

# San Clemente Shoreline, Orange County, Ca Coastal Storm Damage Reduction Project

12 May 2011

**Abstract:** The purpose of the Project is to provide the most technically feasible and economically beneficial plan for reducing shoreline erosion and protecting coastal infrastructure from storm-induced wave attack along the San Clemente, CA shoreline. San Clemente is the southernmost city in Orange County and is bounded by the Camp Pendleton Marine Base and San Onofre State Beach Park to the



south; and to the north, by the communities of Capistrano Shores and Dana Point. The total study area encompasses the City of San Clemente and extends from San Mateo Point, located at the southern boundary of the City, to Dana Point Harbor for a total distance of approximately 12 kilometers (7.5 miles).

Along the shoreline of San Clemente, a lack of sediment supply to the shoreline has resulted in chronic, mild, long-term erosion. The Los Angeles to San Diego (LOSSAN) railroad corridor is a vital link for passenger and freight service and has been designated as a Strategic Rail Corridor by the Department of Defense. As the protective beach lessens over time and is eventually lost, it is expected that storm waves will act directly upon the railroad ballast, significantly threatening the operation of the LOSSAN railroad line. The narrowing beaches are also expected to subject ancillary beachfront public facilities to storm wave-induced damages, and further reduce recreational space on an already space-limited beach.

The recommended plan calls for initial construction of a 15-meter (50-foot) wide beach nourishment project along a 1,040-meter (3,412-foot) long stretch of shoreline using 192,000 cubic meters (251,000 cubic yards) of compatible sediment, with periodic renourishment on the average of every 6 years over a 50-year period of Federal participation, for a total of 8 additional nourishments. This plan would provide coastal storm damage reduction throughout the project reach and maintenance of the existing recreational beach. The project is expected to have minimal impacts to environmental resources; additionally, a comprehensive monitoring and mitigation plan has been incorporated in the project in the event that impacts to habitat result. Monitoring of the environmental resources will be for each construction event. Additionally, physical monitoring of the performance of the project will be required annually throughout the 50-year period of Federal participation.



Based on January 2011 price levels, the estimated initial construction cost of the plan is \$11,100,000, for which the Federal share is approximately \$7,220,000 and the non-Federal share is approximately \$3,890,000. Total periodic nourishment costs are estimated to be \$84,900,000 (January 2011 price level) over the 50-year period following initiation of construction, for which the Federal share is approximately \$42,450,000 and the non-Federal share is approximately \$42,450,000. Operation, maintenance, repair, replacement, and rehabilitation costs over the lifetime of the project are \$0. The total equivalent average annual costs of the project are estimated to be \$2,140,000. The average annual reduction in storm damages with the selected plan is estimated \$1,380,000. Including all estimated recreational benefits, the benefit-cost ratio is approximately 1.4 to 1.

**Report Documentation:** Pertinent documentation on the project, the results of the CWRB, and subsequent Washington-Level Review Actions, are linked below:

- [CWRB Agenda](#)
- [Project Summary](#)
- [CWRB Briefing Slides](#)
- [CWRB Lessons Learned](#)
- [CWRB Meeting Record](#)
- [State & Agency Review Comment Letters](#)
- [Documentation of Review Findings](#)
- [Signed Chief of Engineers Report](#) -- 15 April 2012
- [Advance Copy to Congressional Committees](#)
- [ASA\(CW\) Memo to OMB](#)
- [OMB Response](#)
- [ASA\(CW\) Transmittal to Congress](#)
- [Signed Record of Decision](#)
- Authorization

**Additional Information:**

[Los Angeles District](#)