

# How to get involved...



Public comments on the study will be added to the official record for the project. All comments will be addressed in the draft report in a comment matrix. Both written and verbal comments may be received at public meetings by filling out a public comment card, or by speaking during the formal comment period. Public comments can be made at any time during this study. Alternative methods to submit comments are as follows below.



Send an email to: [SJMBackBay@usace.army.mil](mailto:SJMBackBay@usace.army.mil)

Mail a letter to U.S. Army Corps of Engineers,  
Attn: PD-PN, 701 San Marco Blvd, Jacksonville, FL 32307



## Stay Informed!



Quarterly updates and project documents on the project website:

<https://www.saj.usace.army.mil/SanJuanPuertoRicoCSRMFesibilityStudy/>



Sign up for the mailing list to receive a copy of this quarterly newsletter.

## Follow us!



*This is the first in a series of newsletters to keep informed of the progress of the U.S. Army Corps of Engineers (USACE) San Juan Metro Area (Back Bay) Feasibility Study, in partnership with Department of Natural and Environmental Resources (DNER).*

# SAN JUAN METRO AREA (BACK BAY) COASTAL STORM RISK MANAGEMENT Study Newsletter



US Army Corps  
of Engineers®



Jacksonville District Summer 2019 | Issue 1

COMMANDER'S

### CORNER



COL Andrew D. Kelly  
District Commander

The Corps of Engineers received \$17.3 billion thanks to the Bipartisan Budget Act of 2018, which provides us with funding and authority to address impacts caused by natural disasters. The Jacksonville District was allocated \$3.348 billion for long term recovery investments in our area of responsibility. The funding will go towards 14 studies and 19 construction projects that will reduce risk to our communities in Florida, Puerto Rico and the U.S. Virgin Islands, which were directly affected by recent storm events. Two such studies are the San Juan Metro (back bay) and the Puerto Rico Coastal (shoreline). Our teams are working hard to reduce damages and increase resilience for the areas in the studies. Let's work together to make the results something we can all be proud of. As we say in the Corps, Essayons!

Sincerely,  
Col Andrew Kelly  
Commander,  
Corps of Engineers, Jacksonville  
District

### STUDY PURPOSE

The purpose of the San Juan Metro (back bay) study is to determine if there is Federal interest in a recommended plan to reduce damages to infrastructure as a result of coastal flooding from storm surge, tide and waves (rather than inland rainfall and stormwater runoff) during coastal storms and hurricanes along the back bay areas in the municipality of San Juan and adjacent municipality communities. The study team will produce a draft and final report, which will be available for public review and comment. The report will consider all engineering alternatives and their effects, under the National Environmental Policy Act (NEPA) of 1969.



\*San Juan Coastline area will not be included in this study but is included in the Puerto Rico Coastal Study.

### CURRENT ACTIVITIES

The study team is working on capturing the existing conditions and developing the Future Without Project (FWOP) conditions. The FWOP conditions is a forecast describing what is expected to happen if no action is taken to solve the problems or realize the opportunities. This information is used in order to screen the management measures and start formulating Preliminary Alternatives. These are some of the tasks in which the team is currently working on:

- G2CRM Model setup for FWOP – March 2018 to May 2019.
- FWOP Model Development – May 2019 to August 2019.
- Future with Project (FWP) Model Development & Plan Formulation – August 2019 to Jan 2020

### UPCOMING PUBLIC EVENTS

An open house will be held on June 20, 2019 at the Robinson Private School in Condado from 5:00 pm to 8:00 pm to introduce this study. This meeting will have posters, a presentation, and a comment session. The study team will be available to discuss the project.

# San Juan Metro Coastal Storm Risk Management (CSRM) Study Background and Processes

## INTRODUCTION

### BACKGROUND

The study area has approximately 35,000 structures, including critical infrastructure (roads, hospitals, airports, utilities, etc.) with a combined estimated value of approximately \$13 billion. Flooded conditions from storm surge, tide and wave contributions cause major damages to these structures. Additionally, these flooded conditions are hazardous to the community, affect economic development of stores, hotels and restaurants, and decrease property values.

### PROBLEMS

1. Study area experiences back bay flooding, which results from storm surge, tide, and wave contributions.
2. Access to critical infrastructure, emergency services, and evacuation routes is limited or sometimes cut off entirely during flood events due to roadway flooding.
3. Future sea level rise conditions could compound these problems.



### STUDY AUTHORIZATION AND PROCESS

Authority for the San Juan Metro (back bay) Coastal Storm Risk Management (CSRM) study is granted under Section 204 of the Flood Control Act of 1970, Public Law 91-611. Study funds were appropriated under Bipartisan Budget Act of 2018 Public Law 115-123. Corps feasibility studies under this authorization are required to be completed in 3 years and with \$3M or less. The study schedule and milestones are shown on the next page. The study will examine alternative solutions, and will recommend one plan that meets Corps criteria to be the Tentatively Selected Plan. If the alternative is supported by Corps decisions makers, it will receive an approved Chief's Report recommending it for construction. The plan will then need to received appropriations for construction, which would be cost shared as appropriate between USACE and DNER.

### PLAN FORMULATION

**PRIMARY STUDY OBJECTIVE**  
Reduce economic damages from coastal storm risk to businesses, residents and infrastructure in the study area

Plan formulation is the process of developing alternative plans to address a given problem. The Corps uses a 6 step planning process:

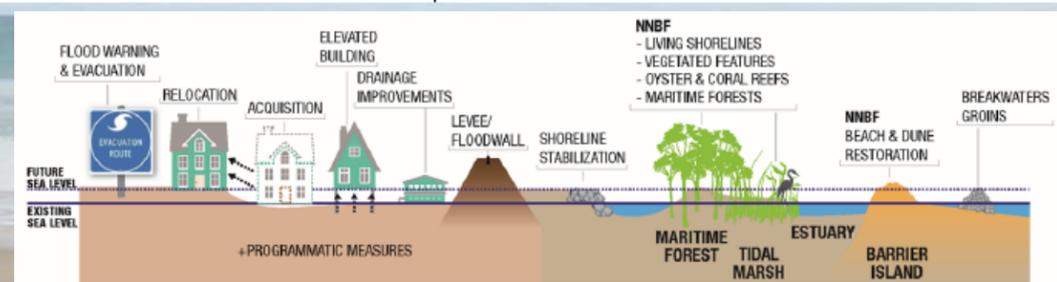
- 1 Problem Identification
- 2 Inventory Existing Conditions and Forecast Future Conditions
- 3 Formulate Alternatives
- 4 Evaluate Alternatives
- 5 Compare Alternatives
- 6 Choose an Alternative

**STUDY OPPORTUNITIES**  
Reduce flood risk and damages to residential, commercial, historic and critical infrastructure within the project area

The first step in alternative formulation involves identifying all potential management measures for the given problems. A management measure is a structural or nonstructural action that can be implemented at a specific geographic site to address one or more planning objectives. Natural and nature-based measures are also encouraged under current policy. Measures are then screened against planning criteria, including objectives and constraints, and remaining measures are combined into alternative plans. Alternative plans are then screened and then modeled to determine benefits of each plan.

### STUDY CONSTRAINTS

- Avoid adverse impacts to existing environmental and cultural resources
- Avoid creating or exacerbating flooding with the project area or adjacent areas
- Must be in compliance with all Federal laws



## ECONOMICS – The National Economic Development Plan (NED)

The plan which the Corps will ultimately recommended for Federal participation is called the national economic development plan and should represent an alternative that achieves the greatest net benefits consistent with protecting the environment.

### BENEFITS

Primary: Storm damage reduction

### COSTS

- Cost of alternative over a 50 year period of Federal participation
- Associated costs

$$\frac{\text{BENEFITS}}{\text{COSTS}} > 1$$

In addition, plans must have a positive benefit to cost ratio.

$$\text{CSRM BENEFITS} = \text{ESTIMATED \$ DAMAGES WITHOUT PROJECT} - \text{ESTIMATED \$ DAMAGES WITH PROJECT}$$

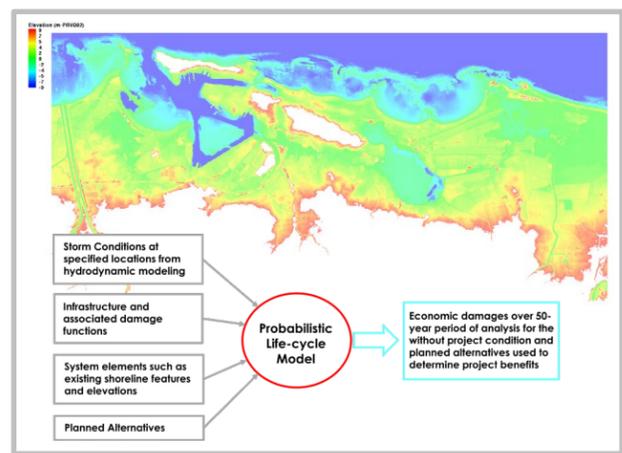
## ENVIRONMENTAL & CULTURAL RESOURCES

The National Environmental Policy Act (NEPA) is a federal law enacted in 1969. As required by NEPA, the Corps will assess potential environmental effects of alternatives, to include cultural resources.



The findings will be explained in an NEPA document, which will be integrated into the Draft and Final Report. The NEPA document will be available for public review and comment before any decisions are made or actions are taken. Your input helps the Corps in identifying key environmental issues that may need to be evaluated.

## ENGINEERING & MODELING



The engineering analysis for this study will consider the natural coastal processes, geological setting, existing protective features in the study area, as well as sea level rise scenarios. The team will leverage data and local expertise from the sponsor (PR DNER) and other groups (PR Academia, stakeholders, Federal agencies, etc.) along with modeling to order to fully understand the problems and develop alternatives to reduce storm damages within the study area. The Corps certified model Generation II Coastal Storm Risk Model (G2CRM) will be used for this study.

## TENTATIVELY SELECTED PLAN & BENEFITS

The Tentatively Selected Plan will be the NED plan, but will likely also provide incidental benefits to the community, depending on the plan. The Corps uses four accounts to qualitatively describe other benefits of the plan (which it does not factor into the quantitative economic benefits). These are Environmental Quality (which could include positive effects for sea turtle nesting, reef habitat, etc), Other Social Effects (which could include resilience to the community, public health & public safety), and Regional Economic Development (which could be job creation, etc).

## ESTIMATED STUDY SCHEDULE



\*Contingent on authorization and appropriations