



CITY OF LONG BEACH BREAKWATER STUDY

EXECUTIVE SUMMARY

JULY 2009

Overview

The Long Beach Breakwater Reconnaissance study commissioned by the Long Beach Mayor and City Council and conducted by Moffatt & Nichol is complete. Below is an executive summary of the report, including history on how the study came to be, how it was conducted, and what the next steps are. For more information and detail, please review the entire study at: <http://www.longbeach.gov/citymanager/ga/breakwater/>.

Background

On June 17, 2008, the Long Beach City Council authorized City staff to conduct a Reconnaissance study of the Long Beach Breakwater in the manner and format of a U.S. Army Corps of Engineers study and contract with Moffatt & Nichol to provide the study. Since the Breakwater is owned and operated by the federal government, any changes to the Breakwater need to follow an Army Corps study process, starting with a Reconnaissance study. This study is the first known example of a City taking on the full responsibility of conducting a Reconnaissance study, which is typically completely funded by the federal government. Now that the study is complete, the City will turn the results over to the Army Corps for their review and determination of federal interest, pending approval of a federal appropriation. The project started in August 2008, and was completed within the usual 12 month time period for such a study.

What the Study Includes

A typical Reconnaissance study is a literature review and analytical study to determine if there is enough federal interest to proceed to the Feasibility study phase. The Feasibility study phase is an intense study costing several million dollars and lasting several years. During a typical Reconnaissance study, there is no new research performed – the conclusions are based on known data and existing reports. A Reconnaissance study examines the general costs and benefits of potential changes in the project area, and provides the results in a very specific and prescribed format, the 905(b) Analysis and the Project Management Plan. The goal of the study is to determine if there is enough federal interest (as defined by the Army Corps' regulations) to warrant investing additional dollars in a Feasibility study, which is a much more costly and intensive study. Further, the Army Corps format requires that a Reconnaissance study first identify a problem, and then examine potential solutions. Thus, the Reconnaissance study performed here is entitled the "East San Pedro Bay Ecosystem Restoration study" (and not the Long Beach Breakwater Reconnaissance study), and the potential solutions include reconfiguration of the Breakwater, as well as changes to the Los Angeles River mouth.

The study performed by Moffatt & Nichol includes the information required, but goes somewhat beyond the normal scope of a Reconnaissance study, as they performed hydrodynamic and water quality modeling using a computerized model of the Long Beach Harbor to preliminarily evaluate results of potential alternatives.

What the Study Does Not Include

The study provide very good information on the potential costs of reconfiguring the breakwater, and the known benefits associated with those changes, as well as information about potential changes to the LA River mouth, and the costs and benefits of those changes. However, this study is not a comprehensive review of every possible alternative, cost and benefit. It also does not contain a detailed environmental or engineering review. Due to the allowable budget and scope of a Reconnaissance study set by Congress and the Army Corps, that level of review is not possible in a Reconnaissance study. The purpose of the Reconnaissance study is to determine if there is enough potential federal benefit (federal interest) to warrant such a detailed review in the Feasibility study phase.

How Benefit is Determined

The U.S. Army Corps has a prescribed method of determining federal benefit (federal interest), and pre-determined missions that they follow. The five main Army Corps missions are: commercial navigation, urban flood damage reduction, hurricane and storm damage reduction, ecosystem restoration, and comprehensive watershed planning. While of significant interest to the City of Long Beach, recreational value and the associated economic impacts is not one of the Corps' main missions, and thus those benefits alone are not enough to justify any Corps project.

The main Army Corps mission used for this study is ecosystem restoration. In order to move to the next level, the study must show that the existing ecosystem is in need of restoration and can be restored at a cost-effective level. The connection between ecosystem restoration and breakwater reconfiguration would be the potential to create rocky hard bottom habitat areas from removed breakwater sections and improve water quality for marine ecosystems. Benefits to recreation (such as increased beach attendance and the associated economic impact) can be considered, but cannot be the determining factor.

Ecosystem projects do not lend themselves to a straight cost-benefit approach, as the value of ecosystem restoration is difficult to monetize. This Reconnaissance study examines the cost to construct rocky reef habitat and kelp reef habitat, and then compares the cost-per-acre for the creation of that habitat to the Southern California Edison Wheeler Kelp Reef, which was an approved and constructed ecosystem restoration project. Further, each alternative is evaluated to determine the estimated range of economic benefit, to help provide information about the potential recreational benefit (as determined the Army Corps) and City of Long Beach local spending/tax benefit the alternative could generate.

Approach to the Study

This study was founded on the principle of community and stakeholder involvement. Typical Reconnaissance studies require one public meeting, and then a method to engage the various technical stakeholders. Moffatt & Nichol constructed a more robust public outreach process consisting of three public meetings, dozens of individual stakeholder and resource agency interviews, a thorough review of existing research and documents, and detailed computer wave modeling of the various alternatives.

Major Assumptions

The study is required to consider the conditions that currently exist in the area today. This includes coastal homes, oil islands, Port of Long Beach operations, existing habitat, Navy operations, and many other conditions. The alternatives presented in the study are conditioned upon the principle that an increase in risk or negative impact must be mitigated. Significant negative impacts to homes, navigation, commerce, existing habitat and other current operations, are not acceptable, and solutions must be created to mitigate those negative impacts identified. Further, the study relies on the continuation of other efforts to help improve the water quality in Long Beach, such as efforts to capture stormwater debris and pollutants before they enter the Los Angeles River.

Summary of Major Findings

- The study identifies a number of potential solutions/alternatives to improve the ecosystem.
- Moffatt & Nichol identified five basic alternatives to analyze for potential costs and benefits.
- Complete removal of the breakwater is not recommended in the study as a feasible option, as there are too many negative impacts that cannot be effectively mitigated in a cost-effective manner.
- The study alternatives range in construction cost from approximately \$10 million to \$310 million.
- The study alternatives range from creating wave heights of 0 times to 4 times current size in some areas of the shoreline.
- The study alternatives can create up to 500 acres of kelp bed and up to 300 acres of rocky reef habitat from removed breakwater sections.
- The study does not conclude if there is or is not federal interest, as that function can only be performed by the Army Corps. The study does provide evidence that many of the alternatives considered could both restore the ecosystem and create recreational value.
- Some of the Breakwater reconfigurations have a potential for significant wave energy increases to existing Port infrastructure, THUMS oil islands, Navy anchorage, and City beaches that would require mitigation.

- If the goal is solely hard bottom habitat ecosystem restoration, then importing rock to create kelp beds and rocky reef habitat is most cost effective; however, that solution would not address the City's goals of improved water quality, renewing the City's beaches, or increasing wave activity.
- The City of Long Beach could gain increases of up to \$52 million per year in local spending and economic activity, and potentially up to \$6.7 million per year in taxes and parking fees and fines for the maximum recreation improvement scenario.
- By redirecting the mouth of the Los Angeles River, water quality could likely be improved along the shoreline with or without changes to the Breakwater.
- All five alternatives examined could provide significant ecosystem restoration and some had recreational benefits exceeding the construction costs; however, four of the five alternatives cost more to build than the SCE Wheeler Kelp Reef on a cost-per-acre basis, due to the costs of reconfiguring the Breakwater or building the LA River training structure.
- Moffatt & Nichol estimate that a Feasibility study phase (to be conducted by the Army Corps) would cost approximately \$7 million and take four years to complete. The City of Long Beach would be responsible for funding 50 percent of the cost of the study, which could consist of a mix of non-federal funding sources.

Army Corps Role

The US Army Corps of Engineers will make the final decision that the Reconnaissance study does or does not demonstrate sufficient federal interest to move to the next level of study. Before the Army Corps can make this determination, they must receive approval from Congress in the form of an appropriation of at least \$30,000. These funds will be used to review the City's study, perform a quality control review, and then make a determination of federal interest.

Mayor and City Council Role

While only the Army Corps can determine if the study should move to the next phase, the Mayor and City Council plays an important role as well. Before the Army Corps agrees to move into a Feasibility study, they require that the local sponsor (the City of Long Beach) agree to commit to pay 50 percent of the Feasibility study costs, and eventually 35 percent of the construction costs. The Feasibility study is estimated to take four years and costs approximately \$7 million, or \$3.5 million from the City or other non-federal sources. At some point before the Corps makes a finding of federal interest in the Reconnaissance study, the Corps requires a letter of intent from the City agreeing to pay for 50 percent of the Feasibility study.

Congress' Role

As of July 2009, Congresswoman Laura Richardson was successful in getting \$100,000 included in the House Energy and Water Appropriations Subcommittee report to fund the review of the City's study. The Senate version does not include a corresponding appropriation, thus, this will become an item of discussion for a conference committee.

If the Army Corps receives funding for the Reconnaissance study and subsequently decides that there is enough federal interest to move to a Feasibility study, the City will again need assistance from our members of Congress to pursue an appropriation to fund the federal government's 50 percent share of the study. Without an appropriation, the Army Corps will not be able to proceed with the Feasibility study. Further, any final project must be authorized by Congress in the Water Resources Development Act (WRDA), and be funded through annual appropriations.

Community/Stakeholders' Role

Should the study proceed into a Feasibility phase, community and stakeholder input will continue to be critical as the Army Corps conducts an intense engineering, environmental and hydrological review. There will be many additional opportunities to discuss alternatives, which could be the same alternatives reviewed in the Reconnaissance study, or could be completely different alternatives.

Next Steps

The Mayor and City Council will meet on July 27, 2009 to review the City's study. If Congress approves a federal appropriation, the Army Corps will be allowed to review the City's study and make a determination of federal interest. Before that final review is performed, the City Council must make a decision as to if the City chooses to commit to fund 50 percent of the feasibility study as the local sponsor, and eventually 35 percent of the construction costs. This decision would likely need to be made in January or February 2010.

Thank You!

The City of Long Beach wishes to thank all of our many stakeholders for participating in this process over the past year with us. Your input was critical to creating this study, as a study such as this relies primarily on existing information and stakeholder input. The City also wishes to thank Moffatt & Nichol and their team of consultants for their tremendous effort and expertise in creating this report, as well as the Army Corps of Engineers for providing guidance on conducting the study.