

Lee County Coastal Infrastructure Risk Assessment and Resiliency Plan

Project Description (LEECOUNTYPD_GPS1)

Lee County proposes to hire a consultant to provide a high-level, conceptual approach to assess risk to specific public infrastructure from storm surge and sea level rise, and to offer initial guidance on how to draft resilience planning specific to Lee County. This is a necessary step beyond using generalized online scenario-modeling tools that simply illustrate possible coastal inundation levels.

1. A. Project purpose

Lee County requires a plan to specifically assess risk to public infrastructure from both storm surge and sea level rise. This plan will complement Lee County's current storm-related hazard mitigation planning, which already includes:

- Assessment of riverine flood risk and mitigation project recommendation – In response to rainy season and Hurricane Irma flooding in 2017, Lee County Commissioners directed a three-phase, comprehensive plan for both short-term and long-term flood resiliency efforts that included a \$1.9 million Southern Lee County Flood Protection Study, sediment removal in Ten Mile Canal, canal and ditch cleaning in areas such as Island Park and the Villas, administration of East Mulloch Water Control District projects, a maintenance agreement with the South Florida Water Management District for 13 rivers and creeks, and a \$3 million capital investment budgeted in 2018 for flood mitigation projects.
- Assessment of coastal storm surge flood risk – FEMA has issued preliminary Lee County Flood Insurance Rate maps resulting from state-of-the-art coastal analysis. These maps will likely become effective in 2021. For mitigation strategy and project recommendations, Lee County continues to participate in the FEMA/NFIP Community Rating System (CRS) and the requirements of the Florida Department of Emergency Management for Local Mitigation Strategy and Comprehensive Emergency Management plans and projects.
- Assessment of risks and suggested resilience strategies for natural habitats, particularly mangroves, beaches, sea grass beds, oyster reefs, and the Caloosahatchee River. Two pilot study areas in Lee County are included in the U.S. Army Corps of Engineers South Atlantic Coastal Study (SACS). In addition to risk assessment for natural systems, this study will also examine risks to social and economic systems.

The proposed use of this CDBG-MIT-GPS will address Lee County's fourth need – a risk assessment of coastal public infrastructure particularly but not limited to transportation and water/sewer utilities. Specifically, this assessment will consider the risks to delivering vital public and social services under all of FEMA's Community Lifelines.

Against this framework, there are four overarching issues to be addressed in valuing or prioritizing recommendations:

First, a cost/benefit assessment that values providing solutions to the greatest number of local residents for the longest period of time;

Second, to identify particular risks and the relative value of those risks on the housing, general economic and service access needs of Lee County's low- and moderate-income households;

Lee County is a HUD-determined MID community, with 42% of its population – approximately 277,000 people, qualified LMI to HUD standards. Of Lee's 517 Census block groups, 32% are designated LMI. Of the total LMI population here, nearly 40% live in FEMA's designated Special Flood Hazard Area (SFHA). Approximately 388,160 people live in Lee County's Evacuation A and B Zones, and about 40% of them are LMI. Many live near the Gulf of Mexico and along the Caloosahatchee River in houses built before Lee County joined the NFIP in 1984 and before post-Hurricane Andrew advances in the Florida Building Code. These non-compliant structures are generally among the county's stock of affordable and attainable housing. The planning effort will consider the relative cost/value of the loss of this housing stock and the cost of social services and other government services resulting from the displacement of LMI populations.

Third, consider practical planning objectives for the influence of sea level rise on both static and dynamic water elevations including storm surge on coastal area infrastructure. This plan will be expected to offer guidelines on how to incorporate sea level considerations into this risk assessment, including:

- An assessment of the number and position of existing tidal gauges used to predict sea level rise specifically for Lee County. Should the number or location of these gauges be considered insufficient, the study would recommend options for additional gauges and/or locations;
- Guidelines for the County's compliance to SB178 adopted by the 2020 Legislature and signed into law by Gov. Ron DeSantis. It requires a SLIP study – the study of a sea level impact – on state-financed construction.
- Recommendations for incorporating state guidelines for a predictive curve for local sea-level rise in Lee County planning. This study should also recommend the SLR curve that Lee County may use until the state recommends a curve for consistent statewide planning.

Fourth, maintain or improve Lee County's Class 5 membership in the CRS. If possible, Lee County would like this study and its expected outcomes to comply with CRS guidelines and opportunities for gaining additional points in the system. In conjunction with this issue, Lee County will consider compliance to Florida Building Codes and recommended updates to the Lee Plan, Lee County's DEO-approved comprehensive plan and any other changes to Lee County Administrative Code or policy.

Finally, recommendations of this planning study will include options for communicating the objectives recommended by the study to Lee County staff who will assume tasks to implement plans and strategies and to the general public which may be affected by the plan.

1. B. Area of Benefit

Generally, the area of benefit is all of Lee County, because transportation and utility service interruptions will have costly implications countywide. The proposal presumes a specific study area beginning with the A and B Evacuation Zones in Lee County. The chosen consultant will be expected to provide specific guidance on a better-defined study area.

Lee County agrees with the CDBG-MIT-GPS goal of supporting local and regional priorities that will have long-lasting effects on community risk reduction. Therefore, in this proposed planning effort, Lee County

will follow the planning process established in its Southern Lee County Flood Protection Study and invite all Lee County municipalities to witness the planning process. Their input will be welcomed, though not required.

1. C. Description of the proposed activity

Selection of a consultant will be through a Request for Proposal process that will encourage the bidder to enhance and refine these proposed activities:

- Numerical modeling to determine probabilities of flooding along a timeline; for example, 2020, 2030, 2050, 2075, etc.;
- Delineation of the specific coastal area of the planning study;
- Identification of the critical assets subject to flooding within the study area;
- Determine methodology to rate the consequence of failure (based on the value of asset);
- Calculate risk scores according to this coastal vulnerability index; and
- Identify adaptation alternatives and recommendations.

2. Risk Mitigation

The primary objective is to assess risks and suggest mitigation guidelines for:

- Transportation, particularly high-value routes for evacuation, for the safe and efficient use of ambulance, law enforcement, fire response; for the use of mass transit; for access to all critical facilities; and for the continuing operation of local commerce;
- Water/waste water utilities, particularly for the continuing and high-quality provision of water and sewer services for all suppliers of:
 - Food, water, and housing;
 - Health and medical services;
 - Safety and security services;
- Energy (power & fuel) for all public and private users which provide:
 - Food, water, and housing;
 - Health and medical services;
 - Safety and security services;
- Communications networks, specifically including the County's 911 communications system;
- Hazardous Materials, specifically assessing any potential for exposure.

In addition, this study will measure the value of risk mitigation according to these four overarching issues:

- Cost benefit to tax payers;
- Housing, general economic and service access needs of Lee County's low- and moderate-income households residing in the study area;
- Influence of sea level rise on both static and dynamic water levels including storm surge on coastal area infrastructure; and
- Maintain or improve Lee County's Class 5 membership in the CRS.

3. Tasks and Team

Major tasks and team members associated with this proposal include:

- Response to DEO requests for information including participation in a site visit – Joan LaGuardia, Lee County Performance Analyst, jlaguardia@leegov.com, primary point of contact;
- Review, negotiation and signing of the grant agreement document – Joan LaGuardia;
- Processing of forms and assurances for RFP preparation – Lindsay Cepero, Lee County Procurement Manager, lcepero@leegov.com;
- Review of the RFP submission and awarding of the contract – Lindsay Cepero;
- Project management and monitoring – Steve Boutelle, Lee County Natural Resources Operations Manager, sboutelle@leegov.com;
- Quarterly reporting and invoicing to DEO for the grant management process – Bruce Westberry, Lee County Natural Resources Fiscal Officer, bwestberry@leegov.com;
- Project liaison to the Southern Lee County Flood Protection Study – Luis Molina, Lee County Natural Resources Engineering Manager, LMolina@leegov.com.
- Project liaison to LMI communities and services – Clare Dennehy, Lee County Human and Veteran Services Grants Compliance Coordinator, CDennehy@leegov.com;
- Project liaison to Public Safety Emergency Management – Britton Holdaway, Planning Manager, Emergency Management, bholdaway@leegov.com; and
- Grant project closeout – Bruce Westberry, Lee County Natural Resources Fiscal Officer, bwestberry@leegov.com.

4. Determination of Funding Requirements

Lee County estimates the cost of this study to be \$253,000 based on these sources and comparable planning contracts:

- An estimate delivered by Woods Hole Group, the consultant currently representing Lee County in reviewing the FEMA coastal FIRM update. WHG, which has performed similar studies for Monroe and Palm Beach counties in Florida.
- A Monroe County study of sea level rise vulnerability of county roads by HDR Engineering.

This total also includes:

- An estimate of administrative costs at 5% of the direct planning costs; and
- A contingency of 10% of the direct planning costs to account for unforeseen costs, including potential accommodation of doing business during the COVID-19 pandemic.

The required budget document specifically breaks out estimated costs for tasks.

Note that Lee County has invested more than \$5 million in post-Hurricane Irma riverine studies and \$200,000 in coastal storm surge mapping. The County has budgeted for these significant costs due to

the critical, local needs demonstrated in recent hurricane and rainy seasons. Lee County sought assistance from the Army Corps of Engineers SACS program to offset the costs of study of tidal and sea level rise on natural coastal systems. We believe that this CDBG-MIT-Planning grant presents the best opportunity for funding the study of tidal and SLR risks to public infrastructure. We are asking for all costs of this study to be funded by the grant. At present, there are no other local funds available for this project.

5. Anticipated Outcomes

Lee County anticipates a high-level planning document that will provide a roadmap to assessing the risk to public infrastructure from the tidal and sea level rise impacts on coastal surge. This document will complement Lee County's current resiliency planning efforts that address riverine flood risk, coastal storm surge flood risk, and assessment of natural conditions risk from tidal surge and sea level rise.

Specific outcomes will include recommendations for:

- Identifying infrastructure at risk;
- Prioritizing the approach to mitigating the risk;
- Suggesting general mitigation options;
- Ensuring compliance with state guidance; and
- Recommending communication objectives.

6. Compliance to Existing Comprehensive Plan

Lee County meets Florida's Peril of Floods requirements and includes a Coastal Management Element in the Lee Plan. A copy of the Lee Plan introduction and the Coastal Management Element are included with this proposal.

In addition to complying with the Lee Plan, recommendations of this planning effort will consider and comply with:

- The Lee County Local Mitigation Strategy (LMS), approved by the Florida Department of Emergency Management (FEDM);
- The Lee County Comprehensive Emergency Management Plan (CEMP), also approved by FDEM;
- The Lee County Utilities Risk and Resiliency Study being delivered to the Environmental Protection Agency as part of the 2018 America's Water Infrastructure Act;
- Lee County's Flood Hazard Ordinance, which is based on the requirements of membership in the National Flood Insurance Program and its CRS.