Administrative Report

N.1., **File #** 23-7267 **Meeting Date:** 12/5/2023

To: **MAYOR AND CITY COUNCIL**

From: TED SEMAAN, PUBLIC WORKS DIRECTOR

TITLE

RECEIVE AND FILE A REPORT FROM THE US ARMY CORPS OF ENGINEERS REGARDING THEIR 2023 CONDITION ASSESSMENT OF THE KING HARBOR BREAKWATER

EXECUTIVE SUMMARY

The US Army Corps of Engineers (Corps) is responsible for maintaining both the northern and southern breakwaters that protect King Harbor. Harbor users and City officials, in recent years, have noticed areas of degradation along the breakwater. These concerns have heightened, in anticipation of a strong "El Niño" winter pattern predicted by many meteorological outlets, and the potential for severe storm activity.

The Corps has historically been responsive to City requests regarding the status of the breakwater and regularly assesses the facility to determine its structural condition and functionality. As part of these interactions, City staff and Harbor stakeholders have consistently requested funding for the execution of breakwater facility repairs. Following several years of City effort, the Federal Government set aside resources this Fiscal Year ($10M) to fund the design and construction of the needed improvements.

This item has been prepared to provide employees from the Corps an opportunity to present information on the current condition of the King Harbor breakwater following their most recent assessment, dated September 20, 2023 (see attached), and to review the status/timeline of their scheduled project to repair this critical facility. Additionally, the Fire Department will present the emergency response plans that have been prepared for the waterfront in recognition of the breakwater's current condition.

BACKGROUND

The Redondo Beach King Harbor is protected by two breakwaters that were constructed in the 1958 and later enlarged by the Corps. Since first constructed, the Corps' has been responsible for inspections and repairs to the breakwaters, as necessary, to meet the objectives and design intent of the structures. In 1964 the Corps raised the northerly portion of the north breakwater to +20 feet (MLLW). Later, in 1990, the Corps partnered with the City on a project to raise additional portions of the northern breakwater to +20 feet (MLLW datum) and to extend the south breakwater by 300 feet. This project equipped the breakwater protection level to endure what was calculated at the time to be a 50-year event, which is an event that has a 2% or less statistical likelihood of being exceeded in a given year. There is a 98% chance that the capacity of the breakwater will not be exceeded in any

given year, however, the breakwater is designed to this level of protection.

The improvement project objectives are detailed in the Communication from the Assistant Secretary of the Army for Civil Works to Congress, which is attached. This document describes the design intent of the breakwater as it is today. It also describes a 65% / 35% project cost apportionment for these improvements with the local sponsor, the City of Redondo Beach. Notably, ongoing maintenance costs for the portions of the breakwater improved in the 1990 project are to be borne 100% by the local sponsor.

To ensure that the breakwater continues to meet the objectives of its design intent, a physical inspection is performed each year by the Corps to determine the current condition. City staff has been involved in these inspections for several years. In 2017 the inspection revealed significant damage that prompted the Corps to begin the work to bring a repair project to fruition. Since that time, City staff and marina industry advocates have been lobbying Federal officials to include funding for the repair work in the Federal Budget. The Corps willing partner in pursuing the project, but it has taken several years for the Corps to secure support and funding to do the work. Funding has now been approved to proceed with design and construction of the repair project.

This year's inspection was performed on June 9, 2023 and the Assessment Memorandum (attached) was delivered to the City on October 12, 2023. The Assessment Memorandum narrative is brief, and provides a high-level overall condition of the structure, called a District Combined Rating (DCR) grade. This year, the north breakwater was given a DCR of "B," and the south breakwater was given a DCR of "A."

The DCR is derived from two scores, one for structural condition, Structural Condition Rating (SCR), identifying damage, and one for functionality, Functional Condition Rating (FCR), identifying operational expectation.

The south breakwater is in good shape and needs no significant repair. The north breakwater has a poor score for the structural condition (SCR of D) but retains a high score for functionality (FCR of A). In the transmittal email, the Corps' engineer said of the north breakwater,

> *"Based on the observed conditions, the structure continues to have a Structural Condition Rating of 'D' (Seriously Degraded) which is defined as "an extensive portion of the structure has deteriorated to a condition that repairs are indicated." Despite the damage, the structure still has nearly full functionality.*
>
> *These annual inspections are data points that over time can be used to track degradation up to a point that it is determined repairs are necessary. For the North Breakwater this has been done, and funding has been requested and approved for construction in FY2024. Plans, specifications and the Environmental Assessment (EA) are underway and we are hoping for construction to occur beginning in the spring/early summer."*

Informally, the Corps has indicated that the cost share apportioned to the City will likely be met by the City's upcoming Harbor dredging project, which includes the environmental work required for the proper excavation and disposal of dredge spoils. The efforts associated with the dredging will compliment the breakwater repair project by allowing the Corps to access portions of the breakwater

from the water. Without dredging, the shoaling along the breakwater would require the Corps to excavate and dispose of material in order to replace the dislodged boulders, which significantly increases their costs. Staff will pursue a more formal acknowledgement from the Corps of this understanding.

The breakwater is built to dissipate wave energy not by being impenetrable but by interrupting wave energy and reflecting it back upon itself. While the winter is predicted to bring a heavy storm season, it is important to remember that the breakwater is still highly functional and will provide a good deal of protection in its current state.

The noted degradation in the structural condition of the breakwater can potentially diminish the protection provided by a small degree in areas where the boulders are missing or dislodged if faced with significant storm intensity. That said, widespread landside damage due to the deteriorated condition of the breakwater is not expected. The City's Fire Department has prepared contingency plans for potential emergency scenarios that could arise given the breakwater's condition, a summary of which will be presented to City Council at the meeting.

The Corps' repair project, scheduled for 2024, will serve to restore the degraded locations to their as-designed and as-built condition preserving the life of the structure for years to come.

COORDINATION

This report was prepared by the Public Works Department working in coordination with the representatives of the US Army Corps of Engineers and the Fire Department.

FISCAL IMPACT

There is no fiscal impact to receive and file this report.

APPROVED BY:
Mike Witzansky, City Manager

ATTACHMENTS

- Communication from the Assistant Secretary of the Army for Civil Works to Congress
- 2023 King Harbor Breakwater Condition Assessment, September 20, 2023