



## San Mateo County Harbor District

# ITEM 4

### Board of Harbor Commissioners

Robert Bernardo, President  
Pietro Parravano, Vice President  
James Tucker, Treasurer & Secretary  
Sabrina Brennan, Commissioner  
William Holsinger, Commissioner

Peter Grenell, General Manager

July 18, 2013

**TO:** Board of Harbor Commissioners

**FROM:** Peter Grenell  
General Manager

**SUBJECT:** INFORMATION REPORT: DREDGING NEEDS, SHORELINE  
EROSION, AND DREDGED MATERIAL DISPOSAL AT  
PILLAR POINT HARBOR

**CC:** Managers  
Jean B. Savaree, District Counsel

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### INTRODUCTION

The San Mateo County Harbor District has historically been involved at its Pillar Point Harbor in maintenance dredging and shoreline erosion activities (see Harbor District website, [www.smharbor.com](http://www.smharbor.com), for Dredging at Pillar Point Harbor updates). It is now preparing to undertake another maintenance dredging episode at its boat launch ramp. Recently, local public interest in these matters has increased, especially regarding the beneficial use of dredged material. This informational report responds to this increasing interest by providing detailed information regarding District activity with existing and potential dredging and erosion-related projects, and the District's overall strategy for addressing these concerns at Pillar Point Harbor into the future. The District will update this information on its website, through ongoing District-convened public meetings, and by other means as time goes on.

### PILLAR POINT HARBOR DREDGING NEEDS: SHORT AND LONG TERM

**Inner Harbor:** Pillar Point Harbor (PPH) was dredged during the 1980s to create the boat basin for its new docks and berths. That material was placed adjacent to what is



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now the Inner Harbor boat basin. The basin has not been dredged since, but now shows signs that Inner Harbor maintenance dredging is needed at least in some locations within the Inner Breakwater (see below for further discussion).

**Boat Launch Ramp:** The boat launch ramp, located just outside the eastern arm of the Inner Breakwater, was built in 1991-92. The Launch Ramp requires periodic maintenance dredging because of sediment build-up coming from the adjacent Deer Creek outfall. The launch ramp was last dredged in 1998-99 and 2006. Another maintenance dredging episode is needed immediately; the District has received all permit and other approvals and will proceed with the dredging during the next several weeks (see below for further discussion). In view of the smaller amount of permitted dredging than anticipated, the District can expect to undertake the next maintenance episode a few years earlier. The District informed the Coastal Commission during permit review that it intends to examine alternative dredged material placement sites for future dredging episodes, with emphasis on beneficial reuse possibilities.

**Outer Harbor: Inside East Arm of Breakwater:** When, at the urging of Coastside citizens, the U. S. Army Corps of Engineers created a harbor of refuge at Pillar Point in 1959-61 (with improvements in 1967), its Outer Breakwater stopped the movement of sediment along the northern Half Moon Bay shoreline. Substantial sediment build-up in the Outer Harbor adjacent to the east arm of the breakwater has reduced vessel anchorage area in the harbor. This Outer Harbor sediment could be beneficially relocated for beach nourishment at the adjacent Surfers Beach or on the Princeton shoreline, and thus restore the boat anchorage area.

**Outer Harbor: Possible New Navigation Channel to Possible New Pier:** In 1996, the Army Corps of Engineers completed a Phase I Reconnaissance Study for a new navigation channel into PPH from the federal Outer Breakwater to address navigation safety and vessel congestion concerns. The study found that a new 13-foot deep channel to the Romeo Pier had a significantly more positive benefit/cost ratio than such a channel into the Inner Harbor to the Johnson Pier. The District's engineering study of the Romeo Pier found it badly deteriorated. The District closed the Romeo Pier, relocated the one wholesale fishing firm to Johnson Pier, and established a priority for building a new multi-purpose pier somewhere along the Princeton shoreline, to which a new deep-water



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channel would go. The dredged material from this channel, if it were to be created, could reasonably go onto the eroding Princeton shoreline beach.

### **SHORELINE EROSION AT PILLAR POINT HARBOR**

Shoreline erosion occurs at three Half Moon Bay locations, two inside PPH's Outer Breakwater along the Princeton shoreline and along the West, or Mavericks, Trail connecting the Pillar Point Marsh parking lot and the outer Pillar Point beach; and one outside at Surfers Beach, immediately adjacent to the eastern arm of the breakwater.

Wind waves across the Outer Harbor cause Princeton shoreline erosion. The federal breakwater's western arm eliminated former long-shore sediment movement to the beach. Erosion of the Trail and its shoreline results from wave action and also storm water runoff from the Pillar Point peninsula above the trail. Erosion at Surfers Beach increased significantly after the federal breakwater was built. Here, too, the breakwater curtailed historic sediment movement onto and past the beach.

All three of these locations, Princeton, West Trail, and Surfers Beach, are popular public access and recreational points. Potential exists for beneficial reuse of suitable dredged sediment for beach nourishment at Princeton and Surfers Beach, and possibly at West Trail (see below for further discussion).

### **DISPOSAL OF DREDGED MATERIAL: GOALS AND ALTERNATIVES**

Disposal of dredged material is a major element of routine harbor and channel maintenance. Historically, this material, dubbed "dredge spoils", was mainly considered a waste product. More recently, it is now seen as an asset for "beneficial use" in beach nourishment, reclamation projects for shoreline recreation areas like parks and golf courses, and fill for construction projects. The District, in placing its dredged material, would much prefer to dispose of dredged material for beneficial uses such as sand replenishment.



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As noted above, harbor dredging and beneficial reuse of the material at locations like Surfers Beach, Princeton Shoreline, possibly the West Trail area, and also expansion of the original PPH dredged material disposal location at Perched Beach to double its size to create more public beach, are all active possibilities for the Harbor District.

### **HARBOR DISTRICT STRATEGY FOR DREDGING, DREDGE MATERIAL DISPOSAL, AND EROSION CONTROL**

**Harbor District Strategy for Dredging and Reuse:** The District's strategy for PPH dredging, material disposal and reuse, and erosion control is outlined below:

- Top priority to maintaining harbor facilities for their full, safe, productive and intended use by the District, its tenants, and other harbor users;
- Accomplishing this top priority as cost-effectively as possible;
- Accomplishing this top priority with no or mitigated or otherwise acceptable minimum environmental impact;
- Making beneficial use of suitable dredged material for beach nourishment and other beneficial uses, consistent with environmental quality goals;
- Addressing the harbor's maritime facilities needs while enhancing public access and recreational opportunities where and when feasible; and
- Providing continuing opportunities for enhancing public information and interchange to improve public input to the District's implementation efforts.

**Update on Harbor Dredging and Erosion-Related Projects:** Following is a summary of Harbor District project-level activity at PPH, based on the Strategy outlined above.

**Boat Launch Ramp Maintenance Dredging:** The PPH boat launch ramp requires immediate maintenance dredging to avoid a complete shut-down due to increasing sedimentation. The dredged material will be placed on Perched Beach as it is the closest, quickest, and cheapest alternative, and no other disposal site is feasible within the short time frame needed to dredge the ramp (see below re: other theoretical alternatives). Public beach access to the water, including kayak launching, will not be eliminated. The launch ramp dredging would have been completed months ago except for delays caused by some local opposition to the disposal site. The District has made clear to the Coastal



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Commission that it will explore alternative sites for future dredging episodes. These could include extending the present Perched Beach eastward, effectively doubling the beach area available for public access including for recreational non-motorized vessels, e. g., kayaks, paddle boards, etc.

**Inner Harbor Maintenance Dredging:** The District has been informed by some PPH boater tenants that several areas are getting shallow; e. g., larger vessels cannot tie up along the bulkhead now. The District will take soundings this summer to identify dredging “hot spots”, followed by the usual bathymetric, volumetric, physical, and chemical characteristics analyses of the bottom sediment before commencing the permit process. The District again will need approvals from the Army Corps of Engineers, Regional Water Quality Control Board, Coastal Commission, and State Lands Commission. Consultations with federal Fish and Wildlife Service and state Dept. of Fish and Wildlife are also needed. A disposal site will have to be determined and included in the permit application. Availability and suitability of the various alternative sites will be determined before application submittal. Because of the importance of the Inner Harbor as the essence of the District’s responsibility under its enabling legislation and State tidelands grant for PPH, the District will be inclined to focus on the quickest, easiest, and cheapest alternative consistent with its strategy objectives.

**Outer Harbor Dredging to Restore Anchorage Area:** The Harbor District’s approach here is to await, and assist where possible, the efforts of the Army Corps of Engineers in its Surfers Beach Project (District is Local Sponsor and financial contributor to the project), and San Mateo County’s Planning Department in its Comprehensive Princeton planning process, now getting underway (Shoreline Erosion is a component of this effort). The sediment now partially filling the eastern anchorage area could be placed, following (a) project design completion by the Corps for Surfers Beach and/or project development by the County for Princeton shoreline and (b) updated permit-required analyses of the sediment and the alternative sites, either on Surfers Beach (preferred because of ease and economy and higher level of public use) or Princeton shoreline.

The Corps continues with its Surfers Beach project (officially known as the North Half Moon Bay Shoreline Improvement Project). Presently, they are completing a project benefits analysis, a No-Project alternative, and are reviewing a recently completed bluff



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erosion analysis. These steps are preparatory to identifying a set of project alternatives for modeling and analysis. Such alternatives could include, but not be limited to, simply placing the Outer Harbor sediment on the beach; inserting a tube through the breakwater to try to restore water flow, with sediment, from inside the breakwater onto the beach; creating an offshore artificial reef to dampen wave action; installing one or more groins (small jetties) along the beach to southward to trap eroding sediment; or installing one or more such mini-jetties along the breakwater's eastern arm, also to reduce wave action. Factors including environmental impacts on species and habitats (a major concern of the Gulf of the Farallones and Monterey Bay National Marine Sanctuaries), loss of surfing wave action (of great local concern), cost (capital and maintenance, the latter including periodic sand replenishment), and impacts on bluff stability, among others, would need to be considered in the selection of alternatives and their modeling.

The Corps could convene its next public meeting to present its status update, next steps, and elicit questions and suggestions from the public, before beginning its analysis of alternatives.

Regarding Surfers Beach, a question has arisen as to why the District cannot simply apply for its own permit directly. The Harbor District as Local Sponsor of the Corps' project (the Corps is lead agency), has contributed significant funds to the project already. There is no justification for the District to duplicate the Corps' efforts and independently spend time, effort, and more money seeking its own permit to move the sediment. The District would have to repeat what the Corps has already accomplished and is continuing on. This is important for the public to realize and understand; there are no short-cuts here. No permits would be forthcoming from the regulatory agencies in the absence of a full project work-up, design, and permit application.

Regarding Princeton Shoreline, the County's schedule for completing the Shoreline Erosion and other background studies of its comprehensive planning effort calls for completion by the end of 2013 or early 2014. The County has scheduled a Visioning Workshop for mid-September. More information is likely to be available at this event.

**West Trail Erosion Control:** Wave action and storm runoff have resulted in expanding erosion of the West Trail. Repairs and actions to prevent future such impacts are needed



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now, before the trail will have to be closed for reasons of public safety. The District conducted a site condition survey and had prepared some preliminary repair cost alternatives to address the erosion and structural stability of the trail and bluff edge. Further engineering design work is needed to identify a preferred repair and prevention approach. This would include consideration of the feasibility of using suitable dredged material as part of the repair solution.

The full project includes improving and protecting the trail itself but maintaining it as an unpaved yet ADA-compliant facility; and providing parking lot and restroom improvements. Again, the parking lot would not simply be paved in asphalt; rather, more environmentally sensitive design approaches now available would be employed if feasible, that also would beneficially contribute to addressing runoff issues. As with other projects mentioned, the West Trail project would need to go through the usual full permit process required by the various regulatory agencies. The District has budgeted funds for this project in its FY 2013-14 budget and plans to continue work on it starting later this summer.

**Summary of Potential Dredged Material Beneficial Use Alternatives:** The following summarizes the preceding discussion:

- Surfers Beach
- Princeton Shoreline
- West Trail
- Perched Beach extension

### **Offshore and Upland Dredged Material Disposal**

**Offshore Disposal:** At this time there is no officially designated offshore (ocean) dredged material disposal site available to the Harbor District. Offshore disposal is not considered a desirable alternative environmentally. In any case, offshore disposal would require barging the material out to the site given acceptable weather conditions. Because the offshore waters are within the Monterey Bay National Marine Sanctuary, restrictions on disposal within the sanctuary might result in very costly and lengthy travel beyond the sanctuary boundary.



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**Upland Disposal:** This alternative would involve trucking the dredged material to a receiving site that would accept it. For example, the nearest landfill to Pillar Point

Harbor would not accept such material. Additionally, the material would probably need to be placed at an interim location for dewatering before transport to the receiver site. This would entail additional costs even if such a location were available, making this costly alternative even more expensive.

### **TIMELINES FOR ACTION**

The several dredging, erosion control, and dredged material disposal options summarized above have varying timelines for action. These depend on status of planning, design and engineering, environmental review, permitting, and financial considerations. They can be provisionally grouped into three categories: Immediate (short term), medium term, and long term.

#### **Immediate (Short Term):**

Boat Launch Ramp Maintenance Dredging (Harbor District): 3,500 CY. Disposal: Perched Beach. All permits approved. Dredging expected to begin August 2013.

#### **Medium Term:**

Inner Harbor Maintenance Dredging (Harbor District): Amount unknown. Disposal: To be determined. Possibilities: Surfers Beach, Princeton Shoreline, West Shoreline Trail, Perched Beach extension. Planning, engineering, and permitting to begin during 2013.

West Trail Erosion Control (Harbor District): Planning, engineering, and permitting to be resumed during 2013 (budgeted for FY 2013-14).





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### **Long Term:**

Surfers Beach Erosion Control (Army Corps of Engineers): Existing conditions analysis done; no project alternative done; potential project benefits analysis in progress; selection of project alternatives for modeling and analysis anticipated for fall 2013.

Princeton Shoreline (San Mateo County): Comprehensive planning process for Princeton getting started. Planning studies including shoreline erosion component anticipated for completion by end 2013 or January 2014.

Outer Harbor Maintenance Dredging (Unknown): Disposal: To be determined. Possibilities: Surfers Beach, Princeton Shoreline. Army Corps Surfers Beach project now underway will investigate on-beach disposal at Surfers Beach as part of project alternatives analysis (2013+).

Outer Harbor: Dredging New Navigation Channel to New Pier (Army Corps of Engineers): Amount: unknown. Disposal: To be determined. Possibilities: Princeton Shoreline. Project was suspended during feasibility stage. Resumption dependent on status of new replacement pier for Romeo Pier.

### **CONTINUING INFORMATION EXCHANGE**

Over the next months and years, the Harbor District will continue to address the needs outlined in preceding pages. It is committed to the Strategy points outlined above. Future public meetings will be arranged to facilitate information exchange and public input to the several project efforts as they proceed.