

# CAPTIVA ISLAND EMERGENCY MAINTENANCE PLAN

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## **Introduction**

### **Purpose**

The Captiva Island Emergency Maintenance Plan describes the actions needed to prepare for and recover from serious storm damage to the shore protection project. The plan furthers the goals, objectives and policies of the “Comprehensive Plan to Maintain Captiva’s Beaches” (1990). Specifically, this plan provides the procedure and methods to implement beach maintenance policies 6b and 6c (emergency maintenance).

The plan addresses the planning and actions needed to respond to major storm damage to the shore protection project within 90 days of the event. Planning issues to position the District for immediate response are described, including permits, preliminary plans and specifications, and funding options. Actions to implement the plan are defined and described.

### **Initial Restoration and Renourishment Design**

The shore protection project was originally designed with a total berm width of 70 feet, consisting of a 40-foot design berm and 30 feet of advance fill. In addition, wider berms were constructed in some areas, and a feeder beach was added in the Village and Blind Pass areas. The initial beach restoration in 1989 placed 1,600,000 cubic yards of sand in the project area.

The “Comprehensive Plan to Maintain Captiva’s Beaches” anticipated that beach nourishment would normally be expected to occur when the advance fill had eroded back to the design width. With an estimated average annual erosion rate for the project of 100,000 cubic yards, a planned maintenance nourishment project was expected when 57% (900,000 cubic yards) of the initial fill remained in the project area.

The actual annual erosion rate island-wide since the initial restoration project in 1989 has averaged about 50,000 cubic yards. However, when areas of accelerated erosion known as hot spots were accounted for, the volume of fill needed for the first periodic maintenance nourishment in 1996 was 800,000 cubic yards (or about 100,000 cubic yards per year). It is anticipated that periodic nourishment projects of similar size will be implemented at approximately eight year intervals in the future to maintain the shore protection project.

## **Emergency Maintenance Criteria**

### **Storm Damage and Response**

Storm damage to the shore protection project can range from isolated washouts to major damage to the entire project. Serious storm damage can trigger the need to perform an unscheduled maintenance nourishment project. Response to storms should be commensurate with the level of damage suffered.

Isolated washouts may occur from storm damage or hot spots in the normal erosion pattern of the project. The Comprehensive Plan anticipated that isolated washouts would occur, and determined that the district would not engage in emergency repairs to them, although they will be monitored and their causes investigated.

Major storm damage produces impacts that threaten the design berm and project integrity. The “Comprehensive Plan to Maintain Captiva’s Beaches” calls for an emergency maintenance project when a serious threat arises to stretches of properties, or to the hurricane evacuation route on Captiva. The Board has determined that it is appropriate to establish the project scope and quantitative thresholds for the initiation of an emergency response to serious storm damage, and to provide for automatic implementation.

### **Project Scope**

The scope of the project to be implemented by the Emergency Maintenance Plan generally consists of restoration of the volume of fill lost to a major storm, together with sufficient fill to provide efficiency of construction, improved stability, and economic efficiency. The focus is on storm damage impacts and recovery on Captiva Island. The Plan assumes the implementation of a beach renourishment project, using material dredged from offshore sand sources. However, it is recognized that, as part of the immediate response to storm damage, structures may need to be stabilized temporarily to prevent further damage. These interim repairs will be made using beach compatible fill trucked from inland sources, or scraped from undamaged beach segments if permitted.

### **Thresholds for Implementation**

The Emergency Maintenance Plan will be implemented whenever storm damage results in one or more of the following impacts:

- Erosion of more than 600,000 cubic yards of the total fill volume placed in the last periodic maintenance project has occurred.

- More than 30% of the total project length has eroded back to the design berm.
- At any point along the evacuation route, erosion of the beach to a point that, in the opinion of the Engineer, threatens the stability of the evacuation route. If the volume of fill needed to protect these segments does not warrant a dredge project, the design berm may be restored using material trucked from inland sources, or scraped from undamaged sections of the beach if permitted.
- Erosion of short segments of shoreline into the design section to an extent that, in the opinion of the Engineer, continued erosion of the damaged areas would threaten the stability of structures. If the volume of fill needed to protect these segments does not warrant a dredge project, the design berm may be restored using material trucked from inland sources, or scraped from undamaged sections of the beach if permitted.

## **Restoration Planning**

Restoration planning includes the preparatory actions that will place the District in a position to immediately respond to serious storm damage. These include securing necessary permits, identifying and reserving sufficient sand resources, preparing plans and specifications, identifying funding sources, securing approvals necessary to acquire local financing, and selecting a dredging contractor.

## **Project Design and Construction Contract**

### **Preliminary Plans and Specifications**

Construction documents, including plans and specifications, will be prepared in anticipation of the need to award contracts quickly to allow immediate response to storm damage. The preliminary plans and specifications will include all required information to construct the beach restoration, with the exception of final fill volumes and locations. The plans and specifications will also anticipate the loss of the vegetated dune system, and provide for its restoration along with beach fill placement.

### **Offshore Borrow Area Investigation and Sand Search**

Potential offshore borrow areas will be identified through a review of existing studies and surveys. These areas include existing borrow sites utilized in the previous beach nourishment projects, and other borrow areas with sufficient sand to provide for an emergency restoration as well as the next two scheduled nourishments. Verification of borrow area options will require additional field investigation and analysis.

### **Final Plans and Specifications**

After the storm, surveys and analyses will be performed to determine the fill volumes and placement locations needed for recovery. Final plans and specifications will be completed based on the post-storm information.

### Construction Contract Award

For the District to respond to storm damage in a timely manner, a dredge contractor should be brought to the project within 90 days of the storm event. The following bidding procedure has been selected to meet this time frame:

A request for proposal will be advertised, based on the preliminary plans and specifications. Following the advertisement, an indefinite hold will be placed on the bid date. After the storm, an addendum will be issued, updating the plans and specifications base on the post-storm survey and giving five days to respond with bids. The contract may then be awarded by the Board.

## **Permits**

### Short Term

Federal and State permits will be required to perform any beach nourishment project. The existing permits issued for the 1996 periodic maintenance nourishment are valid until October, 2000. An emergency beach maintenance project to repair storm damage could be constructed under these permits with some modifications, including the volume of sand to be place, and the location of placement. This information will be based on a post-storm condition survey. Borrow areas will remain those permitted for the last periodic maintenance project, which still contain sufficient sand for repairs.

### Long Term

The ability to utilize the existing permits in the short term allows implementation of a long term approach to permitting as a cost-effective option to acquiring new permits for each maintenance project. Long term permits could be approximately 15 year permits, based on an updated sand search and borrow area definition, for up to two periodic maintenance nourishments and a response to serious storm damage. The permit process will be subject to rule changes since 1996, results of on-going monitoring, and the results of inlet management plans that are being finalized this year. The long term permit could be more comprehensive, including such elements as the reconstruction of the Redfish Pass terminal groin.

### General Design Memorandum

The General Design Memorandum (GDM) is the justification for federal participation in the project by the Army Corps of Engineers (USACE). If USACE approvals and contracts are in place when a storm hits, costs for sand placed could be reimbursable. The GDM update will be processed along with the long term permit.

## **Funding**

The plan will consider all potential funding sources for a project to repair storm damage to the Captiva shore protection project. The Board recognizes, however, that interests, including Lee County as a property owner, may bear the burden of an emergency restoration. The emphasis will be, therefore, to depend on Captiva Erosion Prevention District (CEPD) sources of funding, but to seek to develop and expand County, State and Federal funding sources.

### County

The local share of funds for the project currently includes an assessment to Lee County as a property owner. Additional funds for beach projects to repair storm damage could be available from Lee County through the Tourist Development Council (TDC) or other appropriate fund source. However, at present there is no fund for emergency beach restoration. If such a fund is established, interlocal agreements could be negotiated to address the method and scope of reimbursement.

### State

Funds are available for scheduled beach restoration through the provisions of Chapter 161, F.S. Recent changes in the statute resulted in the establishment of a dedicated source of funds for beach projects, and the establishment of a long term approach to project budgets. In addition, the statute provides for setting aside 25% of available funds each year for the emergency repair of storm damage statewide.

### Federal

Federal funds for emergency beach restoration may be available from the Federal Emergency Management Agency (FEMA), and the Army Corps of Engineers (USACE). Historically, federal funding for periodic maintenance nourishment has come through USACE, and has accounted for about 27% of the periodic maintenance project costs from Energy and Water appropriations.

It appears that the Captiva project is eligible for at least some funding from FEMA, under the Stafford Act, to restore storm damage. The work funded by the Stafford Act is restricted to that volume required to replace fill lost during the storm. It is expected that FEMA would reimburse 75% of the cost of restoring storm damage to the beach segments not previously funded by USACE.

In addition to the Stafford Act, Public Law 84-99 defines a role for the Army Corps of Engineers (USACE) in the repair of unexpected storm damage to beach projects. This law allows the Federal Government to pay 100% of the cost to repair the damage. However, repair work is constructed and controlled by USACE; and there is no reimbursement provision. In practice, USACE has handled requests for assistance under Public Law 84-99 slowly, and with inconsistent results. Coordination with USACE will continue in an effort to establish a reimbursable option for funding under Public Law 84-99.

In addition to storm damage repair, federal funding for the fill volume eroded since the last periodic maintenance nourishment will be pursued through the extension of the federal authorization to participate in the beach project.

### **Local Financing**

The local share of funds for beach projects is provided by the residents of Captiva through special assessments. The levy of such assessments requires approval of a referendum. Participation by other governments will be secured through interlocal agreements.

### Special Assessments

Local financing for the project was available in 1996 form assessments levied against properties within the District, based on an apportionment plan developed by Dr. William Stronge. This plan created a

stepped ad valorem tax structure for inland and beachfront property owners. Beachfront properties were assessed a portion of project costs related to the storm protection and recreation benefits gained by renourishing the beach adjacent to the properties. Any funds reimbursed by state and federal sources were refunded to the property owners on a proportionate basis.

A referendum will be required to approve the levy of special assessments to provide funds to implement an emergency repair to major storm damage. The amount of the levy will not exceed a total District debt of \$15 million, including any outstanding bonds. Apportionments will use the millage rates for individual properties established in the most recent periodic maintenance nourishment project subject to changes, including appraised value and classification.

#### Financing Method

After approval of a referendum, the Board will secure a line of credit backed up by the future sale of bonds to finance the cost of constructing an emergency restoration project. If an emergency project becomes necessary, the loan and bonds will be repaid through the special assessments and reimbursements from federal, state and other government participation.

## **Implementation**

### **Planning Activities**

#### Preliminary Plans and Specifications

The Board will consider authorizing the preparation of preliminary plans and specifications to allow for advertisement of bids. These documents will be prepared during the fall and winter of 1998/99.

#### Offshore Borrow Area Investigations and Sand Search

The Board will consider both an evaluation of existing surveys and studies, and an offshore geotechnical survey (sand search) to allow application for long term permits. This work will be completed during the spring and summer of 1999.

#### Short Term Permits

To retain the ability to respond to emergencies for a longer period, the District has requested an extension of the existing Federal and State permits to 2004. The extension request to the state includes a request for exclusive rights to the sand in the previously permitted borrow areas.

#### Long Term Permits

The Board has established the following program for securing long-term permits:

- Identify construction requirements at Redfish Pass, Blind Pass, and associated projects
- Identify potential borrow areas through a review of existing studies and surveys (Spring, 1999)

- Sand search to identify borrow sites with sufficient material to allow for the completion of the next two periodic maintenance projects and at least one project to repair serious storm damage (Summer, 1999)
- Application for a 15 year permit to perform periodic maintenance nourishment and to repair serious storm damage (Fall, 1999)

#### General Design Memorandum

After the approval of the referendum, the Board will consider authorizing commencement of the GDM process in 1999, soon after the summer sand investigations.

#### County Funding

Lee County will need to guarantee its portion of a potential assessment as an up-front payment through an interlocal agreement. Negotiation of this agreement, including method of payment and dedication of a portion of the County contingency funds for this purpose should begin this year by the Administrator and Attorney.

In addition, the District is working with the County Commission to establish a storm damage recovery fund. A potential vehicle for establishing such a recovery fund may be the Local Mitigation Strategy currently being developed by the County.

#### State Funding

Based on the statute changes, it would be appropriate to modify the existing reimbursement contract to include the next scheduled beach nourishment in 2004, and anticipate a beach restoration to repair storm damage at an unspecified time prior to the next nourishment. Future funding contracts should then address periodic maintenance nourishments and emergency restoration projects for 15-year periods. The District Administrator will work on the state budgeting process.

The set aside provisions for funding emergency projects have been in the statute for some time, but have never been utilized. Additional work may be needed to develop a workable mechanism for accessing these funds.

#### Federal Funding

The potential for expanded federal funding in the restoration of a storm-damaged beach will continue to be investigated to determine both USACE and FEMA funding roles. Additional coordination with USACE will be required to establish a reimbursable option under the Public Law 84-99 procedure.

Another on-going effort is the extension of the Federal authorization to participate in the beach project. An extension of the federal authorization to 50 years (2039) has been requested from the Corps of Engineers. Due to the current Administration policy, the USACE has been unable to act on the request. Therefore, Congress directed the USACE to extend the authorization, and has been asked to further direct the USACE to utilize the existing General Design Memorandum to determine economic feasibility. The direction to use the GDM will be included in a future Water Resources Development Act (WRDA) bill.

### Local Financing

A referendum has been tentatively scheduled for March 2, 1999 to approve the levy of special assessments, not to exceed a total indebtedness of \$15 million, to provide funding for the emergency maintenance project. The referendum will authorize the Board to secure a line of credit, and to sell bonds, for the purpose of implementing the project defined in the Emergency Maintenance Plan, until the next periodic maintenance nourishment project. A tentative apportionment plan will be issued to show the distribution of estimated project costs. The actual sale of bonds, if required, will require a bond validation process, including advertisements and court hearings.

## **Annual/Semi-Annual Activities**

### Performance Surveys

A monitoring program has been implemented to analyze the performance of the shore protection project. These analyses also regularly update a baseline from which to assess the actual damage from major storms.

### Maintain/Update Response Plan

The Emergency Maintenance Plan should be reviewed annually and updated as needed

## **Post-Storm Activities**

Once a damaging storm has occurred, there are a number of activities required o immediately implement the Emergency Maintenance Plan. Pursuant to the resolution adopting the plan, these activities will be implemented automatically when the criteria for emergency response are met or exceeded, and will allow construction to begin within 90 days.

- Perform Post-Storm Surveys and Analysis to determine the fill volumes and placement locations. These surveys can take place as soon as the area is accessible, and be completed within two weeks. The information from the surveys and analysis will be used to finalize the permits, plans and specifications, and dredging contract.
- Activate Permits with the final information from the post storm surveys. Activation will consist of the notice to proceed from the state and federal agencies, and should be complete within a month following the storm event.
- Finalize Plans and Specifications with the information from the post storm surveys. These will provide instructions to the dredging contractor on the specific project needs. Plans and specifications can be completed within a month following the storm event.
- Activate the Bid Procedure by issuing an addendum that updates the plans and specifications and establishes a bid date. This activity can be completed within two months from the storm event.

- Activate Financing Plan with the final project costs. This will include a short term loan, based on the established line of credit, and the sale of bonds. The bond validation process and sale can be completed within three months.
- Implement Restoration Operations. Based on a notice to proceed, the dredging contractor could be on site within three months of the storm event.
- Request Reimbursement of funds from appropriate sources. Sources may include the Federal government, the State of Florida, Lee County and the City of Sanibel.