

Northeast Florida Regional Council
Military Installation Readiness Review



Planning Guidelines for Designing and Executing Comprehensive Adaptation Projects

JULY 2026



Contents

1	Purpose	1-1
2	Relationship to Previous Technical Memoranda.....	2-1
3	Guidelines for Comprehensive Adaptation Project Development.....	3-1
3.1	Defining the Comprehensive Adaptation Project.....	3-1
3.2	Stage 1: Building Contextual Understanding.....	3-2
3.2.1	Compile an Existing Conditions Inventory and Analysis of Local Networks	3-2
3.2.2	Root-Cause and Failure-Chain Analysis.....	3-3
3.2.3	Understanding System Interdependencies and the Broader Consequences of Mission-Critical Risk.....	3-4
3.2.4	Key Planning Questions.....	3-4
3.2.5	Inventory Existing Initiatives and Investments	3-5
3.3	Stage 2: Developing the Adaptation Outline: Solution Conceptualization	3-6
3.3.1	Build Upon Existing Infrastructure Initiatives and Identify Adaptation Opportunities.....	3-6
3.3.2	Review Local Best Practices and Industry Adaptation Innovation Precedents	3-7
3.3.3	Workshop and Prioritize Adaptation Opportunities	3-8
3.3.4	Evolve Concepts into Integrated Adaptation Strategies	3-9
3.3.5	Assess Potential Unintended Consequences	3-10
3.4	Stage 3: Prepare for Actionable Implementation	3-11
3.4.1	Review Planning Documents and Identify Implementation Enablers.....	3-11
3.4.2	Identify Opportunities for Coordination with Military Installations	3-12
3.4.3	Designate Action Leads and Supporting Partners	3-13
3.4.4	Develop Feasibility and Risk-Reduction Metrics	3-14
3.4.5	Develop Implementation Timelines and Funding Strategies.....	3-14
3.5	Stage 4: Implement, Monitor, and Sustain Adaptation Projects	3-16
3.5.1	Designate an Adaptation Champion	3-16
3.5.2	Organize an Action Plan Around Available Capacity	3-17
3.5.3	Monitor Progress, Funding Opportunities, and Changing Conditions	3-17
3.5.4	Maintain the Adaptation Strategy as a Living Framework	3-18

Figures

Figure 3-1. Naval Station Mayport	3-1
Figure 3-2. Stage 1 Process	3-2
Figure 3-3. Aerial Photograph of Jacksonville, Florida	3-3
Figure 3-4. Stage 2 Process	3-6
Figure 3-5. Collaboratively Building the Outline.....	3-7
Figure 3-6. Stage 3 Process	3-11



Figure 3-7. Camp Blanding Exercise	3-12
Figure 3-8. Building Implementation Tools	3-15
Figure 3-9. Stage 4 Process	3-16
Figure 3-10. Flyover at St. Johns River	3-19



1 Purpose

The purpose of this technical memorandum is to establish a framework for designing and implementing comprehensive adaptation projects that reduce mission-critical risks while creating measurable resilience benefits for both military installations and surrounding communities. Adaptation projects developed through this process are intended to move beyond isolated infrastructure improvements and instead address the interconnected systems that support mission readiness, economic vitality, environmental health, and community well-being. Comprehensive adaptation is focused on people, projects, policies, and partnerships. The framework emphasizes integrated solutions that respond to identified vulnerabilities, leverage existing initiatives, and advance regional resilience objectives through coordinated action.

The primary objective of this memorandum is to translate identified risks and vulnerabilities into actionable, fundable, and implementable projects that reduce risk and provide community co-benefits. This includes developing adaptation strategies that address both current and future hazards while strengthening the built, natural, social, and economic systems that support installation operations and regional communities. The process is intended to identify opportunities where resilience investments can achieve multiple benefits, including risk reduction, infrastructure modernization, environmental enhancement, and improved quality of life. Additional objectives include establishing implementation pathways, identifying lead organizations and partners, evaluating funding opportunities, and defining mechanisms for measuring project effectiveness over time.



2 Relationship to Previous Technical Memoranda

This memorandum builds upon the findings of previous technical memoranda that documented existing conditions, evaluated hazards, identified vulnerabilities, and assessed mission-critical risks. Earlier phases of the Military Installation Readiness Review (MIRR) process focused on understanding the assets, infrastructure systems, and community functions exposed to hazards. This memorandum advances those findings by outlining a structured process for developing adaptation projects that address identified risks and vulnerabilities. These guidelines are intended to bridge the gap between planning and implementation by providing a framework for transforming analytical findings into practical resilience actions.



3 Guidelines for Comprehensive Adaptation Project Development

3.1 Defining the Comprehensive Adaptation Project

A comprehensive adaptation project is a recommended solution or coordinated set of solutions that actively weaves together local context, root-cause understanding, proven best practices, and implementation feasibility to address risk by mitigating vulnerabilities. Rather than focusing on a single asset, hazard, or isolated improvement, comprehensive adaptation projects evaluate risk through a systems perspective and develop integrated solutions that improve the performance, reliability, and resilience of interconnected infrastructure and community systems.

Unlike traditional infrastructure projects that are often designed to solve a specific operational problem, comprehensive adaptation projects generate multiple resilience benefits simultaneously. A single project may reduce hazard exposure, improve infrastructure reliability, strengthen emergency access, support environmental functions, enhance economic stability, and improve quality of life for surrounding communities. By addressing the root causes of vulnerability and considering the relationships among interconnected systems, these projects are better positioned to provide long-term resilience outcomes and support mission assurance.

Comprehensive adaptation projects are developed through a structured planning process that builds upon existing conditions analyses, vulnerability assessments, mission-critical risk evaluations, and stakeholder priorities. The process combines local context, systems interdependency analysis, adaptation best practices, and implementation considerations to create solutions that are technically feasible, strategically aligned, and capable of advancing from concept to execution. The resulting projects are intended to be scalable, implementable, and responsive to both current and future resilience challenges, creating lasting benefits for military installations and the communities that support them.

Figure 3-1. Naval Station Mayport



Source: Pexels



3.2 Stage 1: Building Contextual Understanding

Figure 3-2. Stage 1 Process



Effective adaptation planning begins with robust understanding of the existing conditions within the study area. Before identifying potential projects, a clear picture of assets, infrastructure systems, community characteristics, stakeholder priorities, and environmental conditions must be correctly mapped. This foundational assessment leverages the work documented in Technical Memorandum (TM) 2: Data Collection, TM 3: Priority Asset Analysis, and TM 4: Hazards and Threats to build the context necessary to evaluate root causes of risk and determine where investments can produce the greatest resilience benefits. The process also ensures that adaptation projects are informed by local conditions and aligned with regional vision, values, and objectives.

3.2.1 Compile an Existing Conditions Inventory and Analysis of Local Networks

The existing conditions inventory serves as the foundation for adaptation project development. The inventory documents relevant land uses, development patterns, demographic characteristics, transportation systems, utility networks, environmental resources, and jurisdictional responsibilities. Attention is given to infrastructure and community assets that support military missions, critical services, and regional economic activity. The inventory should also identify stakeholder priorities, planned investments, and existing resilience initiatives that may influence future adaptation efforts.

An analysis of this inventory produces, at a minimum, documentation of agency and jurisdictional responsibilities, land use patterns and trends, population characteristics, utility infrastructure conditions, transportation network functionality, green infrastructure systems, ecosystem services, community support networks, and economic drivers. When synthesized



spatially and functionally, these data sets reveal patterns, dependencies, service gaps, and potential drivers of vulnerability.

For the MIRR, the analysis evaluates how these layers support military personnel, installation functions, and the broader defense community. Capturing these relationships establishes the baseline against which vulnerabilities, opportunities, and adaptation strategies can be evaluated.

3.2.2 Root-Cause and Failure-Chain Analysis

Adaptation projects are most effective when they address the underlying causes of vulnerability rather than simply responding to symptoms. Root-cause analysis seeks to identify the fundamental conditions, decisions, infrastructure limitations, environmental constraints, or policy gaps that create or exacerbate risk. Failure-chain analysis expands this evaluation by examining how an initial disruption spreads through interconnected systems, creating secondary and tertiary impacts that may be significantly greater than the original hazard impact.

This analysis helps distinguish between root causes, failure chains, and side effects. For example, recurrent roadway flooding may be a visible symptom of risk; however, the root cause may involve inadequate drainage capacity, altered watershed conditions, aging infrastructure, or development patterns that increase runoff. The resulting failure chain may include transportation disruptions, delayed emergency response, utility access challenges, workforce mobility issues, and economic losses. Understanding these relationships allows planners to target adaptation actions where they will have the greatest long-term effectiveness.

The results of this analysis help identify adaptation opportunities that address systemic vulnerabilities rather than isolated impacts. By targeting root causes and critical failure points, comprehensive adaptation projects can reduce risk more effectively, improve system performance, and provide benefits across multiple sectors. These findings establish the foundation for the development and evaluation of adaptation concepts presented in the following sections.

Figure 3-3. Aerial Photograph of Jacksonville, Florida



Source: Pexels



3.2.3 Understanding System Interdependencies and the Broader Consequences of Mission-Critical Risk

Once the local context is mapped, the next step is to evaluate the broader implications of the mission-critical risk(s) identified during the vulnerability assessment (TM 4), which established their significance to mission assurance. This analysis expands the planning perspective beyond the immediate asset or operation at risk to examine how disruptions affect the interconnected systems, services, and resources that support both the installation and the surrounding community.

Mission readiness depends on the reliable performance of a wide range of interconnected systems, including built infrastructure, environmental and natural systems, community and social networks, public services, and economic assets. Hazards rarely affect a single asset in isolation; instead, disruptions often propagate across these interdependent systems, creating cascading consequences that amplify operational, environmental, social, and economic impacts. Understanding these relationships helps define the full scope of the problem, identify who and what is affected, and determine how risks may spread through infrastructure networks, ecosystems, community functions, and regional economies.

Evaluating broader consequences and system interdependencies also provides the foundation for identifying adaptation investments that deliver multiple resilience benefits. For example, if recurrent flooding threatens a mission-critical evacuation route, the impacts may extend beyond transportation access to disrupt utility services, constrain emergency response operations, damage natural habitats and water quality, reduce workforce mobility, affect vulnerable populations, interrupt access to healthcare and other essential community services, impact local businesses, and diminish overall community resilience. Recognizing these interconnected effects can reveal opportunities for comprehensive adaptation projects that combine transportation improvements, stormwater management, ecosystem restoration, community resilience initiatives, and regional coordination efforts to address underlying risks more effectively and strengthen resilience across built, environmental, social, and economic systems simultaneously.

3.2.4 Key Planning Questions

- What dependencies exist among transportation, utilities, communications, natural resources, emergency services, community services, and economic activity?
- Where are the critical nodes, bottlenecks, or single points of failure that could lead to cascading disruptions?
- Which adaptation investments can address multiple vulnerabilities and resilience objectives simultaneously?
- What partnerships and/or agreements are necessary to implement solutions across jurisdictional, organizational, or community boundaries?
- How do existing conditions, policies, programs, and planned investments influence system performance and resilience?

Answers to these questions help planners and, ultimately, decision-makers move beyond individual asset assessments toward a systems-level understanding of risk. This perspective is fundamental to the development of effective adaptation projects because it directly informs project selection, design, prioritization, and implementation. Projects that address multiple



system dependencies often provide greater value than those focused on a single asset or hazard by addressing underlying drivers of vulnerability, generating co-benefits across sectors, and improving both mission and community resilience. Ultimately, this systems-based approach creates the analytical bridge between understanding existing conditions and developing adaptation solutions, ensuring that recommendations are integrated, scalable, and implementation-ready.

3.2.5 Inventory Existing Initiatives and Investments

A comprehensive understanding of current and planned investments is an important component of the existing conditions assessment. This step documents infrastructure projects, capital improvement programs, resilience initiatives, environmental restoration efforts, transportation improvements, hazard mitigation activities, utility upgrades, and other investments that may influence future resilience outcomes within the study area.

The purpose of this inventory is to establish a baseline understanding of where resources are already being deployed and how ongoing efforts relate to the vulnerabilities and mission-critical risks identified through previous analyses. In addition to documenting project scope, location, and status, the inventory should identify the organizations responsible for implementation, anticipated timelines, and any known dependencies or constraints that may influence future adaptation efforts.

Mapping these initiatives alongside the existing conditions analysis provides a clearer understanding of how current investments support community functions, infrastructure systems, environmental resources, and mission-supporting assets. This process can reveal geographic concentrations of investment, gaps in coverage, opportunities for coordination, and areas where planned improvements may affect system performance and resilience.

At this stage, the objective is not to identify adaptation solutions, but rather to establish a comprehensive understanding of the current implementation landscape. This baseline inventory provides the foundation for evaluating how existing investments may contribute to future adaptation strategies developed in subsequent steps. This inventory also provides insight on local partner priorities, and it is the foundation upon which to build.

3.2.5.1 Key Planning Questions

- What infrastructure, resilience, and capital improvement projects are currently planned but not funded; planned and funded; or planned, funded, and underway?
- Which organizations are responsible for implementation and long-term management?
- What geographic areas and infrastructure systems are being influenced by current investments?
- Where are there gaps in investment relative to identified risks and vulnerabilities?
- How might existing projects influence future adaptation opportunities?

Documenting existing initiatives and investments establishes a critical baseline for adaptation planning. Understanding where resources are already being committed allows planners to identify potential synergies, reduce duplication, and ensure that future adaptation concepts build upon ongoing efforts.



3.3 Stage 2: Developing the Adaptation Outline: Solution Conceptualization

Figure 3-4. Stage 2 Process



3.3.1 Build Upon Existing Infrastructure Initiatives and Identify Adaptation Opportunities

With the context of place, mission-critical risks, system interdependencies, and existing investments documented in Step 1, the next phase transitions from analysis to solution development. This step evaluates existing infrastructure projects, planned capital investments, and resilience-related improvements through a mission assurance and resilience lens to identify opportunities for enhancement, expansion, integration, or strategic redirection.

Rather than beginning with entirely new project concepts, adaptation planning should first examine how current investments can be leveraged to address identified vulnerabilities more comprehensively. Existing transportation improvements, utility upgrades, stormwater projects, facility improvements, environmental restoration efforts, and other infrastructure investments may present opportunities to increase resilience benefits, address system dependencies, or improve performance under future hazard conditions.

This evaluation should identify where planned investments already contribute to risk reduction, where modifications could produce additional resilience outcomes, and where critical gaps remain unaddressed. These gaps often reveal opportunities for new adaptation concepts that address vulnerabilities at the corridor, network, district, watershed, or regional scale rather than at the individual asset level.

The development of adaptation opportunities should be guided by the vision, goals, and resilience objectives established through the Regional Resilience Action Plan (RRAP) and other applicable planning efforts. By grounding adaptation concepts within established priorities, planners can ensure that proposed projects address mission-critical risks while advancing broader resilience outcomes for the surrounding region.



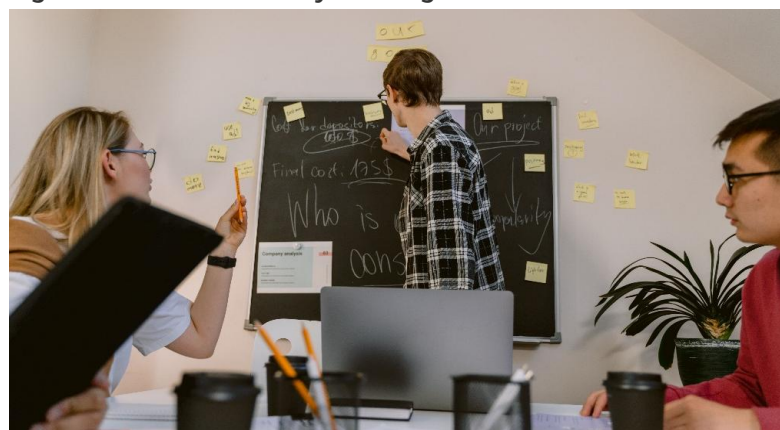
The outcome of this step should be a broad portfolio of adaptation opportunities that builds upon existing investments while introducing new concepts capable of addressing systemic vulnerabilities and future resilience challenges.

3.3.1.1 Key Planning Questions

- How do the goals and resilience objectives established through the RRAP and related planning documents inform adaptation priorities?
- Which existing projects already contribute to addressing identified risks and vulnerabilities?
- How can current infrastructure investments be enhanced, expanded, or connected to improve resilience outcomes?
- Where do existing projects fail to address future hazard conditions or critical system dependencies?
- What new adaptation concepts emerge from the analysis of mission-critical risks, root causes, and interdependencies?
- Which opportunities provide resilience benefits across multiple infrastructure systems and stakeholder groups?

This step serves as the bridge between assessment and concept development. By evaluating current investments through a resilience lens and identifying opportunities for enhancement and innovation, planners can develop adaptation concepts that are both grounded in ongoing local efforts and responsive to future resilience needs. The resulting opportunity set establishes the foundation for project evaluation, prioritization, and refinement in subsequent steps.

Figure 3-5. Collaboratively Building the Outline



Source: Pexels

3.3.2 Review Local Best Practices and Industry Adaptation Innovation Precedents

Following the identification of potential infrastructure adaptation opportunities, planners should review successful adaptation projects, innovative infrastructure solutions, and leading practices that address similar risks and operating conditions. This review provides examples of how other installations, communities, agencies, and infrastructure providers have responded to comparable challenges and can inform the development of locally applicable solutions.

The review should examine both conventional and emerging approaches across all identified asset sectors. Particular attention should be given to projects that have demonstrated measurable resilience benefits, addressed multiple vulnerabilities simultaneously, or improved performance across interconnected systems.



The objective is not to replicate individual projects, but to inspire and identify transferable concepts, design approaches, implementation strategies, and technical innovations that can be adapted to local conditions. Lessons learned from previous projects can help planners understand potential constraints, identify opportunities for improvement, and broaden the range of viable adaptation approaches under consideration.

3.3.2.1 Key Planning Questions

- What infrastructure adaptation strategies have been implemented successfully under similar conditions?
- Which approaches are most applicable to the specific location, hazards, infrastructure systems, and mission requirements?
- What lessons should be considered during project development?
- Which solutions deliver resilience benefits across multiple infrastructure systems?
- What innovative approaches could improve adaptation outcomes within the study area?

Reviewing infrastructure precedents expands the range of potential adaptation solutions and helps ensure that recommendations are informed by demonstrated practice. This process encourages innovation while grounding project concepts in real-world experience and measurable, resilient outcomes.

3.3.3 Workshop and Prioritize Adaptation Opportunities

Following the identification of infrastructure adaptation opportunities and the review of relevant adaptation precedents, the next step is to evaluate the potential solution set and identify those opportunities that most effectively address the identified risks, existing conditions, and local priorities. This process should be conducted collaboratively with stakeholders to ensure that proposed adaptation strategies reflect technical needs, operational realities, community concerns, and resilience objectives.

The purpose of this step is not to select individual projects in isolation, but to assess how well each opportunity responds to the broader resilience challenges identified throughout the planning process. Adaptation solutions should be considered within the context of the local hazard environment, infrastructure conditions, system interdependencies, community needs, mission requirements, and the goals established through the RRAP and related planning efforts.

Workshop discussions should evaluate the ability of each opportunity to reduce risk to mission, address critical vulnerabilities, improve system performance, and generate benefits across interconnected built, natural, social, and economic systems. Particular attention should be given to solutions that address multiple vulnerabilities simultaneously, resolve root causes rather than isolated symptoms, and provide long-term benefits across a wide range of stakeholders.

This collaborative evaluation process helps distinguish opportunities that provide localized benefits from those that create broader resilience outcomes at the network, corridor, district, watershed, or regional scale. The result should be a prioritized portfolio of adaptation opportunities that balances technical effectiveness, local priorities, and overall resilience value.



3.3.3.1 Key Planning Questions

- Which adaptation opportunities most effectively reduce the identified mission-critical risks?
- How well does each opportunity respond to existing conditions and projected future challenges?
- Which solutions address multiple vulnerabilities or system interdependencies simultaneously?
- How do proposed opportunities align with local priorities and the resilience goals established through the RRAP?
- Which opportunities generate the greatest benefits across built, natural, social, and economic systems?
- Are there opportunities that can be combined into a more comprehensive adaptation strategy?

This step provides a structured process for moving from a broad inventory of adaptation concepts to a refined set of high-value opportunities. By prioritizing solutions that comprehensively reduce risk, respond to local conditions like the urban/rural context, and honor community priorities, planners can focus subsequent project development efforts on adaptation strategies that offer the greatest potential resilience benefits while supporting mission assurance and regional resilience objectives.

3.3.4 Evolve Concepts into Integrated Adaptation Strategies

Following the prioritization of adaptation opportunities, the next step is to combine complementary solutions into integrated adaptation strategies that address risks across multiple systems simultaneously. Rather than advancing projects as standalone improvements, planners should identify opportunities to layer infrastructure investments in ways that maximize resilience benefits and address interconnected vulnerabilities.

Integrated strategies should consider how improvements to built, natural, social, and economic infrastructure can reinforce one another to achieve broader resilience outcomes. For example, a transportation improvement project may also enhance stormwater management, improve emergency access, strengthen ecosystem functions, support workforce mobility, and protect economic activity. Similarly, a natural infrastructure project may provide flood mitigation benefits while improving environmental quality and reducing stress on adjacent infrastructure systems.

This step encourages planners to move beyond single-purpose solutions and develop comprehensive projects that address multiple risks, stakeholders, and resilience objectives. By combining complementary interventions into coordinated adaptation strategies, projects can often achieve greater effectiveness, efficiency, and long-term value than isolated investments.

3.3.4.1 Key Planning Questions

- Which adaptation opportunities can be combined into a more comprehensive resilience strategy?
- How can built, natural, social, and economic infrastructure improvements be layered to maximize benefits?
- Which solutions address multiple risks or system interdependencies simultaneously?



- Where can gray, green, and nature-based infrastructure approaches be integrated (and understand where they cannot, so interested stakeholders can be informed)?
- How can projects be structured to support both mission assurance and community resilience objectives?

This step transforms individual adaptation opportunities into comprehensive projects that produce multiple resilience benefits. By integrating complementary solutions across systems and sectors, planners can develop projects that more effectively address complex vulnerabilities while maximizing the value of future investments.

3.3.5 Assess Potential Unintended Consequences

Before adaptation strategies are finalized, planners should evaluate whether proposed infrastructure investments may create unintended consequences elsewhere within the system. Infrastructure interventions designed to reduce risk in one location can sometimes transfer risk, create new vulnerabilities, or degrade performance in adjacent systems if broader interactions are not adequately considered.

This assessment should examine how proposed projects influence transportation systems, utility networks, drainage patterns, natural resources, emergency access, community functions, and economic activity. Consideration should be given to both short-term and long-term effects, including future hazard conditions, changing development patterns, infrastructure lifecycle requirements, and evolving operational needs.

Potential concerns may include shifting flooding to neighboring areas, reducing ecological function, creating maintenance burdens, introducing operational dependencies, constraining future adaptation options, or producing inequitable impacts across affected populations and infrastructure users. Understanding these potential outcomes allows projects to be refined before implementation and helps avoid maladaptation.

3.3.5.1 Key Planning Questions

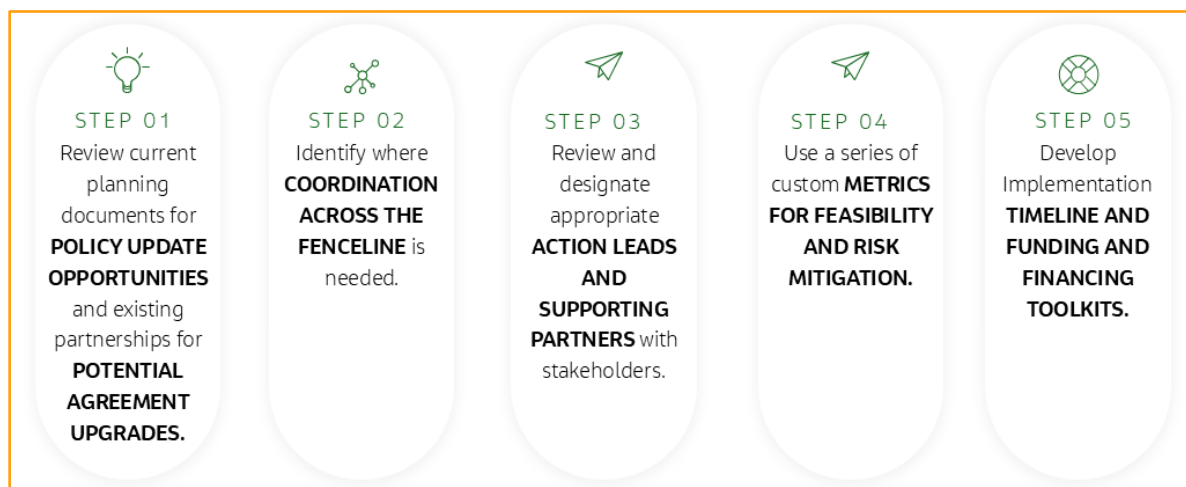
- Could the proposed project transfer risk to another location, system, or population?
- Are there impacts to transportation, utilities, natural systems, or community functions that require mitigation?
- Will the project create new operational or maintenance challenges?
- How will future conditions influence long-term project performance?
- What modifications could improve resilience outcomes while minimizing adverse impacts?

Evaluating unintended consequences helps ensure that adaptation investments strengthen overall system resilience rather than simply shifting vulnerabilities. This final review improves project quality, supports more informed decision-making, and helps ensure that recommended projects are effective, sustainable, and resilient over the long term.



3.4 Stage 3: Prepare for Actionable Implementation

Figure 3-6. Stage 3 Process



3.4.1 Review Planning Documents and Identify Implementation Enablers

Once adaptation projects have been prioritized and refined, the next step is to review the planning, regulatory, and administrative frameworks that may influence implementation. The purpose of this review is not to revisit project priorities, but to identify any requirements, constraints, or opportunities that could affect project delivery.

This review should focus on the documents, standards, and processes that govern development patterns and infrastructure planning, design, permitting, capital programming, operations, and maintenance. Examples may include comprehensive plans, capital improvement programs, transportation and utility master plans, development regulations, engineering design standards, environmental requirements, facility planning guidance, and permitting procedures. Understanding these implementation factors can help identify where project delivery may be accelerated, where modifications may be necessary, and where updates to existing guidance could support resilience objectives.

Adaptation projects frequently involve infrastructure systems that cross organizational and jurisdictional boundaries, requiring coordination among multiple planning and implementation processes. Evaluating these relationships early helps reduce implementation barriers, improve project readiness, and ensure that recommended projects can advance efficiently from concept development to execution.

3.4.1.1 Key Planning Questions

- What planning, regulatory, or administrative requirements affect implementation of the proposed projects?
- Are there existing standards, procedures, or requirements that may limit project delivery or resilience outcomes?
- What permitting, review, or approval processes should be considered during project development?



- Are there opportunities to incorporate adaptation projects into existing capital improvement or infrastructure planning programs?
- What modifications to current standards, guidance, or procedures could improve long-term resilience outcomes?
- Do current policies and guidelines incorporate current and future climate hazards?

This step helps ensure that proposed adaptation projects are supported by the planning and regulatory environment in which they will be implemented. Identifying legislative and administrative pathways increases implementation readiness and helps institutionalize resilience as a long-term consideration in future infrastructure decision-making.

3.4.2 Identify Opportunities for Coordination with Military Installations

This step focuses on confirming that proposed adaptation projects appropriately respond to installation needs, address mission-supporting vulnerabilities, and complement resilience investments occurring within the installation.

Coordination with installation representatives can help validate project assumptions, identify mission dependencies that rely on off-installation infrastructure, and ensure that proposed investments address the vulnerabilities most significant to mission assurance. Particular attention should be given to transportation corridors, utility systems, communications networks, emergency access routes, watershed conditions, and other regional infrastructure systems that directly influence installation operations.

This step also examines opportunities to align project timing, sequencing, and phasing with ongoing or planned projects inside the installation. In many cases, the resilience benefits of an off-installation project may be enhanced when coordinated with complementary infrastructure improvements occurring within the fence line. Understanding project schedules, investment cycles, and infrastructure dependencies can help identify opportunities to maximize resilience outcomes, improve efficiency, and avoid implementation conflicts.

The goal is not to implement projects within the installation, but to ensure that off-installation adaptation investments are informed by mission requirements and coordinated, where appropriate, with related installation activities.

3.4.2.1 Key Planning Questions

- Do project concepts adequately address identified mission dependencies and vulnerabilities?
- Are there opportunities to refine project scope, location, or design to better support mission assurance objectives?
- Are there planned or ongoing installation projects that could influence or complement the proposed adaptation investments?

Figure 3-7. Camp Blanding Exercise



Source: National Guard



- Can project implementation schedules, phasing, or sequencing be coordinated to maximize resilience benefits and improve overall system performance?
- Have installation representatives validated the assumptions and intended benefits associated with the proposed projects?

Coordination with military installations helps ensure that recommended adaptation projects remain focused on the infrastructure systems and vulnerabilities most relevant to mission assurance. It also creates opportunities to align off-installation investments with complementary projects occurring within the installation, maximizing resilience benefits across interconnected systems. This step strengthens the connection between community resilience investments and operational needs, helping ensure that proposed projects provide meaningful and lasting support for both installation readiness and regional resilience.

3.4.3 Designate Action Leads and Supporting Partners

The transition from planning to implementation requires clear accountability. Once adaptation projects have been refined and coordination opportunities identified, the next step is to designate action leads and supporting partners responsible for advancing each project.

Action leads should be organizations with the authority, capacity, and responsibility to guide project development and implementation. Supporting partners may include infrastructure owners, local governments, utility providers, regional agencies, community organizations, environmental organizations, and other entities whose participation is necessary for project success.

Clearly defining roles at this stage helps establish project ownership, improve coordination, and ensure that recommended actions move beyond conceptual planning. For projects involving multiple organizations or jurisdictions, identifying lead and supporting roles can also clarify decision-making processes and help maintain momentum throughout implementation.

3.4.3.1 Key Planning Questions

- Which organization is best positioned to lead each adaptation project?
- What partners are necessary to support implementation?
- How will responsibilities be distributed across project phases?
- What expertise, resources, or capabilities will supporting organizations provide?
- How will coordination be maintained throughout project development and delivery?

The stakeholder engagement process initiated at the onset of the project is a very important task to develop buy-in toward implementation and a sense of partner ownership because projects were either co-created with ultimate implementors or influenced by stakeholder feedback. Assigning action leads and supporting partners transforms adaptation concepts into implementation-ready projects. Clear ownership and accountability increase the likelihood that recommendations progress from planning to execution.



3.4.4 Develop Feasibility and Risk-Reduction Metrics

To support implementation and investment decisions, proposed adaptation projects should be evaluated using a consistent set of feasibility and risk-reduction metrics. Establishing a standardized evaluation framework helps compare projects, communicate benefits, and prioritize investments based on measurable resilience outcomes. They should be created by the project team (in this case, regional council staff and planning consultant) and developed based on the vision and values of the convening lead and stakeholder group.

Feasibility metrics may consider technical complexity, implementation requirements, constructability, costs, operational considerations, maintenance demands, implementation timelines, and organizational capacity. Risk-reduction metrics should evaluate how effectively projects reduce hazard exposure, improve system reliability, strengthen redundancy, protect mission-critical functions, and increase adaptive capacity.

The goal is to create a transparent and repeatable framework that helps decision-makers understand the relative strengths, limitations, and resilience benefits of each project. When executed correctly, the metrics scorecard is a transferable tool for Stage 4 Implementation steps that annually re-rank and prioritize the projects for funding.

3.4.4.1 Key Planning Questions

- What metrics best measure project feasibility?
- What metrics best measure risk reduction?
- How should resilience benefits and co-benefits be quantified?
- How will projects be compared consistently?

A standardized metrics framework increases transparency, supports prioritization, and provides a consistent basis for investment decisions.

3.4.5 Develop Implementation Timelines and Funding Strategies

The final step in preparing for implementation is to develop a realistic implementation roadmap for each adaptation project or adaptation pathway. This roadmap should define the sequence, timing, resource requirements, and funding approach necessary to move projects from concept development to execution.

Projects should be organized according to implementation readiness, project dependencies, complexity, anticipated benefits, and available resources. Some projects may be positioned for immediate advancement, while others may require additional planning, engineering, environmental review, stakeholder coordination, or funding commitments before implementation can proceed. Establishing a phased implementation framework helps create a logical progression of actions that builds momentum while supporting long-term resilience objectives.

Funding strategies should identify potential local, state, and federal grant programs, general obligation or revenue bonds, capital improvement programs, resilience funding and financing sources, utility investment programs, hazard mitigation funding opportunities, and other financing mechanisms appropriate to each project. Opportunities to phase projects, bundle



complementary investments, or align implementation with planned infrastructure replacement cycles should also be evaluated to increase efficiency and funding competitiveness.

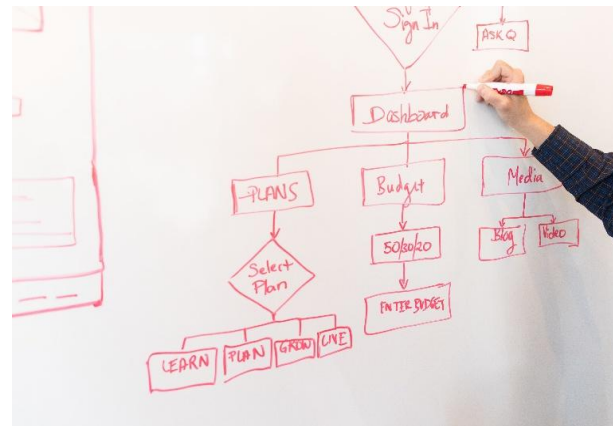
The objective of this step is to produce an actionable implementation roadmap that clearly identifies what actions should occur, when they should occur, how they will be funded, and what milestones are necessary to advance projects toward delivery.

3.4.5.1 Key Planning Questions

- What implementation sequence will maximize resilience outcomes and project success?
- What projects are suitable for bundling or packaging together geographically?
- Which projects are appropriate for near-term, mid-term, and long-term implementation?
- What project dependencies or prerequisites must be addressed before implementation?
- What funding and financing opportunities align with proposed adaptation projects?
- How can adaptation investments be coordinated with existing capital improvement cycles or infrastructure replacement schedules?
- What project phasing strategies could improve feasibility and implementation readiness?
- What will be the subsequently required operations and maintenance costs?

Developing implementation timelines and funding strategies transforms adaptation concepts into implementation-ready projects. By establishing realistic schedules, identifying funding pathways, and defining project sequencing, planners create a roadmap that guides future investment decisions and provides a practical path toward execution.

Figure 3-8. Building Implementation Tools



Source: Pexels



3.5 Stage 4: Implement, Monitor, and Sustain Adaptation Projects

Figure 3-9. Stage 4 Process



3.5.1 Designate an Adaptation Champion

Successful implementation depends on sustained leadership and organizational commitment. The first step in project execution is identifying an adaptation champion responsible for maintaining momentum, advancing resilience priorities, and coordinating implementation activities over time.

The adaptation champion serves as the primary advocate for the adaptation program and helps ensure that resilience considerations remain visible within organizational and regional decision-making processes. This role may be fulfilled by an installation representative, local government official, regional organization, resilience coordinator, or another individual or entity with the capacity to convene stakeholders and advance implementation activities.

3.5.1.1 Key Planning Questions

- Who is best positioned to champion implementation efforts?
- Does the designated champion have the authority and capacity to coordinate actions?
- How will leadership continuity be maintained over time?
- What resources are available to support implementation oversight?

Establishing a dedicated champion helps maintain momentum, attention, accountability, and excitement when funding is secured and ensures that resilience objectives remain a priority beyond the completion of the planning process.



3.5.2 Organize an Action Plan Around Available Capacity

Implementation strategies should be structured around available personnel, resources, organizational capacity, and operational realities. While adaptation projects may be ambitious, successful implementation depends on matching project demands with available capabilities.

This step involves translating adaptation projects into an action-oriented implementation plan with defined tasks, milestones, responsible parties, and schedules. Organizing implementation around existing capacity allows planners to sequence projects strategically and create achievable pathways toward long-term resilience goals.

3.5.2.1 Key Planning Questions

- What personnel and organizational resources are available to support implementation?
- Which actions can be initiated immediately?
- How should projects be sequenced based on available capacity?
- Where are additional resources or expertise required?
- What is the implementation structure best suited for this region and this project?

Aligning implementation plans with available capacity improves deliverability, creates realistic expectations, and increases the likelihood of sustained progress.

3.5.3 Monitor Progress, Funding Opportunities, and Changing Conditions

Adaptation implementation should be managed as an ongoing and iterative process. As projects advance, conditions may change, new information may become available, infrastructure priorities may evolve, and additional funding opportunities may emerge. Consequently, adaptation priorities should be reviewed periodically to ensure that implementation efforts remain aligned with current risks, mission requirements, and community needs.

This step focuses on monitoring project performance, tracking implementation progress, evaluating changing conditions, and identifying opportunities to accelerate or refine future investments. Project schedules, funding strategies, and implementation priorities should be reassessed regularly to account for new data, changing hazard conditions, completed infrastructure projects, emerging technologies, or shifts in community and mission priorities.

Monitoring funding programs is also critical to implementation success. New grant opportunities, legislative programs, resilience initiatives, and infrastructure funding sources may create opportunities to advance projects more quickly or expand their scope. Regular review allows organizations to adapt implementation strategies and capitalize on emerging opportunities while maintaining focus on long-term resilience objectives.

The objective is not to redesign the adaptation strategy but to ensure that implementation efforts remain relevant, responsive, and aligned with changing conditions throughout the project lifecycle.



3.5.3.1 Key Planning Questions

- Have risk conditions, infrastructure needs, or mission requirements changed since project prioritization?
- Are implementation schedules and project sequencing still appropriate?
- What new funding opportunities have emerged since the implementation roadmap was developed?
- Are projects achieving their intended resilience outcomes?
- Should implementation priorities be adjusted based on new information or changing conditions?
- Are there opportunities to accelerate, expand, or combine projects to improve resilience outcomes?

Regular monitoring and reassessment help ensure that adaptation investments remain responsive to evolving conditions and opportunities. By periodically evaluating implementation progress, funding availability, and project performance, organizations can maintain momentum, improve decision-making, and maximize the long-term effectiveness of resilience investments.

3.5.4 Maintain the Adaptation Strategy as a Living Framework

Adaptation is an ongoing process rather than a one-time planning effort. As projects are implemented, conditions change, and new opportunities emerge, the adaptation strategy should be maintained as a living framework that continues to guide future resilience investments and decision-making.

New data, changing risks, completed projects, funding opportunities, and evolving community priorities should be incorporated into the strategy over time. Regular updates help ensure that adaptation efforts remain aligned with current needs and continue to support mission assurance and community resilience objectives.

3.5.4.1 Key Planning Questions

- How will the adaptation strategy be maintained and when will it be updated?
- What events or conditions should trigger future revisions?
- How will implementation progress be monitored and evaluated?
- How can the strategy remain integrated with ongoing planning and investment decisions?

Maintaining the adaptation strategy as a living framework that periodically gets reviewed and updated supports continuous improvement and long-term resilience. It ensures that adaptation planning remains relevant, actionable, and responsive to future challenges and opportunities.



Figure 3-10. Flyover at St. Johns River



Source: Pexels

