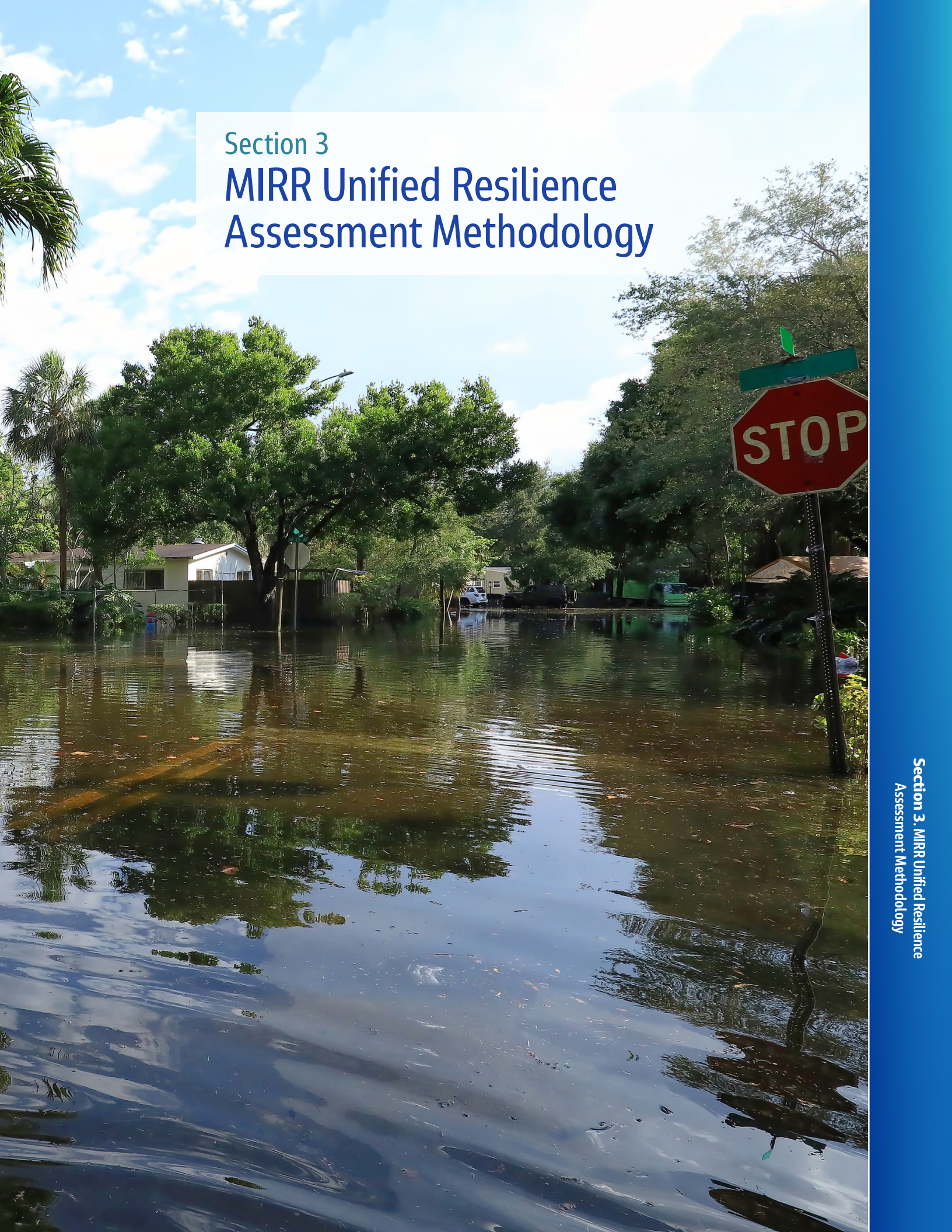


# Section 3 MIRR Unified Resilience Assessment Methodology





### 3. MIRR UNIFIED RESILIENCE ASSESSMENT METHODOLOGY

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## Section 3

# MIRR Unified Resilience Assessment Methodology

The Unified Facilities Criteria is the Standard Practice Criteria prescribed by the DoD for use by military installations and other DoD facilities. The UFC includes criteria for facility planning, design, construction, operation and maintenance, sustainment, restoration, and other standards for physical improvements. However, as a national standard, the UFC does not address localized hazards or unique conditions at the regional or installation level. Additionally, each military department within the DoD has a different set of guidance documents and approach to analyzing vulnerability and risk from climate and extreme weather hazards. At the regional and local community level, cities, counties, and the DoD use varying climate projections and evaluation metrics for determining risk and differing design standards for building resilience.

Because hazards know no boundaries, resilience planning and action is more successful with cooperation and coordination across jurisdictions for assessment, analysis, and implementation. Regional cooperative planning is a model that has been successful in South Florida for many years. This model serves as the foundation for including military installations and planners at the planning table.

As shown on Figure 3-1, the Unified Resilience Assessment Methodology serves as a guide to:

- Define the need for, and support, agreement among installations on a unified regional approach to resilience assessments
- Assess climate and natural hazard vulnerabilities and associated risk within a local context
- Document the outcomes of the unified approach

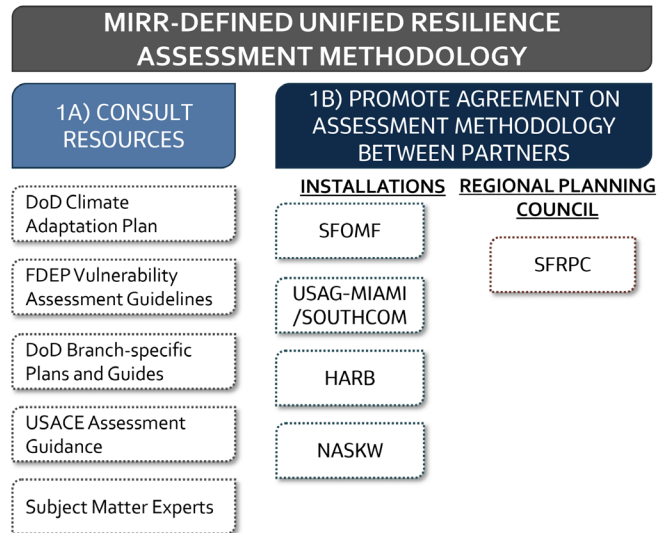


Figure 3-1. Adaptation Methodology Step 1

## Agreement on Resilience Assessment Methodology

To facilitate agreement among stakeholders on the components, metrics, and methodology used to perform the vulnerability and risk assessment, the project team researched the requirements and practices at the state, region, community, military department, and installation levels. The team communicated the scope of the assets to be analyzed and the corresponding adaptation actions were required to be “outside the installation fence line” (in other words, within the communities surrounding the installations). Study area boundaries were drawn at approximately 5-mile radii to capture the data of assets within the communities upon which the installations depend. An understanding of the overlapping requirements, regional practices, and project scope boundaries was the first step toward agreement on the assessment methodology.

### 3. MIRR UNIFIED RESILIENCE ASSESSMENT METHODOLOGY

#### Path to Concurrence

The project team facilitated cooperative and open communication among the stakeholders representing the installations, cities, counties, and utilities, as appropriate, by including them in the site visits and workshops. Open dialogue encouraged stakeholders to talk to each other about the hazards they face, the relationships held between them, ongoing efforts, and coordination. This open dialogue confirmed the hazards prioritized by installations were similar or identical to the priority hazards of the cities and counties. Recognition of these shared threats was the second step in agreement on the assessments.

*The military installation representatives within the region have expressed agreement in following locally developed and adopted climate policy and design standards when more stringent than the UFC. The DoD should develop department-wide guidance directing installations to adopt resilience and design standards on future efforts consistent with the most stringent approach in their local/regional context to better enable mission assurance in the ensuing years.*

The MIRR process builds upon the resilience guidance developed by the region and standards developed by counties and cities to plan and design for future climate conditions: elevation (roadway, seawall, and building freeboard above the FEMA BFE), hardening, and protection standards in city and county codes for design, construction, renovation, and building material selection.

#### Consistency in the Assessment Approach

An outcome of the South Florida MIRR is the integration of adaptation actions into local government and regional strategies, plans, and investments. The intent is to foster hazard-resilient natural and built infrastructure that protects and enhances the resilience of South Florida's military



*Open Communication Among Stakeholders*

installation readiness and operations, including military range testing and training, for years and decades to come.

#### Better Alignment Between Communities' and Installations' Resilience Efforts

Though the four installations within the scope of this MIRR are distinct and subject to the differing resilience and/or design standards of their respective parent military services, the project team noted numerous ways in which these installations are connected to one another—both in terms of defense missions, including significant component command and contingency plan support, and in physical assets, such as electric power, water and wastewater service, and communications infrastructure. This interconnectedness provides the critical underpinnings of the MIRR's regional approach, along with efforts to identify potential and related regional resilience synergies.

#### Importance of a Regional View

Climate adaptation and resilience is largely delivered at the local and regional level. Regional climate threats do not honor the geographic or political boundaries placed around property. Regional collaborative planning has worked well in South Florida to build community resilience, as evidenced by the Compact model noted in Section 1. The Compact model has inspired other collaboratives within Florida and around the country.

Infrastructure consists of a series of connected and dependent systems that work together to provide critical public and utility services, such as electrical power, potable water distribution, and wastewater collection. Both water and wastewater pumping and treatment processes rely on electrical power, and electrical power generation relies on water for cooling. These system dependencies occur at the regional level and supply critical services across the South Florida region, including services to the four military installations.

This regional context is very apparent for NASKW, which like much of the Keys, receives its electrical power and potable water from sources nearly 100 miles to the north on the Florida mainland. This regional perspective, along with an understanding of system interdependencies and failure chains, is critical to evaluate facility vulnerabilities and adaptation strategies.

## Blueprint for Decision-Making and Planning Framework

Improvements and vulnerabilities identified during this project are “outside of the fence” of DoD facilities, pursuant to the grant guidelines. Opportunities identified “inside the fence line” were highlighted and shared for future actions as appropriate. Robust stakeholder engagement with cities, counties, utilities, critical public services, and other entities was critical to success and to ensure that all stakeholders and external entities are aligned in their goals and expectations.

This process has provided a path for concurrence among the installations to favor the use of the most stringent resilience building polices and design guidelines, informed by the best available science and data and within the local context. The use of the strongest standards builds military resilience and supports mission assurance.

The intent of this work was to identify potential vulnerabilities that affect mission assurance. The vulnerability assessment gives stakeholders an understanding of what and where the vulnerabilities are. The assessment process subsequently prioritized these vulnerabilities. Proposed improvements were ranked according to mission criticality and performance criteria based on risk reduction and operational continuity for critical public services.

## Coastal Resilience at Tyndall AFB

A premier example of development and implementation of the strongest standards for military resilience is the pre-design guidance that was developed as part of the Tyndall AFB rebuild strategy. Located on the panhandle of Florida, Tyndall established two very important memorandums that drove guidelines for increased wind speeds and a higher design elevation. In addition, there were performance standards established related to the following:

- Structural load-resisting systems and related envelop elements
- Architectural systems
- Energy, power, and electrical distribution systems
- Telecom and fiber utility
- Domestic water and fire water
- Wastewater
- Stormwater
- Exterior lighting
- Signage
- Transportation system
- Revegetation and integrated land management
- Coastal resilience

From the performance standards, generalized design guidelines and more detailed technical guidelines were developed. All the pre-design guidance drove the construction documentation packages of the approximate \$5.3B rebuild.<sup>1</sup> The pre-design guidance was established from a combination of evaluating regional best practices such as the Miami-Dade building code, third-party certifications such as LEED and ENVISION, input from technical subject matter experts, and stakeholder input from the USAF, USACE, the National Oceanic and Atmospheric Administration (NOAA), and other important partners.

<sup>1</sup> Tyndall AFB installation standards are available at <https://tyndallifs.com/index.php>



### 3. MIRR UNIFIED RESILIENCE ASSESSMENT METHODOLOGY

#### Establishing a Benchmark for Applicability in Other Regions

The framework and process developed for the South Florida MIRR project is intended to establish a replicable process that can be used for other military installations and other geographic regions across Florida and the U.S. Building on DoD and industry-leading best practices from South Florida, a leader in addressing climate threats and building community resilience, this framework will set the standard for building military and regional resilience.

Resilience benchmarking is a tool that establishes a reference point for an organization that captures policies, design standards, operational procedures, decision-making processes, condition assessment, needs, and vulnerabilities at a particular point in time. This benchmark provides a basis for establishing future performance goals and to track progress toward achieving them. This process is critical to demonstrate the value of a project or process toward the organization's goals and was used for the MIRR.

#### Outcomes

In addition to meeting the goals outlined for the Unified Resilience Assessment Methodology, this regional approach also ensured the following key components were incorporated for the development of the adaptation strategy, including planning guidelines and decision-making framework for capital investments:

- State of Florida (Florida Department of Environmental Protection [FDEP])-compliant vulnerability assessment
- Alignment with the Compact's Unified Projections
- Alignment with DoD Climate Action Plans
- Review of Federal and DoD Building Requirements and individual installation guidelines

Creating this fully aligned baseline for the development of the adaptation strategy ensured that the proposed infrastructure and policy interventions were aligned and deconflicted between the multiple jurisdictions in which they will be implemented. Additionally, the feasibility of obtaining funding for design, permitting, and construction is greatly increased.

#### Agreement Among Regional Partners

Concurrence on the approach and methodology was attained throughout the assessment and adaptation phases of the project, particularly with regard to the alignment of the goals and the importance of consistency.

To combat the evolving natural hazard threats facing our communities, military installations, and supporting infrastructure, collaboration across property and jurisdictional boundaries is imperative. By pooling our resources and working toward common goals, infrastructure and operationalize resilience can be adapted through forward-looking policy, design standards, and capital investment prioritization.



South Florida MIRR Study Advisory Committee