



Camp Blanding Joint Training Center

Adaptation Package #3: Improving Electrical Utility System Resilience

This package includes three strategic projects that in combination improve utility resilience for Camp Blanding JTC and the surrounding community. It encompasses substation hardening, system upgrade, site improvement, and partnership recommendations that can be led by local authorities and private service providers.



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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:

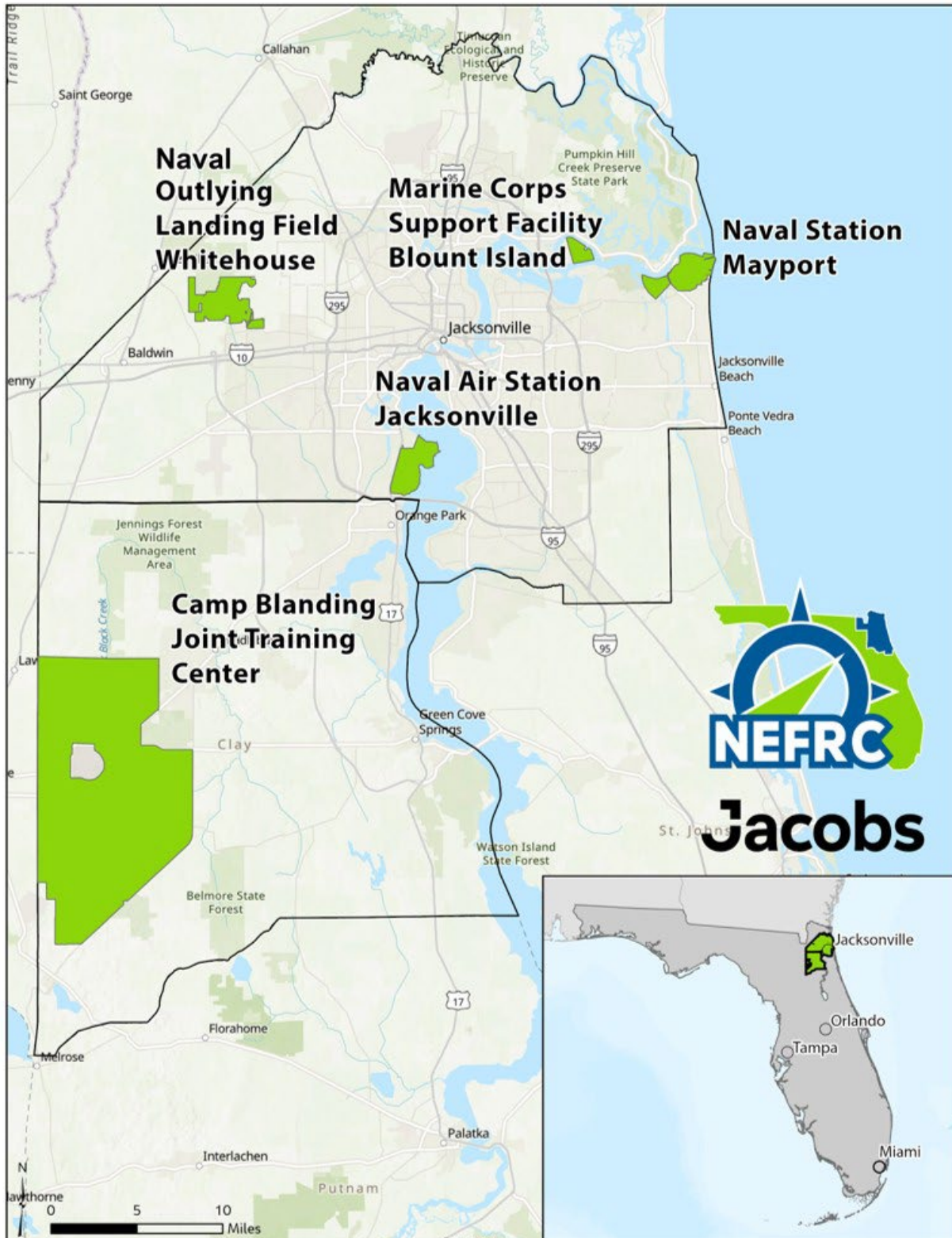
- **Shocks and Stresses** affecting the mission-critical asset
- **Project Objective**, which captures the adaptation goal for the following recommendations to support mission readiness through community resilience
- **Stakeholders and Current Efforts** highlighting successful foundational work upon 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 Context

Figure 1. Northeast Florida MIRR Study Area Map



In 2025, the Northeast Florida Regional Council (NEFRC) obtained a MIRR grant from the Department of Defense's Office of Local Defense Community Cooperation (OLDCC) 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 Center, Marine Corps Support Facility 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.

Camp Blanding JTC

Camp Blanding Joint Training Center (JTC) is located in Clay County, Florida, west of the City of Starke, north of Keystone Heights, and east of the City of Green Cove Springs, along the border of Bradford and Clay counties. The rural setting provides the expansive, undeveloped land necessary to support large-scale ground maneuvers and live-fire training exercises, which was a key reason the site was selected when it was established in 1940 as one of the largest Army training centers in the United States during World War II. At its peak, Camp Blanding processed and trained hundreds of thousands of troops, briefly making it one of the largest population centers in Florida. Following the war, the installation transitioned to a Florida National Guard training site but retained its strategic importance due to its size and flexibility. Today, the cantonment area is primarily accessed via State Road 16, which runs east-west through the installation, connecting Starke to Green Cove Springs, while Keystone Heights Airport just to the south supports installation operations and training activities. The installation's location and surrounding open space remain critical to its mission, enabling dispersed, high-intensity training with minimal encroachment and preserving its historic role as a major military training hub.

Mission

Camp Blanding JTC is a Level II Garrison Training Center and the Florida National Guard's premier training site. The installation spans more than 73,000 acres, including approximately 55,000 acres dedicated to live-weapons and ground-maneuver training. Capable of supporting an Army brigade, Camp Blanding JTC provides year-round combat and civil-support training through ranges, a shoot house, convoy live-fire range, simulation center, education facilities, and maintenance resources.

Secondary mission activities at the installation support national security training and emergency response for a variety of federal and state agencies. Camp Blanding JTC supports military units and federal, state, local, and international partners across the Joint, Interagency, Intergovernmental, and Multinational spectrum. Customers include the Federal Bureau of Investigation, Department of Homeland Security, and Federal Emergency Management Agency. Due to its position as an integrated training hub, the dedicated Multijurisdictional Counterdrug Task Force campus supports law-enforcement training, while joint exercises with Caribbean nations advance international partnerships. The installation averages approximately 10,000 visitors per month.

Camp Blanding also plays a critical role in Florida's continuity and emergency-response operations. It serves as a Continuity of Government site for the Governor and Executive Branch and as a Continuity of Operations (COOP) site for the Florida Division of Emergency Management (FDEM) and Joint Force Headquarters-Florida. The installation houses the State's backup Emergency Operations Center (EOC) and functions as a Joint Reception, Staging, and Onward Integration (JRSOI) site and Logistical Support Base, providing command, logistics, and staging support before, during, and after emergencies. It also hosts emergency-management academies for county officials.

State and federal investments support facility improvements, new ranges, and mobilization capabilities for homeland-defense and overseas missions. Florida's continued investment in the Operational Readiness Training Complex will expand battalion-scale training support and help attain and sustain the infrastructure standards associated with Level II Garrison Training Center capability.

Partnerships with Keystone Airpark, the Clay County Development Authority, and the Clay County Economic Development Corporation further strengthen infrastructure and operational readiness, reinforcing Camp Blanding JTC's position as a leading southeastern training and emergency-response hub.

Installation Interconnections

The Camp Blanding linkage overlays illustrate the installation's role as Florida's central land-domain readiness, National Guard, and civil-support platform. The maps demonstrate how Camp Blanding JTC connects to Joint Force Headquarters-Florida, the Florida Department of Military Affairs, the Florida Department of Emergency Management, major Florida Army National Guard commands, readiness centers, armories, aviation support facilities, specialized units, and other support nodes across the state. Together, the layers demonstrate that Camp Blanding JTC is not just a training area near Starke, but the geographic and operational hub of a statewide Guard readiness network that ties together command, mobilization, training, logistics, aviation, special operations, sustainment, and unit readiness across Florida, in addition to its role as a key continuity of operations and government function for the state government.

The broader strategic value of Camp Blanding JTC is underscored in its dual military and state response roles. Its Florida Army National Guard readiness and training network links the installation to major commands and armories from the Panhandle through South Florida, while its Camp-based nodes support training, mobilization, emergency response, civil support, logistics-staging, and continuity functions. While not necessarily standing linkages, National Guard and mobilization forces from around the country often leverage Camp Blanding JTC's capabilities as well.

When viewed as a combined overlay, the maps reveal Camp Blanding JTC as a statewide readiness anchor that supports not just National Guard force generation, but more broadly, disaster-response capacity, emergency-management continuity, interagency operations, and defense support to civil authorities, making it one of Florida's most important military assets for both national defense and state resilience.

Identified Priority Assets for Camp Blanding JTC

Priorities for the installation were based on the direct assets and local services required to support the missions. This includes the lands that provide buffers between training activities and the general population, the electricity required for training activities and emergency response, the water required for firefighting, and the transportation infrastructure needed to access the installation. These assets were evaluated for exposure to shocks and stresses (Figure 2).

Primary Mission Critical asset types that support live weapons and maneuver training ranges and house the FL National Guard Training Center

- Location-Specific Positioning
 - Conservation lands
- Assets Providing Direct Support
 - Electric Production and Supply Facilities
 - Roads and Bridges
 - Railway systems
 - Communications systems
 - Fire stations
 - Police stations
 - Stormwater systems
 - Clay County EOC

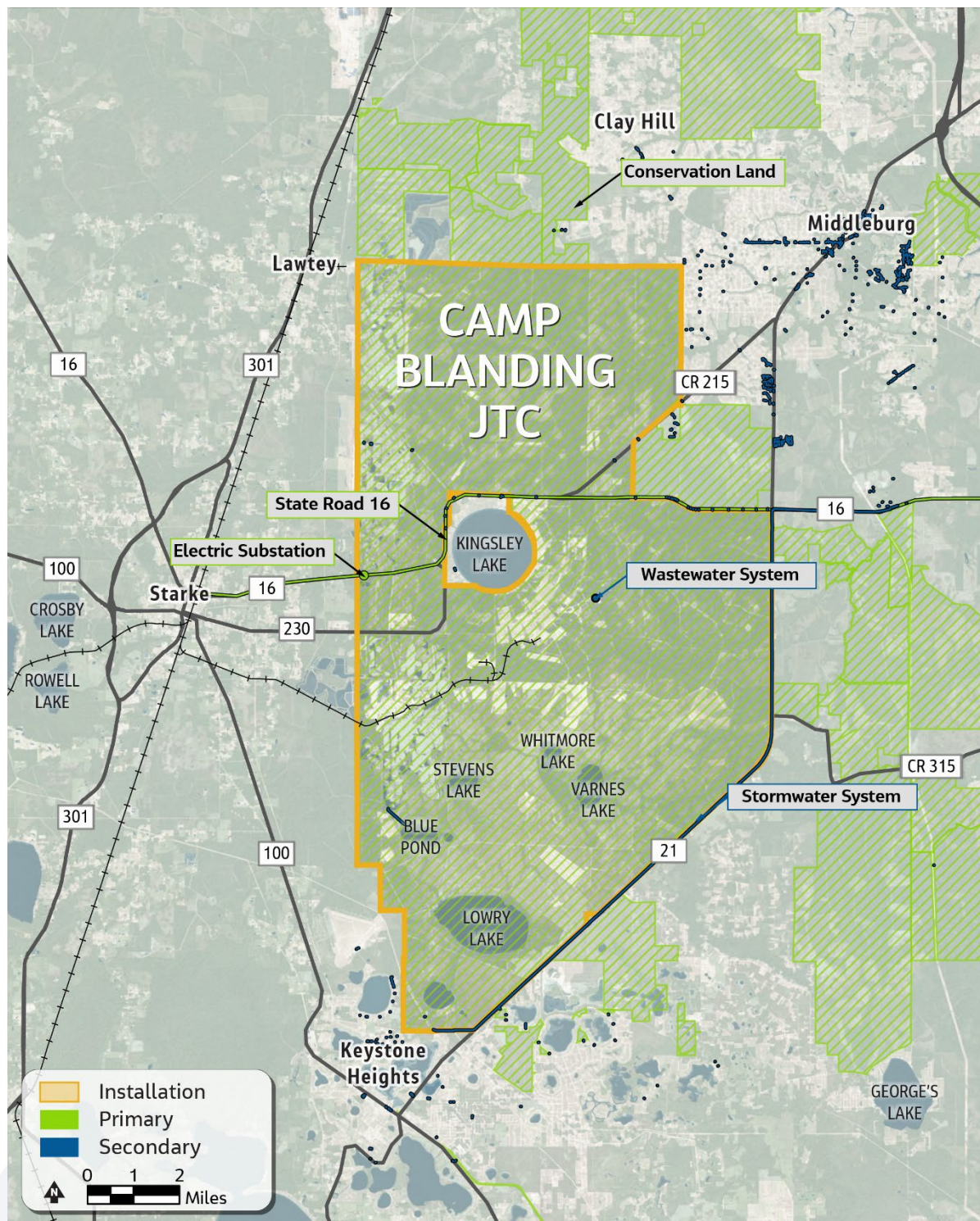
Secondary Mission Critical asset types that support various state and federal activities, including disaster response and various trainings

- Assets Providing Direct Support
 - Water systems
 - Wastewater systems

Mission Supportive asset types 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 Camp Blanding JTC



This package addresses the specific shocks and stresses of the mission-critical electric system at Camp Blanding.

Current Conditions That Affect the Electric System

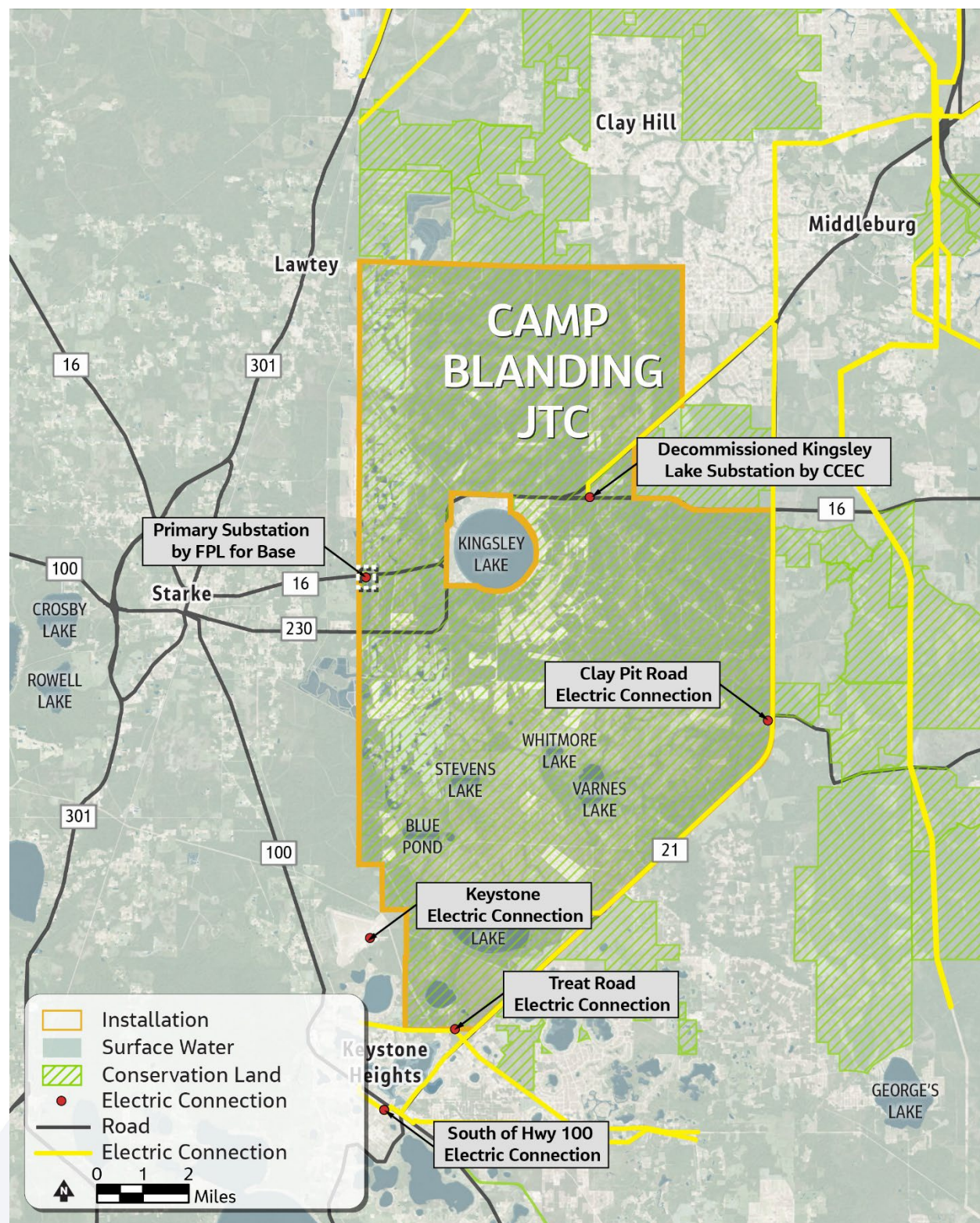
Historically, the electric system serving Camp Blanding was developed as a largely self-contained wartime network, initially powered by onsite diesel generation and designed for rapid deployment to support World War II training operations. As the installation transitioned to a Florida National Guard facility, it became increasingly integrated with the regional utility grid, shifting away from on-installation generation to externally supplied power. Infrastructure was expanded incrementally over decades to support dispersed training areas and fluctuating mission demands, resulting in a system optimized for geographic coverage rather than redundancy. Extensive overhead distribution and rural siting exposed the system to weather risks such as storms, lightning, and vegetation interference, while limited backup generation increased reliance on off-installation supply.

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. However, the substation along SR 16 owned by Clay Electric Cooperative is currently out of commission, and the installation relies primarily on the substation on the west side operated by Florida Power & Light (FPL) as its main source of power (Figure 3).

Camp Blanding JTC continues to rely on long, radial feeders with limited redundancy, meaning a single fault can disrupt service across wide portions of the installation. The dispersed footprint of ranges and facilities complicates outage isolation and restoration, while storm exposure and heavy vegetation continue to drive reliability challenges. Increasing training intensity and higher temperatures are also contributing to rising peak loads, placing additional strain on legacy infrastructure.

In the future, increases in extreme heat, stronger storm systems, and more variable precipitation patterns are expected to further strain the system. As a result, resilience efforts such as improved redundancy and reduced reliance on single radial feeders, combined with enhanced vegetation management, will be essential to maintain reliable operations under future climate conditions.

Figure 3. Electric Infrastructure Location Map



MIRR 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 (Figures 4 and 5) 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 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

Figure 4. Regional Resilience Action Plan (NEFRC 2025)



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

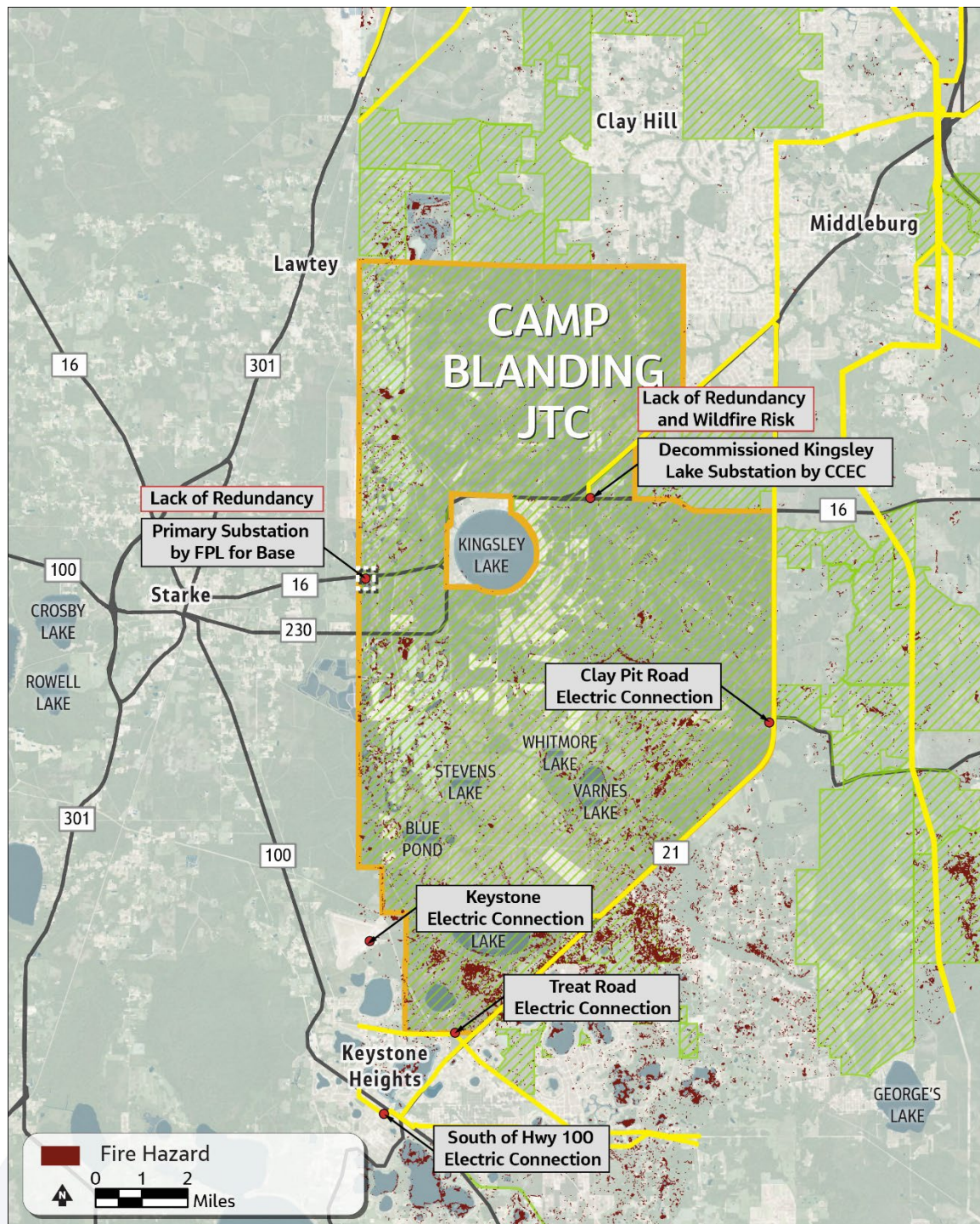
Shocks and stresses to the mission-critical assets supporting Camp Blanding JTC include wildfire, rainfall-induced flooding that overwhelms stormwater infrastructure, extreme heat impacts to transportation assets and personnel executing outdoor training, and lack of redundancy, aging infrastructure, and regulatory pressures on utility infrastructure. Notably, the predominant threat to the installation's mission is encroachment from incompatible land uses.

1. Remaining unprotected priority parcels, fragmented ownership, and gaps in buffer continuity leave portions of the installation boundary exposed to incompatible development and wildfire-management constraints.
2. On-installation wildfire is a well-managed risk. Installation personnel, in collaboration with the Florida Forest Service, regularly conduct prescribed burns as a means of fuels management. Off-installation, however, wildfire hazards are managed by a variety of entities (state, local, or private). Wildfire risk is greater on private property that is not well-managed. This can result in fire hazards entering other properties and eventually the installation, threatening operations.
3. Stormwater flooding is a risk on-installation (which has stormwater infrastructure past the end of its service life) and on SR 16, impacting base access.
4. Extreme heat threatens regional railways and roadways, potentially causing buckling and impacting the movement of personnel and equipment.
5. **The installation's electrical supply lacks redundancy and wildfire threaten nearby electrical substations.**
6. The installation's wastewater lacks redundancy and faces regulatory pressures from existing state legislation, which requires that the installation adjust its wastewater disposal methods by 2032.

This project package addresses redundancy for improved electrical system resilience for the installation (item 5).

Project Need: Improve Energy Resilience

Figure 7. Risk to Mission Map



Electrical Asset Vulnerabilities Creating Risk to Mission

The FPL substation west of the installation is the primary power source for Camp Blanding JTC, supporting military training, the backup Florida Emergency Operations Center, an onsite mining operation, and the Kingsley Lake community. Some training facilities in the southern portion of the installation receive power from the Clay Electric Cooperative (CEC) grid system, which connects from Clay Pit Road and Treat Road. The Kingsley Lake substation located on SR 16 near Gate D road has been de-energized for more than 20 years (Figure 7).

Though the FPL substation is not currently exposed to major hazards, the system lacks redundancy and depends heavily on a single power source, with limited backup. The substation asset is classified as mission-critical with moderate-low risk. The grid connection from Clay Pit Road and Treat Road was not included in the vulnerability assessment, and limited information is available regarding its current condition. As a result, while this connection may provide potential opportunities to improve system redundancy through existing grid interconnections, insufficient data prevent a full evaluation of its role or capability in enhancing overall system resilience. Additionally, above-ground electric assets are exposed to wildfire and rainfall-induced flooding. This exposure is consistent across the area, and adaptation projects addressing these assets are discussed in other project packages.

Overall, the lack of redundancy created by a single operational connection creates a significant vulnerability; an outage at the FPL substation could disrupt mission execution, state emergency response, and community services across the installation (Table 1).

Table 1. Electrical Asset Vulnerability Overview

Asset Name	Owner	Location	Mission Criticality	Relevant Shocks & Stresses	Level of Urgency
FPL Substation	FPL	Near the west end of the Camp Blanding boundary	Primary	Lack of Redundancy	Near-term
Kingsley Lake Substation	CEC	SR 16 near Gate D	N/A	Lack of redundancy, wildfire	N/A

N/A = not applicable

Stakeholders and Current Efforts

Camp Blanding JTC is working to strengthen installation-wide energy resilience and reduce disruptions associated with FPL substations and grid connecting points (for example, Clay Pit and Treat Roads). Key existing conditions, efforts, and opportunities include:

- Backup power capability: Maintain diesel generator backup with up to 5 days of fuel supply; prior microgrid options were evaluated but deemed cost-prohibitive.
- Wildfire risk reduction measures: Maintain defensible space around substations and transmission lines, supported by ongoing vegetation management and onsite prescribed burns.
- Community-integrated wildfire mitigation: Promote prescribed burning and vegetation management in adjacent residential areas through incentive-based programs to reduce shared wildfire risk.

- Existing grid control and connectivity: Own and maintain internal distribution lines, with the ability to connect to nearby grid-tied substations.
- Secondary substation development: Camp Blanding and CEC are open to planning for a secondary substation to improve redundancy.
- Kingsley Lake substation restoration opportunity: The substation presents an opportunity as a redundant power source. CEC is open to supporting the feasibility study and implementation, pending external funding, to enable better use of existing assets.
- Expanded power access points: The power connections owned by CEC from Clay Pit Road, Treat Road, and nearby substations (CEC central warehouse and Keystone Airport) serve as potential redundant feeds. CEC is open to these options.

There are currently no major electrical capital improvement projects planned for FPL and CEC substations beyond routine monitoring, inspection, and asset management. However, ongoing wildfire mitigation efforts by the installation and Clay County continue to protect the installation. It is unclear currently if FPL or CEC have risk mitigation plans for wildfire management.

CEC is conducting a feasibility study on battery storage to assess benefits such as peak shaving and deferring infrastructure upgrades. Previous evaluations of large-scale solar were found to be limited by wholesale power contract constraints.

These studies can inform future electrical system upgrades and redundancy planning, support Camp Blanding's overall energy resilience while providing benefits to community, state, and private stakeholders connected to the same grid segment.

Table 2 shows existing projects related to electrical resilience at Camp Blanding JTC.

Table 2. Existing Projects Related to Electrical Resilience at Camp Blanding JTC.

Existing Project	Entity	Location	Purpose	Timeline
Battery storage feasibility study	CEC	CEC service area	Determine feasibility of increasing system capacity	Funded, not start yet
Large-scale solar feasibility	CEC	CEC service area	Determine solar feasibility	Completed
Readiness and Environmental Protection Integration program for wildfire management	Camp Blanding JTC; DoD	Adjacent Residential Area	Wildfire management	Ongoing

Review of Strategic Partnerships and Policies

Camp Blanding currently has limited formalized partnerships addressing electrical system resilience and redundancy. Power is supplied by Florida Power & Light (FPL), but no Intergovernmental Support Agreement (IGSA) or comparable procurement framework is in place to guide coordination beyond basic service provision. Additionally, no formal agreements were identified for related utility systems such as stormwater and wastewater, leaving these areas similarly unstructured from a resilience and redundancy standpoint.

As a result, existing partnerships are not effectively positioned to address key vulnerabilities. The installation's lack of electrical redundancy—combined with the growing wildfire risk to the FPL substation—remains largely unmitigated through formal coordination. Without an established agreement, there is no defined mechanism for joint planning, infrastructure hardening, or development of backup power pathways. Similarly, stormwater and wastewater systems, which face both regulatory requirements and operational constraints, lack coordinated planning or interconnection strategies that could improve reliability and reduce risk.

Looking ahead, these gaps are likely to become more significant as environmental and operational pressures increase. Wildfire risk to the existing substation is expected to intensify over time, and the installation has begun considering options such as developing its own substations to improve redundancy. However, these efforts are not yet supported by formalized partnerships. The absence of coordination with external partners, particularly FPL and local governments, may limit the installation's ability to efficiently implement large-scale or system-wide resilience solutions.

From an efficiency standpoint, establishing a formal coordination agreement with FPL represents a clear opportunity. Building on the existing service relationship, an IGSA or similar agreement could define roles, responsibilities, and shared priorities related to redundancy planning, infrastructure protection, and wildfire risk mitigation. Comparable agreements with Clay County could also support coordinated approaches to stormwater and wastewater challenges. Together, these efforts would provide a structured and proactive framework to address critical utility vulnerabilities and enhance long-term installation resilience.

Adaptable Built Infrastructure Projects

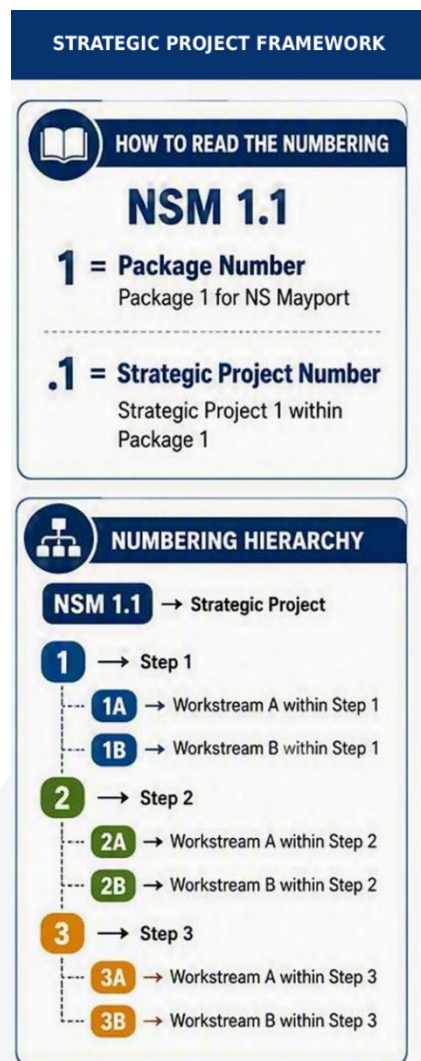
Figure 8. Adaptation Strategies Map



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 CB 3.1. Interagency Utility Coordination Advancement

This project establishes a coordinated operational framework to enhance utility service delivery, response times, and system resilience between FPL, CEC, and Camp Blanding JTC. The initiative is designed to address potential fragmentation inherent in the current multi-entity relationship between Camp Blanding, FPL, CEC, Clay County, the Kingsley Lake Homeowners Association (HOA), and supporting contractors. While existing utility service arrangements effectively provide power to and around the installation, there may be opportunities to further strengthen coordination, communication, and role clarity across organizational interfaces.

Camp Blanding operates as a large, geographically dispersed training installation with complex and variable energy demands that require a high degree of reliability and responsiveness. Establishing formal coordination between Camp Blanding, FPL, CEC, Clay County, and the Kingsley Lake HOA will improve the operations, maintenance, and upgrades for the shared electrical system within and around the 111.8-square-mile installation. Given the distributed nature of responsibilities across multiple stakeholders, there is an opportunity to better align processes related to outage response, escalation pathways, infrastructure planning, and shared situational awareness. Strengthening these areas can support operational continuity, particularly during storm events, infrastructure maintenance activities, or mission-driven load fluctuations.

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 where gaps may exist. The recommendations are designed to build on current roles and relationships, focusing on coordination enhancements and operational integration rather than structural changes.

Current Stakeholder Projects

- Battery storage feasibility study
- Large-scale solar feasibility

Potential Project Leads and Partners

- Clay Electric Cooperative (CEC)
- Clay County
- Kingsley Lake Homeowners Association (HOA)
- Supporting contractors and installation public works

Estimated Cost

To be determined by owner

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

1A. Establish Primary Integration Leads

- Designate a Primary Integration Lead within FPL, CEC, and Camp Blanding 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

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

1C. Implement Joint Utility Operations Communication Cadence

- Integration leads 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. Incorporate discussion of storm readiness, outage response coordination, and resource planning into regular engagement cycles.

1D. Enhance Storm Forecasting and Pre-Staging Coordination

- Integration leads can strengthen coordination protocols with Clay County Electric 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

- Integration leads can explore the use of predictive analytics and artificial-intelligence-enabled tools to support forecasting of 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.

2C. Establish Predefined Escalation Framework

- Integration leads 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 Clay County Electric and Camp Blanding 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 (All Partners)

- 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.

3B. Implement Embedded Liaison Coordination Model

- Facilitate periodic engagement between Clay County Electric engineering teams and Camp Blanding to support ongoing coordination and planning alignment. Encourage participation in planning discussions, infrastructure projects, and operational reviews to improve cross-organizational understanding.

Strategic Project CB 3.2. Improved Resilience Through Redundant Supply

This project establishes a structured approach to evaluate and implement redundant electrical supply options to improve system reliability and resilience for Camp Blanding JTC. The initiative focuses on assessing feasible alternatives for backup power supply and advancing a preferred solution that strengthens continuity of operations for the installation. Given the current reliance on limited primary supply pathways, this effort provides an opportunity to evaluate both restoration of existing infrastructure and development of new capacity to enhance redundancy.

This project supports coordination among CEC, FPL, Camp Blanding, and local stakeholders to evaluate multiple pathways for enhancing power redundancy. These include reactivation of legacy infrastructure, optimization of existing grid interconnections, and potential construction of new facilities. The outcome will guide capital investment decisions and improve preparedness for outages, infrastructure failures, and extreme weather events. A core objective of the project is to determine whether proposed alternatives provide true source redundancy through sufficiently independent supply pathways and upstream infrastructure, or whether they provide only operational flexibility while remaining dependent on common transmission assets or failure points. In addition, the analysis should be based on the installation's diverse mission requirements and emergency-response functions rather than solely on average or peak installation loads, recognizing that future modernization and mission growth may significantly alter demand profiles.

Current Stakeholder Projects

- Battery storage feasibility study
- Large-scale solar feasibility

Potential Project Leads and Partners

- Camp Blanding Joint Training Center (JTC)
- Clay Electric Cooperative (CEC)
- Florida Power & Light (FPL)
- Clay County
- Kingsley Lake Homeowners Association (HOA)
- Supporting contractors and installation public works

Estimated Cost

To be determined by owner

Step 1: Redundant Feed Feasibility Study (Short-term)

1A. Evaluate Existing Infrastructure Re-Energization

- CEC can conduct a technical and economic feasibility assessment of re-energizing the Kingsley Lake substation and the associated 3.3-mile-long transmission lines as a potential secondary feeder or alternate supply path. This analysis should directly address the installation's current single-feed vulnerability by evaluating infrastructure condition, required

upgrades, system capacity, and restoration costs. The assessment should also consider routing and configuration to ensure physical separation of feeds so that hazards such as wildfire or flooding do not simultaneously disrupt both supply paths, while incorporating predictive analytics to identify infrastructure vulnerabilities and prioritize optimal redundancy investments.

- The study should evaluate the degree of independence provided by the proposed supply source, including identification of any common upstream transmission, substation, switching, fuel, communications, or operational dependencies that could compromise true redundancy during a major disruption.
- Mission-based load scenarios should be incorporated, including routine training operations, emergency-response missions, mobilization activities, continuity-of-operations functions, and planned Level II modernization requirements.
- Predictive analytics can be used to identify infrastructure vulnerabilities and prioritize optimal resilience investments.

1B. Assess Dual-Feed Opportunities from Existing Grid Connections

- In coordination with FPL, CEC can evaluate the feasibility of extending the grid to the four existing interconnection points to establish dual-feed or backup supply capability. This effort should assess operational considerations such as load balancing, protection coordination, and switching requirements, while also exploring distributed and flexible energy system configurations that reduce reliance on long radial lines vulnerable to wildfire. Scenario-based planning models should be used to simulate outage conditions, wildfire impacts, and system disruptions to evaluate how these dual-feed configurations perform under multiple stress scenarios and ensure resilience across a range of conditions.
- The analysis should distinguish between operational redundancy and true source redundancy by determining whether alternative feeds remain dependent on common upstream transmission assets or substations.
- Scenario-based planning models should be used to simulate outage conditions, wildfire impacts, mission surge demand, and system disruptions to evaluate how these configurations perform under multiple stress scenarios.

1C. Compare with New Substation Development

- CEC can develop a conceptual design and cost estimate for constructing a new redundant substation, potentially located near the southern boundary of Camp Blanding JTC, that could serve as an independent secondary feeder.
- This option should be evaluated alongside re-energization and dual-feed alternatives, with consideration given to physical separation of supply routes, independence of upstream supply sources, system hardening requirements, and the ability to support decentralized or distributed energy integration.
- Comparative analysis should incorporate mission-based demand scenarios and predictive modeling to assess long-term performance, reliability improvements, and adaptability under future hazard conditions.

1D. Define Preferred Redundancy Strategy and Publish in Feasibility Study

- All partners can collaborate to synthesize findings into a comprehensive comparison of redundancy options, including secondary feeder development, distributed energy strategies, and new substation construction. Using data-driven insights and scenario-based modeling, the team should identify a preferred solution that maximizes reliability, minimizes single points of failure, and ensures resilience under wildfire, flooding, and outage conditions. The selected strategy should include a clear implementation roadmap addressing phasing, funding, design considerations, and coordination requirements.
- The feasibility study should evaluate redundancy at the generation, transmission, distribution, fuel-supply, and access levels and clearly identify any residual dependencies that could affect continuity of operations.
- The selected strategy should include a clear implementation roadmap addressing phasing, funding, design considerations, and coordination requirements.
- Previous conclusions regarding the cost-effectiveness of microgrids should be re-evaluated in light of planned Level II modernization, evolving mission requirements, potential state-emergency functions, and emerging battery-storage opportunities. While the study is not required to recommend a microgrid solution, it should not exclude the option without updated analysis.
- Existing backup-generation capabilities should also be assessed using multiple mission-load scenarios rather than a single assumed fuel-duration estimate. The analysis should evaluate fuel consumption under varying operating conditions, commercial fuel-resupply requirements, transportation access constraints, and common vulnerabilities that could affect fuel delivery during extended emergencies.

Step 2: Redundant Feed Implementation of Preferred Solution (Mid-term)

2A. Final Design and Engineering

- In coordination with FPL, CEC can advance detailed engineering for the selected redundancy solution, ensuring the design incorporates an independent secondary feeder or alternate supply path. Engineering should prioritize physical separation of feeders, system hardening against wildfire and environmental stress, and integration of distributed or flexible energy resources where applicable. Advanced modeling and system studies should refine load balancing, protection coordination, and operational performance under various contingency scenarios.

2B. Infrastructure Development and Upgrades

- CEC can implement the preferred backup power solution identified in the feasibility study. Depending on the selected approach, this may include re-energizing the Kingsley Lake substation and transmission lines, extending dual-feed connections, or constructing a new redundant substation at or near the installation's southern boundary. Implementation should include establishing an independent secondary feeder, hardening both primary and backup pathways against wildfire and environmental risks, and deploying infrastructure upgrades that support long-term system resilience and flexibility.

2C. Integration and Testing

- CEC, FPL, and Camp Blanding can coordinate to integrate the new infrastructure into the existing electrical system, including upgrades to on-installation switching infrastructure to enable rapid transitions between primary and backup feeds. Testing should validate load transfer performance, automated switching functionality, and system stability under simulated outage conditions. Integrated monitoring, automation, and control technologies should be deployed to enable real-time system visibility, automated fault isolation, and seamless feeder switching.

2D. Operational Readiness and Coordination

- All partners can update operational protocols to incorporate redundancy capabilities, including enhanced switching procedures, outage response coordination, and maintenance planning. Training should focus on rapid response, feeder switching, and system stabilization during disruptions. Continued modernization of sectionalizing and isolation devices should allow faults to be isolated without full system shutdown, while adaptive energy management tools should support load prioritization and system stability during transitions between supply sources.

Strategic Project CB 3.3. Wildfire Risk Mitigation for Electric System Assets

Recognizing the increasing impact of wildfire risk on electric infrastructure, this effort focuses on embedding proactive mitigation measures directly into asset management and operational planning. The project supports evaluation of existing vulnerabilities, incorporation of advanced technologies and practices, and alignment of mitigation strategies with emergency response and interagency coordination protocols.

This initiative supports FPL and stakeholders to continue proactive management practices for wildfire risk mitigation, with potential to supplement current strategies with predictive and adaptive tools and framework. By integrating vegetation management, sensor deployment, and adaptive operational controls within a unified plan, the project strengthens reliability, enhances situational awareness, and reduces the likelihood and impact of wildfire-related disruptions.

Potential Project Leads and Partners

- Florida Power & Light (FPL)
- Camp Blanding Joint Training Center (JTC) (if applicable to system interface)
- Clay Electric Cooperative (CEC) (as applicable for coordination)
- Florida Forest Service
- Local emergency management agencies
- Supporting contractors and vegetation management providers

Current Stakeholder Projects

- FPL Storm Secure/Grid Hardening and Resilience Programs (Improvements Planned)
- CEC System Reliability and Resilience Upgrades (Improvements Planned)

Estimated Cost

To be determined by owner

Step 1: Wildfire Mitigation Planning and Assessment (Short-term)

1A. Update or Develop Wildfire Risk Mitigation Plan

- FPL and CEC can evaluate and update their existing wildfire mitigation plan (or develop a formalized plan if one is not currently in place) specific to the substations and 12+ miles of transmission line serving Camp Blanding JTC. This effort can identify asset vulnerabilities, ignition risk factors, environmental conditions, and required mitigation thresholds. The plan can incorporate risk modeling, historical weather and fire data, and asset condition assessments to prioritize mitigation actions and define operational triggers during elevated fire risk periods.

1B. Update Asset-Level Risk Assessment Based on Current Wildfire Forecast Data

- FPL and CCEC can update existing asset-level risk assessments for substations and transmission corridors using current wildfire forecast data, including temperature, wind, humidity, and fuel conditions. This effort can refine identification of ignition risks such as

vegetation encroachment, equipment condition, conductor clearances, and environmental stressors. Updated assessments can validate existing datasets, identify emerging vulnerabilities, and reprioritize maintenance and mitigation activities in response to near-term wildfire risk conditions. Predictive analytics and forecasting tools can be leveraged to dynamically identify high-risk segments and anticipate potential failure or ignition scenarios.

1C. Integrate Monitoring and Sensor Technologies

- FPL and CCEC can evaluate and deploy advanced monitoring technologies, including line sensors, weather stations, and fault detection systems, to enhance real-time situational awareness. These systems can support early detection of abnormal operating conditions, improve fault location accuracy, and provide data inputs for operational decision-making during high fire weather conditions. Integration with centralized control systems can enable faster response and improved coordination with field crews and emergency management partners.

1D. Strengthen Joint Planning and Emergency Response Coordination

- FPL and partner agencies can enhance coordination protocols for wildfire preparedness and response, ensuring alignment between infrastructure operations and regional emergency management strategies. This includes establishing communication frameworks, response triggers, and coordination procedures with the Florida Forest Service and local emergency management agencies. Scenario-based planning exercises can be conducted to evaluate response effectiveness under wildfire conditions and refine coordination strategies.

Step 2: Adaptive Implementation and Continuous Evolution Loop (Short-term)

2A. Implement Risk-Informed Mitigation and Adaptive Operations

- FPL and CCEC can implement vegetation management, targeted maintenance, and infrastructure hardening actions based on updated risk assessments and wildfire forecast data, prioritizing high-risk substations and transmission segments. In parallel, FPL should apply adaptive operational protocols during elevated fire weather conditions—such as system reconfiguration, adjusted protection settings, and increased inspection frequency—using real-time sensor data and predictive analytics to minimize ignition risk and improve system resilience.

2B. Monitor, Evaluate, and Iterate Mitigation Strategy

- FPL and partners can continuously monitor system performance, sensor outputs, vegetation conditions, and incident data to assess mitigation effectiveness. These observations, combined with updated wildfire forecasts, can inform ongoing refinement of risk assessments, reprioritization of mitigation actions, and updates to operational protocols. This establishes a continuous feedback loop that reinforces plan → predict → implement → observe → reiterate, ensuring the mitigation strategy remains adaptive and aligned with evolving wildfire risk conditions.

Alignment and Support of the Regional Resilience Action Plan

Figure 10. Alignment with the RRAP

SCALE	ACTION	DESCRIPTION
	2	Encourage preparedness for wildfires
	6	Support resilient utilities
	13	Facilitate partnerships to advance resilience work
	16	Identify adaptation options for critical infrastructure to enhance resilience
	23	Recommend innovative emergency preparedness practices and processes
	32	Inventory critical and significant assets

 Facilitate
 Guide
 Analyze

This project advances RRAP Actions 2, 6, 13, 16, and 23 by addressing an electrical system that depends primarily on a single FPL substation, relies on long radial feeders across a 111.8-square-mile installation, and faces wildfire exposure to both substations and transmission corridors. Strategic Project CB 1.2 evaluates re-energization of the de-energized Kingsley Lake substation, dual-feed configurations from existing Clay Electric Cooperative interconnection points at Clay Pit and Treat Roads, and construction of a new redundant substation near the southern boundary. These alternatives implement Action 6 (Support Resilient Utilities), specifically Subaction 6.1 on encouraging diversification of the energy grid, which promotes microgrids and decentralized systems for critical infrastructure, including emergency shelters, and Subaction 6.3 on supporting capacity improvements. Camp Blanding's role as the State's backup Emergency Operations Center and as a logistical support base for Florida National Guard staging makes this alignment particularly consequential: the RRAP identifies keeping essential services powered during grid-wide failures as a core resilience objective, and this installation is where the State's own continuity capability resides.

The project's wildfire components advance Action 2 (Encourage Preparedness for Wildfires). Maintenance of defensible space around substations and transmission lines, vegetation management along the more than 12 miles of transmission corridor serving the installation, and incentive-based promotion of prescribed burning and vegetation management in adjacent residential areas implement Subaction 2.1 on effective and scientific wildfire reduction practices

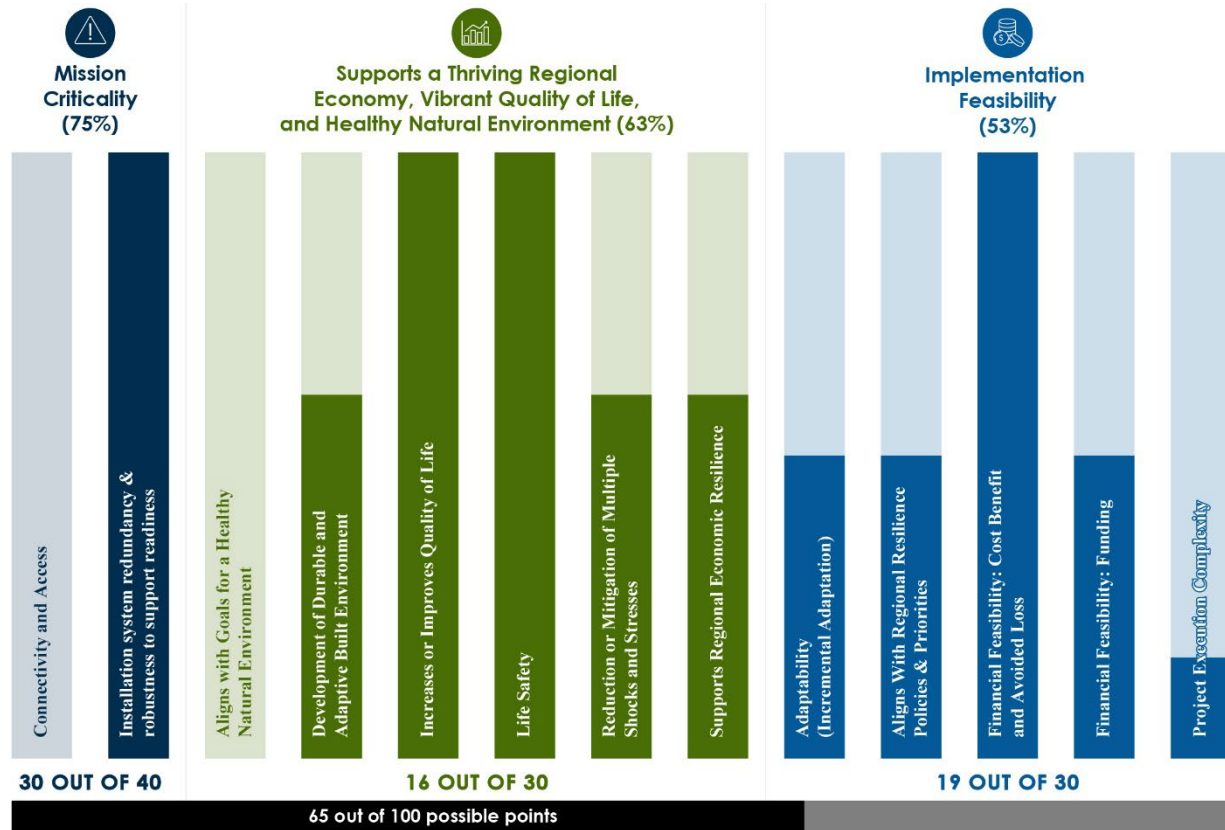
and Subaction 2.2 on protecting structures within the Wildland Urban Interface. Strategic Project CB 1.3 further establishes coordination protocols, response triggers, and scenario-based planning exercises with the Florida Forest Service and local emergency management agencies, implementing Subaction 2.3 on increasing regional collaboration to improve fire response and preparedness and Subaction 23.3 on supporting advanced training opportunities and peer learning among emergency managers across the region. Deployment of line sensors, weather stations, and fault detection systems for real-time situational awareness during elevated fire weather supports the RRAP's emphasis on data-informed operational decision-making.

Strategic Project CB 1.1 establishes primary integration leads, a scenario-based responsibility matrix, a tiered escalation framework, and a joint operations communication cadence across Camp Blanding, FPL, Clay Electric Cooperative, Clay County, and the Kingsley Lake Homeowners Association. This implements Subaction 6.2, under which the Collaborative facilitates collaboration between utility providers and local governments on lessons learned from past disruptions and on service provision during heat waves, freeze events, and severe storms. The recommendation to formalize coordination through an Intergovernmental Support Agreement or comparable framework implements Action 13 (Facilitate Partnerships to Advance Resilience Work), including Subaction 13.1 on advancing public-private partnerships to leverage expertise and funding and Subaction 13.3 on intergovernmental partnerships with state and federal agencies, including the military, to increase regional readiness. Hardening of substation and transmission assets against wildfire and flood exposure implements Subaction 16.1 on protecting critical assets, while reduced reliance on diesel backup generation and integration of solar and battery storage support Subaction 3.2 on promoting activities that reduce greenhouse gas emissions. Documentation of these assets contributes to the inventory of regionally significant assets maintained under Subaction 32.2, built on the geodatabase NEFRC developed through the FDEP Regional Resilience Entity grant.

Metrics Score

The Camp Blanding Resilient Electrical project was evaluated against a robust series of metrics to determine the appropriateness, viability, and achievement of goals. 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 11).

Figure 11. 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).

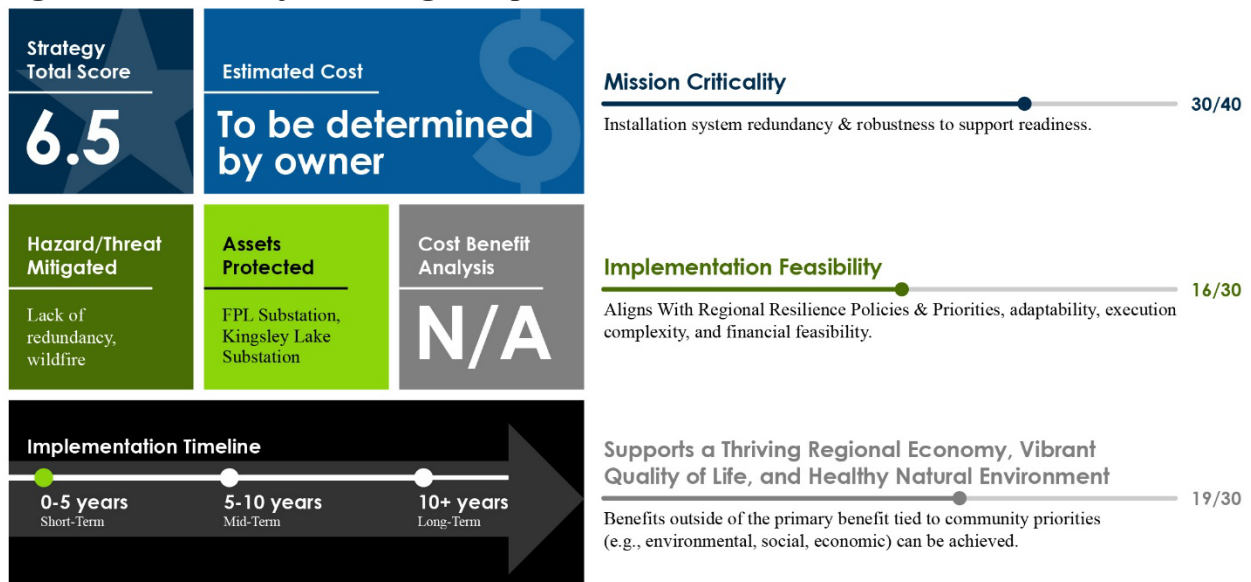
Adaptation project costs were costed to include project construction and design costs, where feasible. Project benefits were costed to include direct (construction or repair costs) and indirect (social, economic, and environmental) costs whenever feasible.

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 12. 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.

Funding Opportunities

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.

References

City of Jacksonville. 2023. *Resilient Jacksonville*. October.

Donde, Vaibhav, Annabelle Pratt, Andrey Bernstein, Jack Flicker, Achintya Madduri, Ben Ollis, Ciaran Roberts, Ravindra Singh, Jose Tabarez, and Frank Tuffner. 2022. *Microgrids as a Building Block for Future Grids (Topic 4)*. Washington, DC: U.S. Department of Energy. August 12.

Flores, Justin. 2024. Defensible Space and Inspection Activities Reducing Substation Wildfire Ignitions. TJ|H2b. Accessed June 12, 2026. <https://tjh2b.com/white-papers/defensible-space-and-inspection-activities-reducing-substation-wildfire-ignitions>. February 14.

JEA. 2025. Systemwide Electrical Resilience Plan.

Keen, Jeremy, Reiko Matsuda-Dunn, Gayathri Krishnamoorthy, Haley Clapper, Lila Perkins, Laura Leddy, and Nick Grue. 2024. *Current Practices in Distribution Utility Resilience Planning for Wildfires*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A40-88589.

Lin, Yashen, Joseph H. Eto, Brian B. Johnson, Jack D. Flicker, Robert H. Lasseter, Hugo N. Villegas Pico, Gab-Su Seo, Brian J. Pierre, and Abraham Ellis. 2020. *Research Roadmap on Grid-Forming Inverters*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5D00-73476.

North American Electric Reliability Corporation. 2025. *Wildfire Mitigation Reference Guide*. Atlanta, GA: North American Electric Reliability Corporation. July.

Northeast Florida Regional Council (NEFRC). 2025. *Regional Resilience Action Plan*. September 30.

Panossian, Nadia, and Tarek Elgindy. 2023. *Power System Wildfire Risks and Potential Solutions: A Literature Review & Proposed Metric*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A40-80746.

Perera, A.T.D., Bingyu Zhao, Zhe Wang, Kenichi Soga, and Tianzhen Hong. 2023. *Optimal Design of Microgrids to Improve Wildfire Resilience for Vulnerable Communities at the Wildland-Urban Interface*. Berkeley, CA: Lawrence Berkeley National Laboratory. February.

Wang, Jing, Subhankar Ganguly, and Benjamin Kroposki. 2023. *Study of Seamless Microgrid Transition Operation Using Grid-Forming Inverters: Preprint*. Golden, CO: National Renewable Energy Laboratory. NREL/CP-5D00-86102. November.

