

# PROBLEMS, OPPORTUNITIES, OBJECTIVES AND CONSTRAINTS

## PROBLEMS

- Structures are vulnerable to damage from inundation caused by coastal storm surge.
- Critical infrastructure is vulnerable to damage from inundation caused by coastal storm surge.
- Critical transportation routes and U.S. Route 1 specifically are vulnerable to damage from wave energy and erosion caused by coastal storms.
- Inundation caused by coastal storm surge limits or in some locations prevents vehicle travel on U.S. Route 1.
- The reduced evacuation efficiency and structure inundation caused by coastal storm events creates life safety risks to the population of the Florida Keys.
- There are rich environmental resources that are unique to the study area that are vulnerable to the effects of coastal storms. Some of these resources, mangroves for example, provide a reduction in the impacts of coastal storms on the study area and their loss increases the risk of storm damage to the built environment in the study area.

## OPPORTUNITIES

- Reduce economic damage caused by coastal storms to the built environment in the Florida Keys.
- Reduce damage caused by coastal storms to the natural environment in the Florida Keys.
- Reduce the risks to human life, health, and safety caused by coastal storm events.
- Reduce the vulnerability of Route 1, the primary and only evacuation route from the Keys, to the effects of coastal storms including limited vehicle travel and damage to the roadway structure.
- Increase the resilience of the Florida Keys to the impacts of coastal storms and flooding (Note: the USACE principles of resilience are Prepare, Absorb, Recover, and Adapt).
- Protect and/or restore the natural coastal system of defenses that are existing or were historically present in the study area.
- Improve residential canals to include measures that address sediment management, debris removal, erosion control, and water quality.
- Provide incidental risk reduction to the Department of Defense facilities located in the vicinity (ex. the Naval Air Station in Key West) of the measures recommended by this study.
- Reduce impacts of general sea level rise (sunny day flooding) in the Florida Keys.

## OBJECTIVES

- Reduce the risk of damage to U.S. Route 1 caused by wave action and erosion associated with coastal storms in the Florida Keys over the 50 year period of analysis.
- Reduce the risk of damage to critical infrastructure caused by storm surge inundation associated with coastal storms in the Florida Keys over the 50 year period of analysis.
- Reduce the risk of damage to development (residential and non-residential structures) caused by storm surge inundation associated with coastal storms in the Florida Keys over the 50 year period of analysis.
- Reduce the risk to human life, health, and safety to the population in the Florida Keys that is caused by the inundation of development and critical infrastructure and the reduced evacuation efficiency that is associated with coastal storm events over the 50 year period of analysis.

## CONSTRAINTS

- Risk to human health and life safety should not be increased by the recommended plan.
- The recommended plan should not create new inundation/flooding problems and/or exacerbate existing coastal storm risk.



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