

PLANNING CASE STUDIES

TAB 2

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18. The study proposes modifications to stabilize the shoreline. The recommended plan consists of several features: (1) constructing 3 new timber groins, (2) placing approximately 3,000 cubic yards of material onto the beaches, and (3) removing and replacing 25 timber groins.

19. As provided by Section 111 authority, the cost of work to correct the erosion attributable to the navigation project at Miami Harbor will be a 100% Federally funded responsibility. The benefits consist of the stabilization of the shoreline at Virginia Key and the preservation of the historical Virginia Key Beach Park.

20. Potential sources of sand for the beach placement will come from the upland confined disposal facility on Virginia Key, which could receive sand from maintenance of the Miami Harbor Federal channels or from new construction modifications under consideration for the harbor in this report.

VIRGINIA KEY RESTORATION – CONTINUING AUTHORITY PROGRAM, SECTION 1135, MIAMI-DADE COUNTY

21. Currently in progress, the proposed project will consider restoration of native plant communities in selected areas on Virginia Key. These areas currently contain a high percentage of exotic vegetation, primarily Australian and Brazilian pepper. The restoration plan includes removing exotic vegetation from the environment and replacing them with the historic plant communities including mangrove, coastal strand, tropical hardwood, and aquatic/wetland species. The proposed project would restore tropical hardwood hammock, wetlands, coastal strand, freshwater pond and provide for selective clearing. This would provide a more suitable habitat for fish and wildlife resources than what currently exists.

PLAN FORMULATION

22. Section 904 of the Water Resources Development Act of 1986 requires the Corps to address the following matters in the formulation and evaluation of alternative plans:

- a. Enhancing national economic development, including benefits to particular regions that are not transfers from other regions.
- b. Protecting and restoring the quality of the total environment.
- c. The well-being of the people of the United States.
- d. The prevention of loss of life.
- e. The preservation of cultural and historical values.

23. The planning process on the Federal level aimed to assist in the formulating and evaluating water resources projects is the National Economic Development objective or NED. The NED principle provides policy guidance to help Federal water resources planners define problems and develop solutions. The NED process ensures the recommended project maximizes net benefits. The process also ensures the recommended project outputs, defined, as the benefits to the Nation from the use of the resource, will exceed the cost implementing the project.

24. The Federal objective in water and related land resources planning is to develop a plan, which would provide the maximum contribution to the NED objective consistent with protecting the Nation's environment. In accordance with this policy, the following apply to the Miami Harbor navigation study for developing structural and non-structural plans. The Federal planning process consists of the following major steps:

- a. Defining of the water and related land resource problems and opportunities associated with the Federal objective and specific state, county, and municipal concerns.
- b. Inventory, forecast and analyze water and related land resource conditions within the planning area relevant to the identified problems and opportunities.
- c. Formulation of plans.
- d. Comparison of plans.
- e. Select a recommended plan based on the comparison of plans.

25. Improvements to the existing navigation project, which would improve the operational efficiency and safety for deep draft commercial vessels by providing a deeper channel with widening in certain areas are considered. Such deepening and widening reduces vessel operation costs on the existing project. This results in national benefits in transportation cost savings.

26. The assessment of water and related land resources problems and opportunities specific to the study area includes an evaluation of existing conditions and future without project conditions.

PROBLEMS AND OPPORTUNITIES

27. The problems and opportunities of the study area provide direction for the study. The initial request for harbor improvements focused on reducing ship groundings at the beginning of the entrance channel from variable and unpredictable crosscurrents, the turn from the entrance channel to Fisherman's

channel due to difficult crosscurrents, vessel turning in the Fisher Island and Lummus Island turning basins, and surge impacts on ships moored along Lummus Island.

Existing Conditions

28. Miami Harbor is in Biscayne Bay, a shallow salt-water sound on the Atlantic Coast near the southern end of the Florida peninsula. The bay has a length of about 38 miles and a width that varies from three to nine miles wide with average depths of 6 to 10 feet. A narrow chain of small islands known as keys separate the bay from the Atlantic Ocean. Shallow natural passages between the keys along with artificial cuts through the peninsula such as Bakers Haulover Inlet and Government Cut connect the bay with the ocean. Government Cut, near the south end of the peninsula, forms the entrance to the main ship channel leading to Miami Harbor. The City of Miami is located on the western shore of Biscayne Bay. Miami Harbor is about 23 miles south of Port Everglades and 130 miles northeast of Key West Harbor.

29. Miami Harbor provides access to deep draft vessel traffic using terminal facilities located in the Port of Miami. According to the Port of Miami, 2001 Official Directory, those port facilities handled in fiscal year 2000 over 7.8 million tons of cargo a year. That total includes about 4.5 million import tons and 3.3 million export tons. That total also represents a 13 percent increase over 1999 totals. The Port of Miami continues to rank in the top 10 cargo container ports in the United States and remains the largest container port in Florida. As a result of cruise ship operations over 3.3 million passengers traveled through the Port of Miami.

30. The Port offers the greatest frequency of cargo service, with the largest number of shipping lines, calling at the most destinations, in the world. The Port has more than 35 shipping lines calling on over 100 countries and over 254 ports. In addition to its strength as a cargo port, the Port is also the largest multi-day cruise passenger homeport in the world. The Port's link to important trading and cruise routes, as well as the strength and characteristics of its large and growing hinterland, have positioned the Port as a top performer, and will continue to drive the Port's growth as long as the infrastructure to support marine transportation is in place. The total economic impact of Port operations on the nation is estimated at more than \$8 billion per year. More than 45,000 jobs are directly or indirectly attributable to Port operations. Jobs created by Port and trade activity tend to be good jobs: they pay significantly more than other job growth sectors in the local economy, have better long-term opportunities for employees and offer better training programs (particularly for minorities). The Port also utilizes the local, regional, and inter-regional transportation network components consisting of roads, railway lines, and channels to facilitate the efficient movement of goods and passengers.

Tributary Area

31. The immediate tributary (hinterland) area for Miami Harbor includes Miami-Dade County, which depends on the port for some basic commodities. Containerization of general cargoes and the expansion of port properties by dredge and fill operations has opened Miami Harbor to the transport of high value manufactured products, machinery, foodstuffs, and transportation equipment. Much of that cargo originates in the central section of the United States for export to Latin America. Also, with the expansion of port facilities, Miami Harbor has become a major distribution port for cargo shipped from Europe and the Far East bound for Latin and Central America.

32. According to the Port of Miami, 2001 Official Directory, Miami Harbor facilities process nearly 50 percent of all U.S. exports to the Caribbean and Central America, and more than 30 percent of all U.S. exports to South America. More than 40 shipping lines calling on 132 countries and 362 ports around the world operate from the Port of Miami. Markets served by those carriers include Africa, Asia, the Caribbean, Central America, Europe, the Middle East, North American, and South America.

33. Virtually all the liquid bulk shipped through the Miami Harbor is handled by the liquid bulk facility on Fisher Island known as the Coastal Refining and Marketing, Inc. The Port of Miami, located in environmentally sensitive Biscayne Bay, considers itself a "clean port" since it does not handle bulk cargoes or potentially dangerous or hazardous cargoes such as fuel oil.

Waves

34. The waves that occur in the vicinity of the study area consist of "sea" and "swell". "Seas" consist of waves generated by local winds and generally travel in the same direction as the wind. Swells involve waves generated from distant storms or open ocean prevailing winds that enter the study area independent of local winds. Swells out of the north and middle Atlantic cannot reach the study area without modification of wave pattern or wave energy in the shallows of the Bahama Banks or by refraction along the Florida shoreline to the north. Locally-generated seas occur with the greatest frequency, but the less-frequent large storm swells create the most adverse conditions for navigation in the project area.

Tides and Currents

35. Tides within the Miami area are semi-diurnal; there are two high and two low tides each day. The mean range at Miami Beach is 2.5 feet (3.0 - foot spring range) and the lowest recorded tide is 1.4 feet below mean low water. The most