JEA, and MCSF Blount Island, an operational contingency plan can reduce risk to mission readiness.

Current Stakeholder Projects

N/A

Potential Project Leads and Partners

- MCSF Blount Island PWD
- Jacksonville Port Authority (JAXPORT)
- JEA

Estimated Cost

To be determined by owner

Step 1: Integrated Contingency Plan Development (Short-term)

JAXPORT, with JEA and MCSF Blount Island PWD can develop an integrated, island-wide Energy Contingency Plan. The plan should include the following components, as well as a Supervisory Control and Data Acquisition (SCADA) system if desired. The items below can be useful components of the plan.

Automated Load Shedding and Critical Load Prioritization

Develop a coordinated load management strategy that defines critical, essential, and non-essential loads across the island. Automated load shedding systems are implemented to rapidly reduce demand during grid instability or emergency conditions, ensuring that mission-critical operations remain operational.

Real-Time Monitoring and System Visibility

Provide for integrated monitoring platforms that provide real-time visibility into electrical system performance across both Blount Island Marine Corps assets and JAXPORT facilities. These systems enable operators to track load conditions, identify anomalies, and make informed decisions during evolving events. Coordinated dashboards should be considered to communicate situational awareness and coordinate responses.

Advanced Fault Detection and Coordinated Protocols

Protocols for fault detection should be studied, and advance technologies considered for improving efficiency in response. Planning exercises should include multiple scenarios and showcase a range of proven tools that provide fault isolation, rapid identification, and rerouting/activation actions.

Emergency Response Protocols

JEA, JAXPORT, and MCSF Blount Island PWD establish unified emergency response procedures that define roles, responsibilities, escalation pathways, and communication protocols during power disruptions. These protocols ensure seamless coordination between utility operators, port authorities, and installation managers before, during, and after events. Predefined response actions for system shutdowns, load transfers, and restoration prioritization enable faster, organized incident management.

Alignment and Support of the Regional Resilience Action Plan

Figure 9. Alignment with the RRAP

SCALE	ACTION	DESCRIPTION
	5	Promote the conservation and restoration of ecologically significant natural ecosystems
	6	Support resilient utilities
	13	Facilitate partnerships to advance resilience work
	16	Identify adaptation options for critical infrastructure to enhance resilience
	17	Support shoreline stabilization of natural and modified shorelines
	23	Recommend innovative emergency preparedness practices and processes
	32	Inventory critical and significant assets

 Facilitate
  Guide
  Analyze

This project advances RRAP Actions 5, 6, 13, 16 17, 23, and 32 by addressing a mission-critical electrical system that currently depends on a limited number of substations and feeder pathways serving a low-lying, surge-exposed site. Strategic Project BI 4.2 implements elevation and floodproofing of transformers, switchgear, and control systems at the Blount Island and Northside Generation Station substations, together with waterproof enclosures, perimeter flood barriers, and hardening of SCADA and protection relay systems. These measures directly implement Action 16 (Identify Adaptation Options for Critical Infrastructure to Enhance Resilience), and, specifically, Subaction 16.1, which calls for elevating critical equipment, implementing flood barriers and waterproofing, and applying cost-benefit and life-cycle analysis to identify durable protective measures for regionally significant assets. The prioritized replacement of aging infrastructure within JEA's hardening program further supports the RRAP goal to create a durable and adaptive built environment by minimizing the magnitude and cost of damage to infrastructure.

The project's utility-focused recommendations advance Action 6 (Support Resilient Utilities) across all three of its subactions. The evaluation of redundant feeder configurations, backup energy integration, and potential microgrid capability under Strategic Project BI 4.1, Step 3A

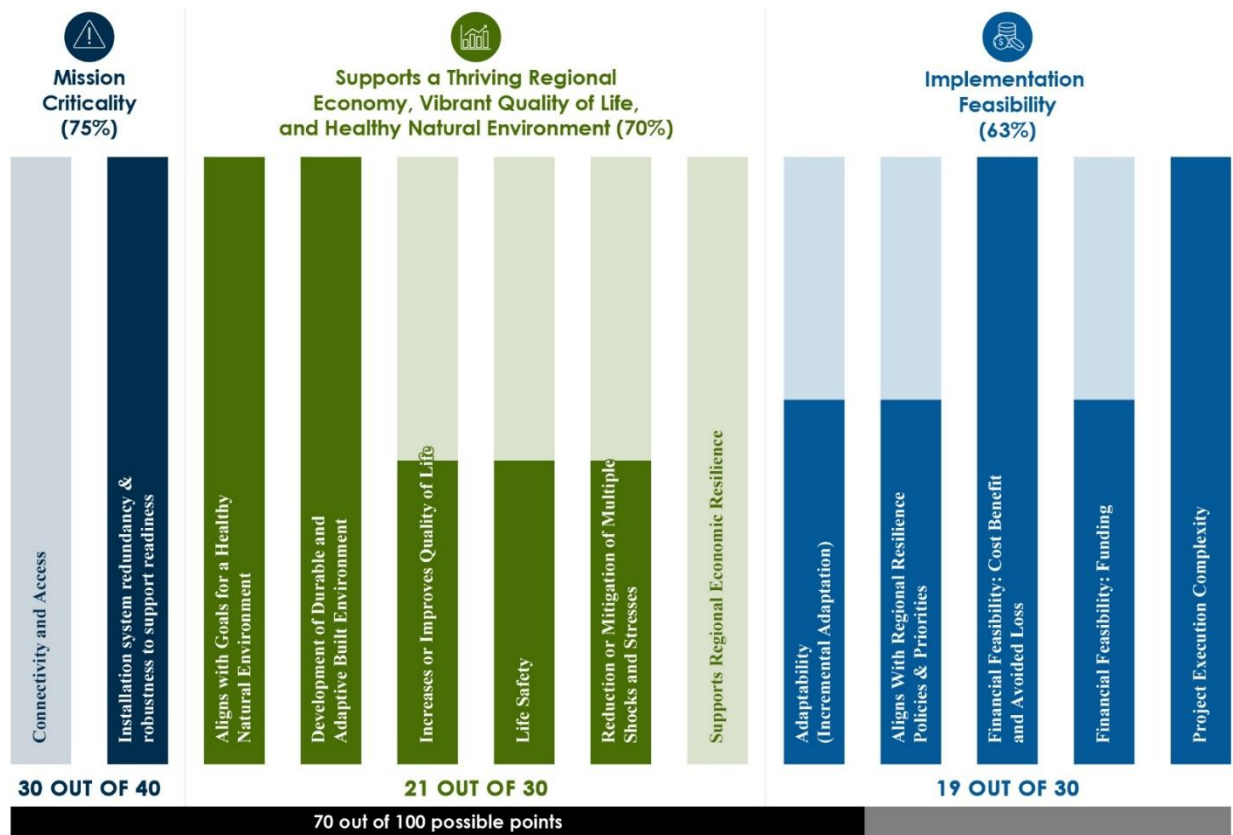
responds to Subaction 6.1, which encourages diversification of the energy grid and specifically promotes microgrids for critical infrastructure. The joint operations communication cadence, scenario-based responsibility matrix, and embedded liaison coordination model between JEA, NAVFAC, and MCSF Blount Island PWD reflect Subaction 6.2, which directs the Collaborative to facilitate collaboration between utility providers and local governments on lessons learned and service provision during disturbances. The use of predictive analytics to forecast demand fluctuation and infrastructure stress, coupled with capacity planning for a 24/7 logistics environment, supports Subaction 6.3 on capacity improvements to accommodate continued growth. The recommendation to formalize coordination through an Intergovernmental Support Agreement or comparable instrument implements Action 13 (Facilitate Partnerships to Advance Resilience Work), and, in particular, Subaction 13.3, which calls for intergovernmental partnerships with state and federal agencies, including the military, to increase regional readiness, the subaction under which the RRAP explicitly recognizes the Council's MIRR process.

Strategic Project BI 4.3 establishes an island-wide Energy Contingency Plan with defined load prioritization, unified emergency response protocols, escalation pathways, and coordinated situational awareness across JEA, JAXPORT, and MCSF Blount Island. This aligns with Action 23 (Recommend Innovative Emergency Preparedness Practices and Processes), specifically, Subactions 23.3 and 23.4 on advanced training and coordinated guidance for emergency managers across the region. The project's supporting elements extend alignment into the Natural Environment pillar. Drainage improvements and backflow prevention at waterfront outfalls advance Subaction 14.6 on stormwater management to reduce flooding and improve water quality, while the ongoing living shoreline and wetland enhancement work protecting the Northside Generation Station approach supports Subactions 5.1 and 17.2 on wetland conservation and nature-based shoreline stabilization. Documentation of these assets and their exposure contributes to Subaction 32.2, under which the Collaborative maintains the regional inventory of critical and significant assets built on the geodatabase NEFRC developed through the FDEP Regional Resilience Entity grant. Together, these measures reduce outage risk to JAXPORT and installation operations, protect regional economic activity, and demonstrate the coordinated, multi-partner implementation model the RRAP is designed to enable.

Metrics Score

The MCSF Blount Island Resilient Electric Utility System project was evaluated against a robust series of metrics to determine the appropriateness, viability, and achievement of goals (Figure 8). The metric categories are given a percentage weight to indicate the comparative importance for the MIRR, with Mission Criticality being the highest. High and mid-range scores across all metric categories indicate that implementing the strategies and policy recommendations within this project will promote mission assurance for the installation.

Figure 10. Metrics Scorecard Results



Cost-Benefit Analysis

Benefit-cost analysis (BCA) determines the cost-effectiveness of adaptation projects. This effectiveness is calculated using the equation

$$\frac{B}{C} = \text{Value}$$

Where B is the benefit, or avoided costs, of the project and C is the cost to implement the project. A benefit-cost value greater than 1 indicates that a project is cost-effective (i.e., the benefits of the project outweigh the costs incurred in implementing it), whereas a BC value less than 1 indicates the project may not be cost effective (i.e., the costs exceed the benefits).

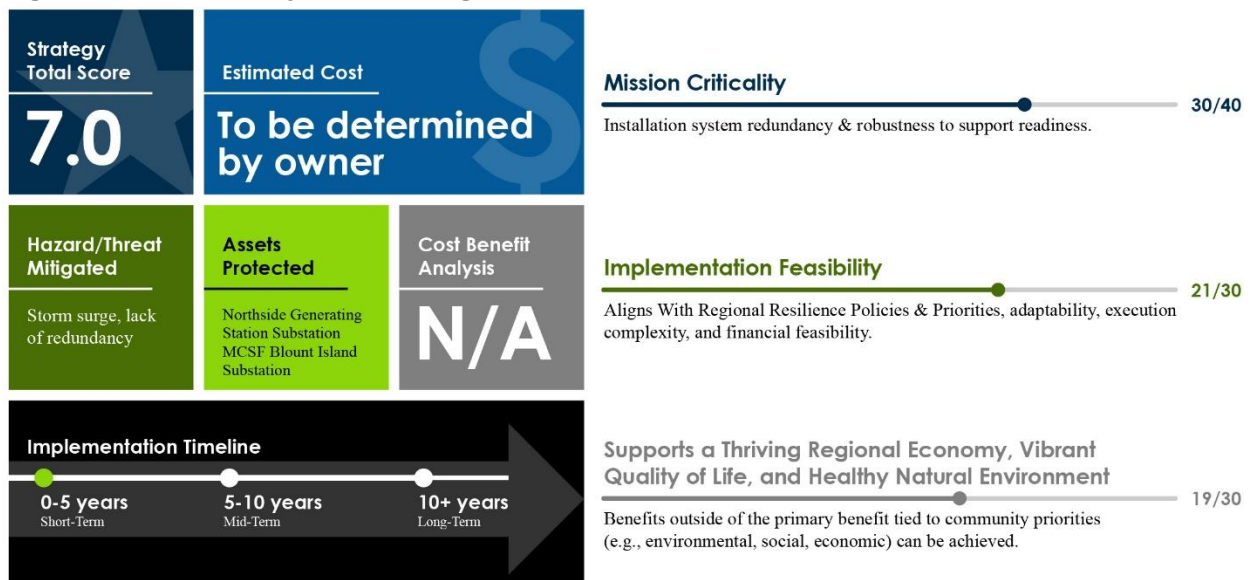
Adaptation project costs were costed to include project construction and design costs, where feasible. Project benefits were costed to include direct (construction or repair costs) and indirect (social, economic, and environmental) costs whenever feasible.

Data sources for benefit values include the Federal Emergency Management Agency, the National Institute of Standards and Technology, the National Interagency Fire Center, and others.

In many cases, associated financial savings data (such as improved installation operations, improved quality of life for installation personnel, or asset-specific O&M costs) was unknown; in these cases, the benefit is described. Hence, BCA values may not reflect the total possible benefit of the proposed adaptation project.

Total Project Package Snapshot

Figure 11. Total Project Package Snapshot





Implementation Tools



Financial Strategy Toolkit

More information on financial strategy building can be found in Technical Memo 10: Implementation Strategy and Investment Pathways.

Many of the tools required to fund, finance, and coordinate resilience implementation are already available under current Florida law or institutional precedent. The challenge, then, is aligning, adapting, and scaling existing tools to support coordinated regional resilience investment strategies. Thus, this section provides an initial inventory of funding, financing, and institutional tools that can be used to support the implementation of the MIRR project portfolio and the broader resilience system envisioned above.

Coordinate with JEA and Clay Electric on Regional Resilience Priorities

The region's utilities own most of the off-base grid, so coordinated planning and advocacy are the primary near-term levers. The proposed off-base substation near Camp Blanding is the clearest dual-benefit example, serving both the installation and the surrounding community. This effort can serve as a model for how utility investment and installation resilience can align. Near-term steps include:

- Convening the installations, JEA, and Clay Electric to identify shared priorities such as substation hardening and relocation, feeder redundancy, and outage-response improvements.
- Aligning installation and community resilience planning with the utilities' investment cycles and rate cases so regional needs are reflected in grid modernization plans.
- Advancing the off-base Camp Blanding substation as a co-investment that delivers mission and community benefit together.

Access Grid Resilience and Modernization Funding

Federal grid programs are structured to reach utilities like JEA and Clay Electric, either by formula through the state or through competitive rounds. Near-term steps include:

- Coordinating with the state energy office and the Florida Department of Emergency Management on the DOE Grid Resilience State and Tribal Formula Grants (IIJA §40101(d)), which pass through to electric utilities, including municipal utilities such as JEA and cooperatives such as Clay Electric, for hardening, undergrounding, and other resilience measures.
- Positioning larger transmission and reconductoring needs for DOE's competitive grid program (SPARK, formerly GRIP), which funds grid hardening, microgrids, and storage.

Note: The DOE competitive grid program's current round is likely the final one under IIJA, with concept papers and applications due in Spring of 2026, and formula grant allocations run through FY2026. Funding past FY2026 will depend on future congressional allocations.

Use the Defense Community Infrastructure Program (DCIP) for Dual-Benefit Utility Projects

The Defense Community Infrastructure Program (DCIP), administered by the DoD Office of Local Defense Community Cooperation, is a competitive grant program for community infrastructure that supports a nearby installation, and it can fund off-base water, wastewater, electric, and other utility projects. It is open to state and local governments and to member-owned utilities, which makes it a strong fit for dual-benefit projects such as the off-base Camp Blanding substation and community-serving upgrades tied to the installations. REPI can also support installation-resilience elements where energy and encroachment protection overlap. Near-term work is to identify which utility projects meet DCIP's installation-support criteria and prepare competitive applications around reliability and mission continuity.

Incorporate Energy Resilience into Public Facility and Infrastructure Upgrades

Many public facilities that provide lifeline services, including emergency operations centers and water treatment plants, lack sufficient backup power or redundancy. A cost-effective way to add resilience to existing facilities is during already planned upgrades. Near-term actions can include screening critical facilities for backup power, solar-plus-storage, or microgrid opportunities, aligning capital improvement planning with resilience co-benefits such as operational continuity and reduced recovery time, and prioritizing facilities that serve high-risk populations or mission-critical functions. Early-stage grant funding can pilot these systems before they are financed at scale through longer-term tools.

Resilient Utilities Longer-term Implementation

Utility resilience priorities should be matched to the funding or capital process most likely to deliver them. For utility-owned assets, this means determining whether the project belongs in the utility's capital program or needs another funding path based on the risk addressed, the function served, and the project's likely scope, cost, timing, and operation.

Installation-side and federally linked assets require separate considerations. Fuel infrastructure, on-base utility systems, and other projects tied directly to continuity of operations inside the fenceline should be distinguished from community utility investments, even where the systems are connected. These projects may require federal action, utility coordination, service-agreement changes, local cost-share, or a defense-community funding strategy.

The strongest candidates will be projects that connect mission assurance with community continuity and can be translated into a clear path to delivery.

Implementation Funding

Table 3. Energy and Utility Resilience Funding Options

Agency/Org	Program	Description	Available Funding	General Eligibility	Example Eligible Projects	Timeline
US DOE	Speed to Power through Accelerated Reconductoring and other Key Advanced Transmission Technology Upgrades (SPARK) (formerly known as GRIP)	Supports efforts to modernize the electric grid, including reconductoring with advanced conductors, Advanced Transmission Technologies (ATTs) that can increase the usable capacity of existing assets in real time, and large-scale, cross-regional transmission upgrades and coordinated planning.	\$10.5 billion total (IIJA, FY2022-26); >\$6B awarded across Rounds 1-2. Round 3 = 'SPARK' (Speed to Power / advanced transmission), up to \$1.9B.	State and local governments, tribes and territories, utilities (including publicly owned and cooperative), grid operators, and partnerships among these entities.	Undergrounding of power lines, microgrids and energy storage for resilience, weatherization and automation of grid components, smart grid sensors and cybersecurity systems	Round 3 (SPARK) concept papers due April 2, 2026; full applications due May 20, 2026. Likely the final IIJA round — authorization expires FY2026.
US DOE	Grid Resilience State and Tribal Formula Grants (IIJA §40101(d))	Non-competitive formula grants to states and tribes to prevent outages and enhance the resilience of the electric grid against wildfires, extreme weather, and natural disasters. States sub-grant funds to electric utilities and other eligible entities.	Up to \$459M/year nationally (FY2022-26), allocated by formula (population, land area, hazard exposure, prior mitigation spending). Florida receives an annual allocation administered by the state energy office. (energy.gov/gdo; netl.doe.gov)	States and tribes (pass-through to electric utilities — investor-owned, cooperative, and municipal — and other eligible entities).	Grid hardening, undergrounding, vegetation management, weatherization, monitoring/control equipment, microgrids, and other resilience measures.	Annual state allocations FY2022-26.

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