



MIAMI BEACH

OFFICE OF THE CITY MANAGER

NO. LTC # 158-2006

LETTER TO COMMISSION

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TO: Mayor David Dermer and Members of the City Commission

FROM: Jorge M. Gonzalez, City Manager *for JMG*

DATE: June 6, 2006

SUBJECT: Beach Renourishment and Management

As several Commissioners and a number of residents and businesses have inquired about the status of our Beaches, the purpose of this LTC is to update the Mayor and City Commission on the activities that are or will be undertaken on our Beaches. Recent concerns have focused on the erosion that has occurred on our beaches and efforts that need to be undertaken to address that issue.

Several agencies share responsibility for different aspects of the Beach. While the State owns the beach, their primary responsibility is in enforcement and funding for beach renourishment projects. The County has the responsibility for beach maintenance, for beach renourishment and construction and is the principal funding agency for these projects. The City manages the beach under a management agreement with the State and deals with the use of the beach by visitors, residents and concessionaries as well as special events and the provision of public safety services, most significantly Ocean Rescue services.

While the City has no direct responsibility for the renourishment projects, the City has performed a monitoring role and maintains regular contact with the County to keep focus and an appropriate level of attention on these projects, which are long term and involve multiple government agencies. One of the frustrations of the City has been in having sustained and proactive beach renourishment provided by the County as our lead agency.

Several renourishment projects have been undertaken over the years and several more have been planned. The County is the lead agency on these construction projects and receives permit approval from the State and the Federal Government. Typically the County has funds devoted to the projects as does the State and Federal Government. The City has been successful in having Federal and State funds directly appropriated for use in the construction projects.

In the most recent County General Obligation bond approval, approximately 17 million dollars was identified for beach renourishment activities in the County.

The planned beach renourishment efforts and erosion control projects for the City of Miami Beach are as follows:

32nd Street Breakwater Project

The 32nd Street breakwater project was constructed in 2002 in order to abate the "hot spot" erosion problem in that area. The project was the result of a series of studies conducted by engineering consultants over a period of several years. The concept of the breakwater structure was to stabilize the movement of sand in the hot spot area, by providing a hard point on the shoreline to capture the moving sand. Thousands of cubic yards of sand per year have been saved due to this breakwater project. However, the southern side of the project at approximately 29th Street is still experiencing erosion. The County's engineering consultants feel that this is a short-term effect. When the beaches north of the structures reach the design equilibrium condition by accreting a sufficient amount of sand, sand will begin to bypass the breakwaters and reach the areas to the south of the structure. It is believed that this will alleviate the erosion now occurring on the southern end. Until this equilibrium is achieved, the County will continue to implement small trucking projects to address any erosion that occurs.

The County is currently working with the Florida Department of Environmental Protection (FDEP) and the Army Corps of Engineers (ACE) to permit an additional sand renourishment project that will place 35,000 cubic yards on the beach at 29th street. This project will supplement the renourishment project that was completed in March 2005, which placed 100,000 cubic yards (CY) of sand at 29th Street. Once all permits are issued, which may take up to three months, the County will start the renourishment project which will take about two months to complete. This project will cost approximately \$900,000.

A two-year post-construction monitoring report for the breakwater structure was provided to the City in March 2006. The following conclusions and recommendations were presented:

- An overall accretion of approximately 32,000 cy of sand has occurred immediately north of the breakwaters.
- The area at the breakwaters has demonstrated adequate stability when compared to its condition before the project, when the area was highly erosional.
- The northern end of the breakwaters has trapped more sand than expected and has resulted in a reduction of material bypassed around the structures. This is most likely the cause of the erosion observed south of the breakwaters. South of the breakwaters, downdrift effects from the breakwaters were observed. Downdrift effects are caused by marine currents flowing parallel to the shoreline which have shifted their path more seaward due to the presence of the breakwaters. As a result, the current carrying sand sediments bypasses the shoreline just south of the breakwaters. During the winter months, erosion rates are compounded by directional wind changes, which lead to an increase in sediment transfer rates. These areas have experienced a net loss of almost 66,000 CY of sand from October 2002 to December 2004.
- Sediment bypassing around the structures may continue to be interrupted as sand is trapped north of the breakwaters. The amount of additional sand needed to address any erosion south of the breakwaters will be seasonally dependent. Therefore it is recommended to address the resulting downdrift impacts rather than placing sand north of the breakwaters
- The proposed renourishment project at the 47th street area may help accelerate the filling in of the area north of the breakwaters. As a result this may improve the bypassing around the structures and reduce the potential for downdrift impacts.
- Continued biannual monitoring is recommended in order to observe both the long-term and seasonal performance of the project.

Because the erosion south of the breakwaters may continue for several years, the City has requested the County develop a plan of action that will renourish the beach before or immediately after major erosion occurs.

Truck Hauling Renourishment Projects at 45th, and 55th Streets

During the summer of 2004, the Miami-Dade Department of Environmental Management (DERM) submitted an application to (FDEP) to permit a truck hauling project that will renourish the beach at two locations; 45th & 55th Streets. The permit application has been delayed for over two years. On January 3, 2006, the Army Corps of Engineers (ACE) issued a public notice for a 30-day period. The public comment period ended on February 3rd with no significant comment. A Biological Opinion from the US Fish and Wildlife Service is required for the ACE and DEP permits to be issued and allow the project to proceed. It is anticipated that a Biological Opinion will be completed within the month of June 2006, at which time the remaining agencies will issue their respective permits within several weeks.

The hauling of sand and placing of sand on the beach will be carried out by County selected contractors. The sand for this project will meet state specifications for beach quality sand and will be provided by a combination of an inland source and an existing sand stock pile at 45th Street. Mobilization of the project has already begun and trucks will be moving sand from the pile at 45th Street up to 65th Street for project staging in the coming weeks. Due to the great accessibility and size of the area, sand will be temporarily held at 65th Street Allison Park during the renourishment process. The sand will not impact access routes to the beach or access roads and will be contained inside properly marked barricades. It is expected that the County will place approximately 50,000 cubic yards of sand between 45th and 47th Streets and approximately 30,000 cubic yards of sand at 55th Street. It is estimated that this project will cost \$2.5 million dollars and the duration of the project will be 3-4 months and will be paid with County and State funds.

ACE Submerged Breakwater Reef Ball Project at 65th street

The design of the proposed 63rd Street Breakwater Reef Ball Project was completed in September of 2004. Project funding expired in September 30, 2005 and was only recently re-approved by Congress. During the 2005 Congressional Session, \$1,725,000 was appropriated as part of the 2006 Federal Budget for the City's "Miami Beach Erosion Control Project". This funding was approved as part of the Energy and Water Appropriations Bill.

This project is currently still on hold since the estimated construction cost of the project will total \$2.5 million. The ACE is working to determine other available funds to supplement the Federal appropriation, including Miami-Dade County General Obligation Bond funds.

The project would install artificial submerged structures offshore to essentially create a shore-parallel segmented reef which should stabilize the native beach. The "reef ball" structures would achieve beach stabilization primarily through wave energy dissipation and by allowing the currents along the shoreline containing sand sediments to deposit sand as they pass between the shoreline and the reef ball offshore breakwater.

Miami-Dade Morphological Change Study

In July 2004, the County Manager advised that Miami-Dade County is developing through a coastal engineering consultant, a comprehensive evaluation of the beach segment from Bakers Haulover Cut to Government Cut. The report will contain a number of elements including an update of the sediment budget for that segment, an evaluation of existing and proposed breakwater structures, a technical and economic evaluation for potential solutions to erosion areas, and recommendations for

project implementation and management over the next five years.

In September 2005, the County issued a notice to proceed to Coastal Systems International (CSI). The final report was due to the County by January 2006. On February 17, 2006 the Public Works Director and his staff met with the Acting DERM Director and his staff. At this meeting DERM committed to press its consultant to deliver the overdue reports and to expedite the submittal of the Coastal Construction Control Line (CCCL) application for 45th and 55th Streets.

A final report was provided to the City in March 2006; the report contains recommendations which if implemented will benefit Miami Beach's efforts to reduce beach erosion at four major erosion hotspot locations and improve the County's ability to implement renourishment projects.

ACE Test Beach Project

The proposed ACE Test Beach Project will be an extensive renourishment project located between 63rd street and 84th streets. The project is scheduled for construction in the first quarter of 2007.

On April 12, 2006, the ACE held a publicly noticed meeting for public comment on the project. Ms. Terri Jordan from the Planning Division of the Jacksonville District Office of the Army Corps of Engineers served as moderator between representatives from the County, State, and Federal governments involved with the Test Beach Project and the public. Mr. Brian Flynn from the Miami-Dade County DERM presented information on the history and background of the project and discussed the proposed plan. A representative of the Florida Department of Environmental Protection (FDEP) discussed the state's role with regards to permitting and funding for this project. The proposed sand source is an offsite area called the St. Lucie Shoal, which is in federal waters and governed by the Mineral Management Services of the federal government. The method of excavation will most likely be a combination of a hopper dredge and a clamshell dredge. The method of fill transport will likely be along pre-existing pipeline corridors that elevate the pipe and minimize the amount of pipe in contact with the ocean floor.

The public meeting held on April 12th, is part of the ACE's project development requirements and is also a National Environmental Policy Act (NEPA) mandated step in the development of any major federal action significantly affecting the quality of the human environment. Between 30 and 40 people attended this meeting including Miami Beach residents, members of local organizations and activists, including the Surf Rider Foundation. Ms. Jordan has a complete list of the attendees and also maintains all environmental documents regarding the Test Beach Project on the ACE Planning Division website.

Some of the public comments included:

- The public requested another meeting in Miami Beach given our religious communities and the timing of this meeting during Passover and Holy Week. Serious concerns were raised about the type of sand being used in the fill project and the likelihood that this off-shore material will crumble on the shore under the power of the waves and resulting in high turbidity. High turbidity may result in negative impacts on both tourism and marine ecosystems.
- Another citizen raised the issue of the possible federal listing of Elkhorn and Staghorn coral under the Endangered Species Act by the National Fish and Wildlife Service in the near future. If listed, further requirements and restrictions will be placed upon the federal project to minimize impacts to these corals, which exist in our offshore waters. The public also requested a full Environmental Impact Statement (EIS) be performed and the alternatives to this project be thoroughly investigated.

- Others commented on the logic in perpetually dredging and filling when funding might be better spent in solving the problems that cause the erosion. Examples of such supporting programs that combat erosion include: underwater reef ball systems, dune expansion and improvement programs, and beach maintenance techniques that promote the capture of sand such as the elimination of the raking of seaweed that is the seed source for the dunes.
- The recent Ft. Lauderdale renourishment project that caused high turbidity and smothered offshore reefs, especially after storm events, was brought to the attention of the group. The public wanted to know what is different about this ACE Test Beach Project or what safety mechanisms are in place that ensure the negative impacts of dredge and fill seen in Broward will not occur in Miami Beach.

The meeting closed with no official significant comment.

Two additional public meetings are planned for the counties nearest the sand source (St. Lucie and Martin). Many community members requested a follow up public meeting in Miami Beach. A second public meeting was held in Miami Beach on May 16 at 6pm at the Miami Rod and Reel Club. Some of the public comments included:

- The public requested further clarification of the National Environmental Protection Act (NEPA) process and that an Environmental Impact Statement (EIS) be conducted for this project.
- The public requested that all the project files be placed on the ACE website. Materials are now available at:
 - http://planning.saj.usace.army.mil/envdocs_A-D/Dade_Co/DadeCountyBeachErosionControlProjectED/ScopingMeetingDocs/index.html
- The ACE should ensure that the proper tests and analysis be conducted to ensure that the sand is compatible with Miami Beach sand.

ACE will have to address the above concerns as required by the NEPA process which consists of an evaluation of the environmental effects of a federal project including its alternatives. ACE will prepare a written Environmental Assessment (EA) or an Environmental Impact Statement (EIS); an EIS is a more detailed evaluation of the proposed action. The City Administration will be involved as this project moves forward to ensure our concerns are addressed.

Opposition to the project has been generated in the within the Counties adjacent to the proposed sand dredge sites. As a result of concerns expressed, this project may have difficulty in moving forward.

The City Administration will continue to monitor the beach renourishment projects and work with the County to develop a longer term and more strategic approach to beach projects. A meeting with senior County officials is being planned now. The City will continue to stress that our expectation and that of our community is and should be that projects to renourish the beach are undertaken before severe erosion occurs or that there is a timely response to unforeseen storm events to minimize the adverse impacts of erosion. The beach is an important asset to our community as well as to the entire County and a reactive posture will not serve the community or County long term sustainability.

Please feel free to contact me if you have any other concerns or questions.

JMG\RCM\FHB\FV\jzr

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