

SANTA MONICA BREAKWATER FEASIBILITY

COMMUNICATION

FROM

THE ACTING ASSISTANT SECRETARY (CIVIL
WORKS), THE DEPARTMENT OF THE ARMY

TRANSMITTING

A REPORT ON THE HURRICANE AND STORM DAMAGE REDUCTION,
AND ENVIRONMENTAL RESTORATION PROJECT FOR THE SANTA
MONICA PIER, SANTA MONICA, CALIFORNIA, PURSUANT TO SEC-
TION 101(a)(7) OF THE WATER RESOURCES DEVELOPMENT ACT
OF 1996



JULY 22, 1997.—Referred to the Committee on Transportation and
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JUL 22 1987

REPLY TO
ATTENTION OF

15 JUL 1987

Honorable Newt Gingrich
Speaker of the House
of Representatives
Washington, D.C. 20515

Dear Mr. Speaker:

Section 101(a)(7) of the Water Resources Development Act of 1996, authorized a hurricane and storm damage reduction, and environmental restoration project for the Santa Monica Pier, Santa Monica, California. However, since the project would provide protection to recreation facilities, and would provide for recreation boating benefits, the project would receive a low budget priority. Therefore, in view of the current constrained budget situation, it is unlikely that funding for this project will be included in future budget requests.

The authorized project is described in the report of the Chief of Engineers dated June 7, 1996, which includes other pertinent reports and comments. These reports are submitted in final response to a resolution adopted by the House Committee on Public Works on October 1, 1986. The views of the State of California and the Department of the Interior are set forth in the enclosed report.

The project first cost of \$6,440,000, identified in the report of the Chief of Engineers does not include the cost of moorings and other support facilities needed to realize project benefits. At October 1995 price levels, the cost of these facilities, which would be provided by non-Federal interests, is estimated at about \$760,000. The project has a total first cost of about \$7,200,000.

The project for the Santa Monica Pier would provide for the reconstruction of a non-Federal rubble mound breakwater that was built by the city of Santa Monica in 1934. At one time, the structure protected the Santa Monica Pier from coastal storms and provided an anchorage area behind the breakwater for boats. The Santa Monica Pier provides recreation attractions for several million visitors every year. In addition, the Chief of Engineers has determined that the anchorage area would provide

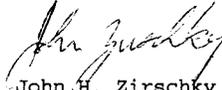
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recreation benefits for charter fishing boats and personal water craft. The Administration finds that the project, since it supports local and regional recreation activities and provides substantial income to local and state economies, should be undertaken by non-Federal interests because it more directly benefits them. The Administration advises that it would not support Federal funding for construction of the project.

The Office of Management and Budget advises that there is no objection to the submission of the report to the Congress. A copy of its letter is enclosed in the report.

Sincerely,



John H. Zirschky
Acting Assistant Secretary of the Army
(Civil Works)

Enclosure

Syllabus

Santa Monica Breakwater Feasibility Report

This Feasibility Report was prepared in response to a 1 October 1986 Resolution of the House of Representatives Committee on Public Works and Transportation requesting the Secretary of the Army to determine whether reconstruction, extension or other modification of the Santa Monica Breakwater would be feasible to achieve storm damage reduction, elimination of navigation hazards and related purposes.

Problems and Needs

The City of Santa Monica constructed the existing breakwater in 1934 to provide protection to the Santa Monica Pier and create a protected harbor area for mooring commercial and recreational boats. The original breakwater was 2,000 feet long, at +10 feet MLLW, and located about 1,300 feet offshore. Since initial construction, the breakwater has continuously deteriorated and was severely damaged during the 1982-83 winter storms which destroyed the seaward section of the Pier, causing \$8 million in damages to the Pier and its facilities, as well as facilities on adjacent beaches. The 1982-83 storm also further reduced the average elevation to -5 feet MLLW, resulting in the loss of 45 moorings used by commercial and recreation boats.

The Santa Monica Pier and associated facilities on the Pier and adjacent beaches provide popular leisure attractions for millions of visitors every year. The Feasibility Study results indicate that the existing breakwater will continue to deteriorate, and that potential damages can exceed more than \$7 million for a 50-year event, and \$10 million for a 100-year event. Average annual damages are estimated to be \$424,000. Study results also show a significant unmet demand for commercial and recreation boating activities in the Santa Monica area, that could be addressed by restoring boating activities at the Pier. At various meetings and public workshops held during the Study, the City of Santa Monica and numerous public interests indicated a desire for protecting the Pier area and restoring navigation opportunities.

Alternative Plans

The Study investigated a wide range of alternatives for providing storm damage protection and restoring navigation opportunities to the Santa Monica Pier area. In general, the most viable alternatives involved rebuilding and extending the existing breakwater at different lengths ranging from 900 feet to 2,000 feet and elevations ranging from +6 feet MLLW to + 15 feet MLLW, and alternatives involving a submerged breakwater/reef at elevations -5 feet MLLW and -10 feet MLLW near the Pier. The alternatives considered the need for maintenance dredging or beachfill where necessary to maintain mooring area depths and mitigate for significant erosion impacts to downcoast beaches. These alternatives were subjected to detailed evaluations of environmental, economic, social, and acceptability considerations as compared to a No-Action Alternative.

The Federal objective in water resources planning is to contribute to the National Economic Development (NED) objective consistent with protecting the Nation's environment pursuant to national environmental statutes, applicable executive orders and other planning requirements. Accordingly, it was found that a plan to rebuild 900 feet of the existing breakwater to an elevation of +10 feet MLLW best meets the NED objective, as well as other evaluation criteria, and is the Recommended Plan.

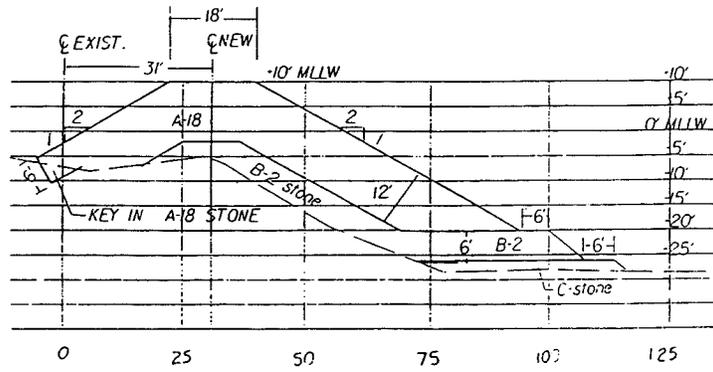
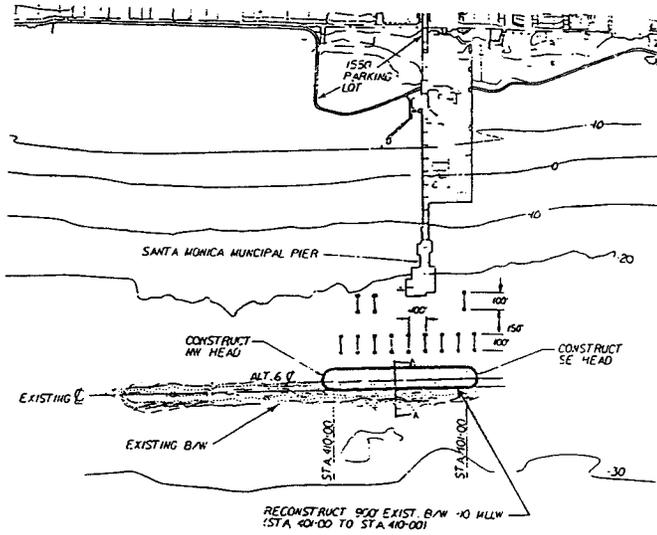
Recommended Plan

The primary feature of the Recommended Plan is the rebuilding of the southerly 900 feet of the existing breakwater to an elevation of +10 feet MLLW. The Plan also includes providing 12 moorings and other boating support facilities to reestablish commercial boating opportunities, and the installation of aids to navigation on the rebuilt breakwater and remaining deteriorated sections of the existing breakwater. The Plan also includes construction of a .5 acre boulder field to restore subtidal rocky habitat.

Benefits and Costs

The Recommended Plan would reduce the expected frequency that the main deck of the Pier would be overtopped from a 25-year event to a 50-year event. The Plan would reduce the present estimated average annual equivalent storm damages to the Pier area by 88% from \$424,000 to \$56,000. It would also restore the protected harbor area, providing an area with 12 moorings for commercial navigation, with average annual benefits estimated at \$869,000. The first cost of the Recommended Plan is estimated at \$5,667,000 at October 1994 price levels.

The Recommended Plan



The estimated average annual cost of the Breakwater restoration is approximately \$455,000. The total average annual equivalent benefits, at an interest rate of 7-3/4% and 50-year project life, are \$1,237,000, yielding a Benefit-to-Cost Ratio of 2.7-to-1, and net average annual equivalent benefits of \$782,000. The following table presents an economic summary of the Recommended Plan.

**Santa Monica Breakwater Feasibility Study
Economic Summary of Selected Plan
(Oct 94 Price Levels)**

I. Project Costs

a. Project First Cost	
1. Breakwater	\$5,467,000
2. Boulder field	\$200,000
Total First Cost	\$5,667,000
b. Project Cost-Sharing	
1. Federal (a)	\$4,284,000
2. Non-Federal (a)	\$1,383,000
Total First Cost	\$5,667,000
c. Annual Costs (b)	
1. Interest and Amortization	\$430,000
2. Maintenance	\$ 25,000
Total Annual Project Costs	\$455,000

II. Project Benefits	
1. Storm Damage Reduction	\$368,000
2. Commercial Navigation	\$869,000
Total Annual Benefits	\$1,237,000
III. Net Annual Benefits	\$782,000
IV. Benefit-to-Cost Ratio (BCR)	2.7-to-1

(a) Final costs includes reimbursement by the City of Santa Monica of 10% of the cost allocated to commercial navigation at the end of construction.

(b) Based on breakwater costs only. The annual cost for the boulder field is considered justified based on restoring subtidal rocky habitat losses resulting from breakwater reconstruction.

The cost-sharing of the First Cost of the Recommended Plan is based on the requirements of the Water Resources Development Act of 1986, resulting in initial costs of \$4,665,000 Federal and \$1,002,000 Non-Federal required from the City of Santa Monica. The City would also be required to reimburse the Federal Government \$381,000 after construction, and provide other requirements outlined in the report recommendations, including the real estate necessary for project construction, the installation, operation and maintenance of moorings and other navigation support facilities.

Environmental Impacts

A summary of the environmental impacts of the Recommended Plan on significant environmental resources of principal national concern are as follows:

Water Quality. Minor impacts to water quality could occur during the initial effort to reconstruct the breakwater. Short-term resuspension of sediments would occur during construction, and as a result of the placement of quarry rock. There may also be minor inputs of contaminants from the construction vessels, with the potential of small leaks or spills. These incidents, if occurring at all, would be expected to be small and rapidly dispersed, with a temporary adverse but insignificant overall impact to water quality.

The only long-term impacts expected from the Recommended Plan are expected to be from minor inputs of material into the water column as a result of the reestablishment of boating activities. As these are likely to be negligible, long-term impacts would be expected to be insignificant.

Marine Resources. Impacts to marine resources are expected to be adverse but insignificant. Seasonal timing of construction activities will avoid impact on sensitive species that might inhabit the vicinity of the construction zone. Destruction of the reef communities currently colonizing the breakwater surface will occur; however, these communities will reestablish on the newly placed rocks. An overall loss of .5 acres of subtidal rocky habitat surface area is expected, based on the condition of the existing breakwater, which represents about .1% of the total available. It is noted that the existing breakwater structure is expected to further deteriorate in the future under without project conditions, which would reduce the subtidal area available. The raising of the breakwater will also create about .7 acres of intertidal habitat that is presently not available, which will benefit a number of birds, seals, and other marine species. Therefore mitigation is not considered necessary. The construction of a 0.5 acre submerged boulder field is included in the Recommended Plan to create subtidal rocky habitat.

Shoreline Impacts. The Recommended Plan will result in a wider beach area behind the breakwater, upcoast and adjacent to the Pier, and a narrower beach south between the Pier and the Ashland Avenue groin, a distance of about 6,000 feet. As compared to historic shorelines, accretion upcoast of the Pier at Year 50 after construction is not expected to surpass the 1982 shoreline. Downcoast impacts indicate that erosion of about 50 feet beyond the 1992 shoreline will occur during the first five years after construction, but not substantially beyond the 1982 shoreline. Afterwards, the shoreline is expected to recover to near the 1992 shoreline position.

Because of the existing wide beach in the impact area, the downcoast shoreline changes are expected to result in only a minor increase in potential storm damages to the City parking lot, bike path and concession building during major storm events, and no significant impact on recreation use of the area. A plan feature was considered to mitigate the downcoast shoreline changes which would require placing 300,000 cubic yards of beachfill along the impact area at a cost of about \$1,800,000. This mitigation feature is not economically justified and is not included in the Recommended Plan.

The wider beach created upcoast and adjacent to the Pier may accrete in later years of the project (30 to 50 years) to a point where it would impact on fishing from the Newcomb Pier fishing decks. Dredging of this area may be required by the City to maintain fishing in this area.

Cultural and Historic Resources. Information available indicates no evidence of cultural or historic resources in the area that would be adversely impacted by the Recommended Plan.

Air Quality. An analysis of air quality impacts associated with the Recommended Plan indicates some potential for short term adverse impacts during construction. However, the level of emissions are minor and is considered in conformance with the Air Quality Management District's Air Quality Plan for the Region.

Hazardous and Toxic Wastes. There is no evidence of hazardous or toxic wastes present in the immediate project area.

Other Impact Concerns. The only other area of concern related to impacts from the Recommended Plan relate to traffic and parking. The Santa Monica Pier area as well as other beach areas along the coast provide popular leisure activities used by millions of people each year. Traffic and parking availability are presently a continuous problem, especially during peak traffic hours. Although the additional demand for these facilities resulting from commercial charter fishing and other activities is estimated at about 200 vehicles, this additional

traffic and parking demand is expected to occur during off peak periods, resulting in insignificant impacts.

Non-Federal Support

The City of Santa Monica is the Non-Federal Sponsor and has contributed 50% of the cost of the Feasibility Study. The City has indicated its interest and support in implementing the Recommended Plan.