

CITY OF SANTA BARBARA WATERFRONT DEPARTMENT

MEMORANDUM

Date: December 17, 2009
To: Harbor Commission
From: John N. Bridley, Waterfront Director
Subject: **Marina One Replacement Project – Phase 2 Design Issues**

RECOMMENDATION: That Harbor Commission:

- A. Review and comment on the Marina One Replacement Project focusing on the primary design issues related to Phase 2 of the project; and
- B. Review “P” finger dock expansion alternatives and provide direction on the potential construction of additional boat slips on “P” finger.

DISCUSSION:

Background

Marina One is Santa Barbara Harbor’s largest marina providing boat slips for 592 vessels. An evaluation of “A through “P” fingers was conducted in 2006 and determined that the 30-year old docking system should be replaced. In an effort to minimize disruption to boaters, displace as few vessels as possible during construction, and limit annual increases in debt service, staff prepared a project description outlining replacement of “A” through “P” fingers in 10 phases over a period of 10 – 15 years (Attachment 1). The entire project including all 10 phases was advanced through the permit process with final approval received in April 2008. A \$5.5 million loan has been secured from the California Department of Boating and Waterways (DBAW) for the construction of Phases 1 – 4.

The majority of the project includes replacement of the existing docks in-kind with no change in the number or size of slips with three exceptions; 1) “F” finger endtie is currently occupied by a dry dock operation and is not scheduled for replacement until FY2017. If the dry dock ceases to operate by then, it may be possible to add eight 35’ boat slips. 2) Immediately south of “P” finger is the largest open water area on the south side of the harbor. Extending “P” finger could possibly accommodate two 30’ and two 50’ slips. 3) To meet revised electrical code requirements, a new transformer will be installed on each finger as opposed to the five transformers currently located on the main headwalk. It is probable that two slips on each finger may have their length reduced to accommodate the new transformers.

Phase 1 construction includes the replacement of the main headwalk and all utilities. Construction commenced in November 2009 with completion expected in April 2010.

Phase 2 design and engineering is underway with final design expected in April 2010. Construction is tentatively scheduled for the fall of 2010.

The primary design issues for Phase 2 are the potential expansion of “P” finger and installation of a transformer on “O” and “P” fingers.

Phase 2 Design Issues – Dock Expansion

The California Department of Boating and Waterways (DBAW) issued guidelines in 2005 establishing a variety of marina berthing facilities standards such as utilities, dock widths, slip lengths, minimum depths, and channel widths for safe navigation. As part of the conceptual design and permit process, Marina One was evaluated and determined to meet the existing guidelines.

Any expansion or modification of Marina One must be designed to be consistent with the DBAW Guidelines. Adding docks to “P” finger is relatively straightforward and only requires matching the existing dock widths and lengths. Ensuring safe navigation and compliance with DBAW regulations for channel widths and depths is a little more complicated.

The guidelines section on Water Areas includes design criteria for three key components; 1) Entrance Channels, 2) Interior Channels, and 3) Fairways.

DBAW Definitions

- Entrance Channel - A watercourse, external to the marina, through which boats travel between a marina and a water body where the primary boating activity occurs. Minimum depth = 3' below deepest draft boat* at MLLW. Minimum width = 75'.
- Interior Channel – A watercourse, within a marina, through which boats travel between an Entrance Channel and a Fairway. Minimum depth = 2' below deepest draft boat* at MLLW. Minimum width = 75'.
- Fairway – A watercourse, within a marina, by which boats travel between interior channels and marina berths. Minimum width = 1.75 (longest berth). Minimum depth = 2' below deepest draft boat* at MLLW.

** It is important to note that the minimum depth criteria related to “the deepest draft boat” is not strictly enforced by DBAW. Maintaining depths in response to a boat with an unusually deep draft is considered an unreasonable burden on any port or harbor.*

The Entrance Channel in Santa Barbara Harbor is also referred to as the Federal Channel. The Federal Channel is 147' wide within the harbor and is maintained to a minimum depth of 13' MLLW by the Corps of Engineers (Attachment 2).

The Interior Channel directs boats to Marina One between the breakwater and the south and east sides of the marina (Attachment 3). Widths vary but generally exceed 90'

between S, Q, and P fingers and the breakwater with slightly narrower passages further west towards L, J, and I fingers. Depths also vary but are generally deeper than -8' to -10' MLLW for the entire length of the channel.

Fairways are those water areas between fingers. The water area between "P" and "N" finger is 55' exceeding the DBAW Guidelines design criteria of 52.5' for the 30' vessels berthed in those slips (Attachment 3).

Expanding "P" finger to the south (towards the breakwater) could result in one additional 30' slip and one additional 50' slip (Attachment 4) or two additional 30' slips and two additional 50' slips (Attachment 5). These two scenarios extend the dock into the water area south of "P" finger by as much as 35'.

DBAW Guidelines design criteria only address channel widths from dock to a structure such as the breakwater, but do not address channel widths between a vessel and a structure. "P" finger endtie is 89' long and could accommodate a vessel of the same length. The existing slipholder at "P" finger endtie has expressed interest in possibly replacing their existing vessel by obtaining a large catamaran with a 32' beam (Attachment 6) and has expressed concerns regarding maneuverability in the water area south of "P" finger with the proposed dock expansion.

Although this expansion appears to meet the DBAW Guidelines for Interior Channels, staff arranged for a practical demonstration by mocking up the dock expansion and maneuvering the 90' *M/V Torqua* alongside. Several slipholders with vessels berthed on the south side of Marina One participated in the demonstration providing a unique experience to observe potential impacts to navigation and maneuverability in this water area. Staff has confirmed that the proposed "P" finger expansion meets DBAW Guidelines and that a large vessel capable of berthing at the endtie can safely maneuver and dock.

Expanding "P" finger provides a rare opportunity to increase berthing opportunities in Santa Barbara Harbor. Although the waiting list has been "frozen" for years, there are over 40 people on the list, many of whom have been on the list for many years. Staff has considered relevant guidelines and organized a demonstration to determine the feasibility of this expansion. Staff is of the opinion that the proposed expansion of "P" finger will have no material affect on the berthing of the existing sailboat *Taxidancer*, on the "P" finger endtie. Staff also believes a vessel with a wider beam could possibly be located on the expanded "P" dock.

Phase 2 Design Issues – Transformers

The National Electric Code (NEC) has been updated since the existing docks were designed in the mid 1970s. The updated code results in a calculated electrical load in excess of what was calculated for the existing docks. To provide the required service, the entire electrical system needs to be replaced. Construction of Phase 1 provides a new electrical feed to Marina One and re-feeds the five existing transformers on the main headwalk. As each subsequent phase is completed, a new transformer must be installed on each dock. In an effort to minimize the electrical infrastructure in the docking system, each transformer must be located no farther than 200' from any slip on each finger (Attachment 7).

Phase 2 includes the replacement of "O" and "P" fingers including installation of a new transformer on each finger. Modern marina design frequently places transformers partially on the headwalk and partially encroaches into a slip. Those slips where the transformer is placed maybe reduced in length by as much as 3' – 4'. Staff and the design engineer, URS, have looked at a variety of options that would not result in the reduction of slip lengths with no feasible alternative identified. Therefore, it is possible that the length of two slips on each finger will be reduced to accommodate a new transformer. Staff will work with URS to identify the specific slips for location of the transformer with the least possible impact to existing vessels.

- Attachment 1: Marina One Replacement Project – Phases 1 through 10
- Attachment 2: Santa Barbara Harbor Federal Channel
- Attachment 3: Marina One Entrance Channel and Fairway
- Attachment 4: "P" Finger Expansion one 30' and one 50' slip
- Attachment 5: "P" Finger Expansion two 30' and two 50' slips
- Attachment 6: Richard Compton Letter dated August 28, 2009
- Attachment 7: Typical Dock Transformer Location

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