

CDBW Beach Erosion Control and Public Beach Restoration Grant Application

I. APPLICANT INFORMATION

1. Provide the date this application is being completed.

February 1, 2016

2. Provide the legal name of the Applicant:

San Mateo County Harbor District

3. Identify what type of public entity the Applicant is:

Harbor District

4. Provide the mailing address of the Applicant.

San Mateo Harbor District

P.O. Box 1449

El Granada, CA 94018

5. Provide contact information for the individual DBW should communicate with regarding this application, including their phone number and email address.

Glenn Lazof, Special Projects Consultant

San Mateo County Harbor District

(650)-583-4996; glazof@smharbor.com

II. GENERAL PROJECT INFORMATION

6. Provide the name of this project.

Pilot Surfer's Beach Sand Replenishment Project

- 7. If DBW has previously provided funding for any work on this project, provide the DBW agreement number and indicate when and how much funding was provided. Also provide amounts and dates for other prior State investments in this project.**

N/A. DBW has not provided funding for any work on this project.

- 8. Identify all public agencies that are involved or will be involved in the project. Explain each entity's role in the project, including its involvement in any previous phases of the project.**

The main agencies and jurisdictions that will be involved in the Pilot Surfer's Beach Sand Replenishment Project (Project) include: NOAA's Monterey Bay and Greater Farallones National Marine Sanctuaries (MBNMS and GFNMS) and National Marine Fisheries Service (NMFS), US Army Corps of Engineers (USACE), US Environmental Protection Agency (USEPA), US Fish and Wildlife Service (USFWS), California Coastal Commission (CCC), California State Lands Commission (CSLC), California Department of Fish and Wildlife (CDFW), State Water Resources Control Board (SWRCB), Regional Water Quality Control Board (RWQCB), and Air Pollution Control District (APCD), County of San Mateo, City of Half Moon Bay and Caltrans. A brief description of each agency's role is below.

Monterey Bay National Marine Sanctuary: Designated in 1992, the MBNMS is a federally protected marine area offshore of California's central coast. Stretching from Marin to Cambria, it encompasses a shoreline length of 276 miles and 4,601 square nautical miles of ocean, extending an average distance of 30 miles offshore. MBNMS was designated in accordance with the National Marine Sanctuaries Act (NMSA) and is managed under the authority of the Act. Under the NMSA, the MBNMS has the ability to grant permits for prohibited activities and enforce its regulations, provided that the activities meet certain criteria such as having, at most, short-term and negligible adverse effects on sanctuary resources and qualities (15 CFR Section 922.133).

MBNMS enforces thirteen federal regulatory prohibitions designed to preserve and protect the natural and cultural resources and qualities of the ocean and estuarine areas within its boundaries. One of these prohibitions is discharging or depositing, from within or into the sanctuary, any material or other matter. The placement of sediment within the boundaries of the MBNMS, which will likely occur as part of the proposed Project, would trigger the need for MBNMS review and permitting.

In addition to MBNMS' permitting and regulatory authority over certain RSM projects, the sanctuary participates in a variety of collaborative planning and adaptive management initiatives to address shoreline protection issues

through non-regulatory means. As such, members of MBNMS staff and the Sanctuary Superintendent have been closely involved in the planning of the proposed pilot Surfer's Beach Sand Replenishment project over the past eight years, attending several meetings and public workshops to provide input.

MBNMS will continue to play a key advisory and review role in the planning of the Project over the next 1.5 years, including a commitment of staff to participate on a Stakeholder Advisory Group and participate in additional meetings of a permitting and regulatory agency working group.

Greater Farallones National Marine Sanctuary: GFNMS is responsible for management of the northern portion of MBNMS, including the entire Project area. As such, GFNMS staff are responsible for project review and permit issuance (under MBNMS regulations). GFNMS staff and the Sanctuary Superintendent have been closely involved with the planning of this Project since 2008, and will continue to play a critical role in the further development during the planning phase. GFNMS has also committed staff resources to participate on a Stakeholder Advisory Group and participate in additional meetings of a permitting and regulatory agency working group.

U.S. Army Corps of Engineers: The USACE has regulatory authority over activities involving waters of the U.S. pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act. This includes the regulation of any development or structure that may cause obstructions to U.S. navigable waters, or placement of fill or dredged material (which is defined generally to include any structure that is built). Under Section 404 there are two types of applicable permits that are required: for larger-scale projects with the potential to cause significant impacts, an individual permit is typically required; for activities with minimal potential environmental impacts a general permit is usually required.

The USACE is the chief decision-making agency for beach nourishment projects. For USACE to approve a project, the proponent must demonstrate that the proposed project is the "least environmentally damaging practicable alternative." Additionally, under Section 404 permitting, either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) is required for beach nourishment projects. The USACE disposal-related regulations are located at 33CFR 320-330 and 33 CFR 335-338. For more information on USACE policies, procedures, and regulations refer to the CSMW's Beach Restoration Regulatory Guide (EIC, 2006).

In addition to their regulatory and permitting role, USACE has played a key role in the planning and conceptual design of the proposed Project (see response to *Question 10* of this grant application for more details). This includes partnering with the Harbor District in an extensive feasibility study

and completing an *Initial Appraisal* report and numerous other documents (see *Questions 17 and 43*).

Although USACE determined that there is not a federal interest in the implementation of the Project itself, staff will continue to be closely involved in the further planning and permitting phases. At least three USACE staff members have committed to participate on a Stakeholder/Technical Advisory Group and participate in additional meetings of a permitting and regulatory agency working group.

National Marine Fisheries Service: NMFS is the federal agency responsible for managing, protecting, and conserving living marine resources and their habitat throughout the Exclusive Economic Zone (typically, waters between 3 and 200 miles offshore). It becomes involved with the Project by the way of providing consultation pursuant to Sections 7 and 10 of the *Endangered Species Act* (ESA), which governs potential impacts of various activities to species and habitats that are either federally listed or proposed for listing. The NMFS may also review the Project proposal for potential impacts to *Essential Fish Habitat* under the Magnuson-Stevens Fisheries Conservation and Management Act. Pursuant to the *Marine Mammal Protection Act* (MMPA), NMFS is also responsible for protection of most marine mammal species found in the Project area, with the exception of the southern sea otter (*Enhydra lutris*), which is under the jurisdiction of the USFWS.

US Fish and Wildlife Service: Similar to NOAA Fisheries, the USFWS plays a consultative role under *Sections 7 and 10* of the ESA, as well as the MMPA. Pursuant to the ESA, the lead agency responsible for environmental review of a proposed project is required to determine whether or not any species listed as either threatened or endangered under the ESA are present in the Plan area and to determine whether the project will cause any potentially significant impacts on that species.

The USFWS and NMFS both are guided by the same set of regulations under the ESA; however each agency is exclusively responsible for different listed species. The USFWS has jurisdiction over terrestrial animals and sea otters, whereas NOAA Fisheries is responsible for the remaining listed marine animals and all other marine mammals. If the lead agency responsible for the project were a federal agency, then a Section 7 consultation would occur. Otherwise the project proponent would need to complete a Habitat Conservation Plan (HCP) and submit it to the USFWS for review and approval.

California Coastal Commission: The CCC, in collaboration with local counties and cities, is the primary state agency responsible for planning and regulating the use of land and water within California's Coastal Zone, in accordance with

the specific policies of the *California Coastal Act* (CCA) and consistent with the U.S. *Coastal Zone Management Act* (CZMA).

The proposed Surfer's Beach Project, since it is located within the coastal zone, must be reviewed for consistency with the CCA and would require a *Coastal Development Permit*, which involves stringent review of the project by CCC staff.

The CCC was established to assist local governments in implementing local coastal planning and regulatory powers by adopting Local Coastal Programs (LCPs). An LCP consists of one or more Land Use Plans (LUP) with goals and regulatory policies as well as a set of Implementing Ordinances. The CCA requires local jurisdictions to prepare and submit an LCP; once the CCC approves the LCP then that local jurisdiction has coastal permitting authority. The CCC, however, holds permitting authority over Sovereign Lands, which are submerged lands seaward of the MHT line and those not in within the LCP area. San Mateo County and the city of Half Moon Bay both have approved LCPs and therefore permitting authority. Since the Project is located within Half Moon Bay and on sovereign lands below the MHT line, two permits would be necessary – one from the local jurisdiction with a certified LCP (HMB) and one from the CCC.

Coastal Commission staff will be closely involved in the planning of the proposed Project, and will participate on a Stakeholder/Technical Advisory Group and participate in additional meetings of a permitting and regulatory agency working group.

California Division of Boating and Waterways: The DBW was established in 1957 upon enactment of legislation that established a state boating agency dedicated to all aspects of recreational boating and a special fund (Harbors and Watercraft Revolving Fund) to fund the division's activities. The DBW is the California agency with responsibility for studying and reporting beach erosion issues in the state, and for developing measures to stabilize the shoreline pursuant to Article 2.5 of the Harbors and Navigation Code. And following the passage of the Public Beach Restoration Act (1999) responsibility for allocating funds for beach restoration projects.

Although the DBW is not involved in projects from a regulatory standpoint, the agency plays the primary role in funding local projects and providing technical information. The San Mateo County Harbor District hopes to obtain funding from the DBW for the construction and monitoring of the proposed Project, and work closely as partners to ensure the Project's success.

California State Lands Commission: The CSLC was established in 1938 with authority detailed in Division 6 of the California Public Resources Code. It manages nearly 4 million acres of Sovereign Lands underlying California's

navigable and tidal waterways, which include over 120 rivers, streams, and sloughs; tidal navigable bays and lagoons; and submerged lands along the entire coastline of the state between the MHT line and three nautical miles offshore.

Since the proposed Project's beach nourishment borrow site is partially located on CSLC lands, a Mineral Extraction Lease may be required. However, because the proposed Project does not involve any infrastructure that would encroach onto CSLC lands, such as a coastal protective structure, it would not require a General Lease from the CSLC.

California Department of Fish and Wildlife: The CDFW maintains the California list of threatened and endangered species. Under the California Endangered Species Act (CESA) it is illegal to take any species that are listed under that act as endangered and threatened. Take is defined roughly as any activity resulting directly in direct mortality, permanent or temporary loss of occupied habitat that would result in mortality, or disruption in reproduction to one or more individuals of the species, or avoidance of the habitat resulting in the same as above. The CDFW may evaluate a proposed project's potential to negatively affect species listed as either endangered or threatened in the state. In certain cases, an Incidental Take Permit may also be required. CDFW staff would also potentially become involved in the proposed Projects through reviewing and commenting on the Environmental Assessment/Initial Study.

San Francisco Regional Water Quality Control Board: It is the responsibility of the RWQCBs to preserve and enhance the quality of the state's waters through the development of Water Quality Control Plans (Basin Plans) and the issuance of Waste Discharge Requirements (WDRs), which are required by the California Water Code. The WDRs issued by the RWQCBs, are subject to review by the State Water Board, but do not need the State Water Board's approval before becoming effective.

Since the proposed Project will require a Clean Water Act Section 404 permit from USACE, it will also require Section 401 Water Quality Certification by the Regional Water Boards. Additionally, the RWQCB requires all construction projects with the potential to disturb one or more acres of land to obtain a General Permit for Storm Water Discharges from Construction Activity. The Storm Water Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies Best Management Practices (BMPs) for reducing or eliminating pollutants in runoff that discharges into waterways and storm drains.

City of Half Moon Bay and County of San Mateo: Both municipalities will benefit from the implementation of the proposed Project and will play a key role in the planning and construction phases. The City of Half Moon Bay will

also be closely involved from a permitting and regulatory perspective, since the project will need to comply with several City ordinances.

9. Provide a brief, high-level description of the overall project scope, including but not limited to this phase.

The proposed Pilot Surfer's Beach Sand Replenishment Project (Project) is being led by San Mateo County Harbor District (District). The project area is located inside and adjacent to Pillar Point Harbor (Harbor) in Half Moon Bay, which lies approximately 25 miles south of San Francisco, in San Mateo County. The overall goal for the proposed Project is to address the significantly accelerated coastal erosion rates that have occurred on the beaches adjacent to the Harbor as a result of the construction of the East Breakwater approximately 55 years ago. The results of a recently completed bluff erosion analysis indicate that the bluffs directly south of the East Breakwater, between the Highway 1 revetment and Mirada Road revetment, retreated at a rate of 1.64 ft/yr from 1993 to 2012. This is approximately seven times greater than the background rate of erosion as measured at a geologically similar section of shoreline further down the coast, which Lin et al. (2015) found to be in the range of 0.23 ft/yr from 1993 to 2012.

The Project involves a one-time placement of an estimated 75,000 cubic yards of sand acquired from the deposition of sediment that been trapped inside the East Breakwater, accumulating over many years. The Project is necessary to reduce the threat of structural damage and recreation loss along the coastal stretch in the project area (which is described in detail in the responses to many of the other questions throughout this grant application).

The proposed Surfer's Beach project is a pilot effort, meaning that a major objective is to closely study and monitor the project to determine whether or not it is effective and also to determine if there are any unacceptable environmental impacts. If post construction monitoring and review indicate that the Project is effective in mitigating erosion and does not cause unacceptable impacts, then it is envisioned that a larger beach nourishment project would be pursued in the future. Currently however, a larger scale project, involving placement of dredged material below Mean High Water, could not be permitted under existing Monterey Bay National Marine Sanctuary (MBNMS) regulations; therefore it is necessary to move forward with the proposed Pilot to address the coastal erosion issues in the near-term. MBNMS is currently undergoing a Management Plan Review process, which is expected to result in updates to sanctuary regulations (3-5 years from now) that will allow for permitting of a larger-scale opportunistic nourishment using a dredge to source the sand inside the Harbor.

It is important for the reviewers of this application to note that many specific details of the proposed Project are not presently available since aspects of

the project engineering and design are being further assessed and refined during the ongoing project planning phase that is now underway. However, the preliminary concept proposal, at the time of writing this grant application, calls for the sand to be placed subaerially on the beach to form a 125-foot wide elevated berm along an approximately 1,500-foot long section of shoreline that encompass Surfer's and Vallejo Beaches. This action would satisfy the project purpose of mitigating near-term beach and bluff erosion by providing a buffer that would reduce the erosional impacts of elevated water levels and wave attack in the placement area. It would also meet the requirement of being a "pilot" project, meaning that conclusions could be inferred about likely results of a larger scale project concept (since the design and placement profile would mimic the larger project that was initially assessed by USACE and the District during their CAP 111 Feasibility Study).

Another alternative project design concept that will be evaluated during the planning phase includes placement of sand exclusively above the mean high water line to form a narrower berm throughout a longer stretch of beach continuing approximately 3,100 feet from the root of the East Breakwater encompassing Surfer's, Vallejo, and Miramar beaches. One notable benefit of this design concept is that it would not require a permit from NOAA's Monterey Bay National Marine Sanctuary, since the placement would be entirely above the sanctuary's boundaries.

Work on this Project includes a number of specific tasks falling into the following categories: Project Design and Engineering, Environmental Review, Permitting and Agency Review, Project Monitoring, and Project Implementation (Construction). Much of the initial planning, engineering and environmental documentation work has been completed to date.

The need for a project to mitigate these issues has been identified for decades (see response to questions 10 and 12 of this grant application for more project history information) and now the Harbor District has strong support for such a project from the community, Monterey Bay National Marine Sanctuary, Greater Farallones National Marine Sanctuary, and others. However, while there is widespread support for a pilot project, and a significant amount of planning and evaluation has been completed to date, there is currently no funding available to implement this project.

Specifically, the DBW grant would be used to fund all project construction costs and monitoring during and after the construction phase. This includes placement, on Surfers Beach, of clean sand excavated from inside Pillar Point Harbor. It would also fund a physical and ecological monitoring program during and after the construction phase, to meet requirements of permitting agencies and to gather additional data that could be used in designing an ongoing opportunistic beach nourishment program.

10. Describe the history of this project up to the date of this grant application.

There is a long history of events leading up to this current proposal for a Surfer's Beach Pilot Sand Replenishment Project, dating back to the construction of the East Breakwater at Pillar Point Harbor, beginning in April 1959 and ending in June 1961. Following the construction of the breakwater rates of coastal erosion along the shoreline directly southeast of the breakwater dramatically increased. That rapid erosion of the beach and bluffs extending south of Pillar Point Harbor has been a source of concern over the past several decades.

Severe shoreline erosion in the 1980s destroyed one cliff-top road, and threatened the integrity of California Highway 1 and several commercial and private structures. At that time, rubble-mound revetments were constructed by State (Caltrans) and local (County of San Mateo) agencies south of the East Breakwater. However, the threat of structural damage and loss of recreational public beach still exists along the shoreline directly adjacent to the East Breakwater. For example, U.S. Army Corps of Engineers (USACE or Corps) projected current bluff erosion rates 10 and 50 years into the future and determined that infrastructure, such as Highway 1 and coastal pedestrian paths leading to the beach, would be significantly threatened without action.

In 2007, some local surfers and community members who expressed concerns about loss of beach had approached the District urging that action be taken. At this time the Harbor District formally requested that the Corps investigate the erosion along the approximately one mile of shoreline from the foot of the breakwater to the vicinity of Medio Creek, in Miramar to determine if the Corps should participate in a shoreline restoration project. The assertion made by the District at that time was that this stretch of shoreline was relatively stable prior to the construction of the breakwater, after which there was a significant increase in beach and seacliff erosion and deposition of sediment inside the harbor. The District contended that the East Breakwater halted the unimpeded flow of sand, which otherwise would have been deposited on the beach. Upon this request, USACE initiated an *Initial Appraisal*, (included as an attachment of this application) as authorized by Section 216 of the Rivers and Harbors Act. This Initial Appraisal, completed in July 2009 at a cost of \$20,000, conducted a review of the USACE authorized Pillar Point Harbor breakwater and concluded that: "*a preponderance of evidence substantiates the claim that the construction of the outer breakwaters led to a dramatic increase in the erosion rate of the shoreline between the root of the East Breakwater and Arroyo de en Medio.*"

Based upon the results of the Initial Appraisal, the District and the Corps signed a Feasibility Cost Share Agreement (FCSA) in September 2010 for a project under Continuing Authorities Program (CAP) Section 111 Mitigation of Damages Caused by a Federal Navigation Project. The Corps is the Lead Agency for the project; the District is the Local Sponsor. This FCSA provided for a 50:50 cost share between the Corps and District for the pre-design phase of the project. It was estimated at that time by the Corps that the CAP 111 feasibility study would have a duration of 2-3 years. The CAP 111 project, known as Northern Half Moon Bay Shoreline Improvement Project, focused on identifying the feasibility of a possible project that would demonstrate solution(s) to the beach erosion problem that will have no or minimal environmental impacts on the marine environment and other natural resources. As part of this project, the Corps convened several public meetings, with the District's assistance and coordination.

The effort to date has also involved several meetings of agency representatives and other stakeholders to discuss options for addressing the severe erosion issues at Surfer's Beach. To facilitate public and technical input to the Corps during this phase, based on a suggestion by the Greater Farallones National Marine Sanctuary Superintendent, the Harbor District organized a Working Group consisting of concerned federal and state agencies, representatives from elected Representatives' offices, technical experts, and community residents. The Working Group was convened for several meetings during the Corps project. In addition to these meetings hosted by the District, the local chapter of Surfrider Foundation also hosted a public workshop where stakeholders convened to further discuss potential solutions.

Examples of the various stakeholder and public engagement activities and interagency meetings that have been conducted as a part of this project include:

- At the beginning of project planning, a public meeting was held (November 8, 2013) to provide a forum for the USACE project team and the public to exchange ideas on potential alternatives. A presentation from that November 2013 meeting is [available for download](#).
- The Coastal Sediment Management Workgroup (CSMW) of which USACE is a member, held a site visit at Surfers' Beach in March 2015 with representatives from the MBNMS and the GFNMS to discuss mutually acceptable opportunities for solutions to the erosion issues found there. The CSMW offered technical assistance to the sanctuary to identify options for dealing with erosion at Surfers' Beach in a manner that restores beach habitat and minimizes the use of coastal armoring structures.
- A stakeholder meeting regarding the proposed project was held by the District on May 18, 2015 that included participants from the Harbor

District, USACE, MBNMS, San Mateo County, the Surfrider foundation, Coastal Commission, and the general public. The Project proposal was discussed in detail and the status of the USACE feasibility study was reported. Potential mechanisms for implementing the project in light of the MBNMS regulations prohibiting placement of material in the Sanctuary boundaries were discussed as well.

As part of the CAP 11 project several documents and studies have been prepared for USACE's feasibility review process. These include a draft Environmental Assessment, a Section 404(b)(1) analysis, an economic assessment, and a detailed Engineering Appendix. However, while these resources have provided crucial information in planning the proposed Project and in the responses provided in this DBW Grant Application, they have not yet been released publically. Also, although the Corps has indicated that the results of the feasibility study demonstrate that there is not a Federal interest in implementing the preferred project, no formal announcement has been made and USACE is still awaiting final review and clearance for release of the final documents.

Based on the news that USACE would not be pursuing a Federal beach nourishment project and the urgency and need to take action in the near term to address the coastal erosion issues, the Harbor Commission Board of Harbor Commissioners decided in 2015 that it would be in the best interest for the District to pursue the proposed Pilot Surfer's Beach Sand Replenishment Project. In late 2015, the Board approved a contract with Brad Damitz, a consultant who would coordinate the planning and implementation of the proposed Project.

11. To the best of your agency's knowledge, has a DBW representative visited the project site in the last 10 years? If so, identify the visitor and the purpose of the visit.

Yes, to our knowledge at least two DBW representatives have visited the project site on several occasions during the last decade.

Steve Watanabe participated in a meeting and site visit approximately 2.5 years ago. The purpose was to provide Steve and other state and federal agency representatives with an overview of the issues, both with accelerated coastal erosion at Surfers Beach and sedimentation inside the Harbor, and to discuss and solicit feedback on options for a potential opportunistic sand replenishment project.

Also, Kim Sterret visited the site on at least one occasion during the last decade, to assess the *Beach Erosion Concern Area* at Surfers Beach.

12. Describe known public support for or opposition to the project, or indicate if none exists. If public meetings related to the project have occurred, attach copies of notices and meeting minutes. If public meetings are scheduled, indicate when and where they will occur, and attach any notices that have been made public.

There has been a long history of local support for this proposed sand replenishment project within the local community and among natural resource agencies and local jurisdictions. We are not aware of any opposition to the Project.

Members of the local surfing community and other recreational beach users, in particular, have been very vocal in supporting the Project concept and encouraging the District and pertinent regulatory agencies to take action to address the severe coastal erosion that has occurred over the past several decades as a result of the construction of the East Breakwater.

The National Oceanic and Atmospheric Administration's GFNMS and MBNMS have both gone on record strongly supporting this project. GFNMS most recently stated their support for the project in a letter to the Board of Harbor Commissioners dated July 28, 2015 (see attachments to this application for a copy the letter). Coastal Commission staff have also been supporters of the Project as it provides a viable alternative to the hard shoreline protective structures that have proliferated on this stretch of coast.

There have been several stakeholder efforts and numerous public meetings regarding Surfer's Beach that have been held during the past 10 years. These public meetings have been well attended (see *Question 10* for a more complete description and history of the Project) by members of the community, who have been very vocal in their support over the years. Meeting notices, agendas, and minutes are being submitted as attachments to this application.

The planning phase of the project, which is now underway, will include a very comprehensive stakeholder collaboration process, including advisory working groups, regulatory and permitting meetings, and several public workshops and meetings.

13. Describe each of the problems the project will address. For example, does the project protect public infrastructure, improve emergency access, protect recreational or ecological benefits, and/or address a different public health or safety issue?

In general, the two primary issues that the project will address are impaired public access/recreational impacts and damages from coastal storms. The attached photos and several recent local newspaper clippings that are

provided as attachments to this grant application illustrate the extent and severity of the coastal erosion issues that this project will address.

The results of the current bluff erosion analysis indicate that the bluffs directly south of the East Breakwater, between the Highway 1 revetment and Mirada Road revetment, retreated at a rate of 1.64 ft/yr from 1993 to 2012. This is approximately seven times greater than the background rate of erosion as measured at a geologically similar section of shoreline further down the coast which Lin et al. (2015) found to be in the range of 0.23 ft/yr from 1993 to 2012. However, the accelerated erosion rate does not appear to extend south of Miramar Beach, as the analysis showed a slow bluff retreat rate to the south of the San Mateo County revetment. Similarly, Lin et al. (2015) found a high rate of net beach erosion (4,200 CY/yr) along and offshore of the coast extending from the East Breakwater to the Miranda Road revetment, accompanied by significant accumulation of sand within Pillar Point Harbor (approximately 2,000 CY). Increases in sea level to intermediate or high levels would cause the water surface in the region to rise by 0.71 ft or 2.06 ft, respectively in the study area over the course of 50 years. Under such conditions, Lin et al. (2015) find that rates of erosion of beach sands and adjacent bluffs as well as accretion of sand in the harbor would increase, as the higher water levels expose the upper beach and bluff toes to more wave attack and carry more sediment into the harbor.

Specific benefits of the project include preventing or mitigating beach erosion and sea cliff retreat; improving protection of State Highway 1 and other coast-side commercial and private structures; increasing the quality and quantity of public access and public recreation to that stretch of coast; reducing the need for hard structures (e.g. seawalls and revetments), and; improving beach and wildlife habitat in the project area. Emergency access to and along the beach would be also be improved by this project.

14. *List the items of public infrastructure and public assets that this project will protect, including but not limited to buildings and roadways.*

Highway 1 is the main public infrastructure that the project will protect. The California Coastal Trail, located behind the bluffs along this stretch of coast, is also threatened by erosion and will benefit from the protective benefits that this Project would provide. Other infrastructure/public assets that will be protected include several drainage culverts, and rock slope protection revetments that are maintained by Caltrans (near the root of the East Breakwater) and San Mateo County (at Miramar Beach).

While the proposed project would provide mitigation against the coastal erosion impacts, a no-action alternative would result in significant damage to infrastructure over time. The projected bluff retreat rate indicates that an approximately 80 foot long section of the southbound shoulder of Highway 1

is expected to be undermined in the next 10 years, with approximately 250 ft at risk in the next 50 years. Sections of the Coastal Trail located seaward of the highway are also at risk, with a 25 foot long section of the pathway at the terminus of the revetment already being actively undermined by erosion. Thus, these sections of highway and recreational pathway will likely need to be relocated if no other erosion mitigation measures are implemented in the near future.

In addition to the preliminary information provided above, USACE has recently completed an economic analysis report that provides a much more detailed assessment and accounting of these assets that will be protected; however, this report is not yet available, but will be within the next several months (and can be provided to DBW upon request).

15. If this project site is located within one mile of a marine protected area, an area of special biological significance, a coastal sanctuary area, and/or an area with known regular surfing activity, please describe each location fitting this description, describe how your agency believes the project will affect each area, and explain the basis for that belief.

The project site is not located within 1 mile of any state marine protected area or area of special biological significance. The portions of the project area that are below Mean High Water are within the boundaries of the Monterey Bay National Marine Sanctuary. For more information on MBNMS see *Question 8* of this application.

It is however an area with known regular surfing activity, with a long history as a very popular surf break among local surfers. It should be noted that members of the local surfing community have been among the most vocal supporters of the proposed project.

16. If this project is located within one mile of reserved federal lands, including lands reserved for military, public, or tribal purposes, please describe that nearby location, describe how your agency believes the project will affect that area, and explain the basis for that belief.

N/A. The project is not located within one mile of reserved federal lands.

17. List all environmental reviews, permits, consistency determinations, and other approvals required to construct the project. Indicate the current status of each listed item.

The following is a partial list of necessary review and permits for the Project. Each of these is either in progress or has not yet been initiated. We expect that they will be completed during the planning phase of the Project over the next year. Additional requirements may be determined that are not listed

below here. Moreover, our response to *Question 8* of this grant application (regarding agencies that will be involved in the Project) contains much more detailed information about most of these requirements.

Federal Requirements:

- U.S. Army Corps of Engineers; Clean Water Act - Section 404 permit.
- U.S. Fish and Wildlife Service; Endangered Species Act, Migratory Bird Treaty Act (MBTA) – Section 7 and 10 consultation.
- National Marine Fisheries Service – Section 7 and 10 consultation
- Monterey Bay National Marine Sanctuary; National Marine Sanctuaries Act – Permit or Authorization.

State Requirements:

- California Environmental Quality Act; Initial Study and Mitigated Negative Declaration.
- California Coastal Commission; California Coastal Act – Coastal Development Permit.
- San Francisco Bay Regional Water Quality Control Board; Clean Water Act - Section 401 Water Quality Certification.
- California Department of Fish and Wildlife
- California State Lands Commission; California Public Resources Code – Mineral Extraction Lease

18. Explain how all the property within the proposed project area is owned and operated.

The entirety of the properties within the proposed Project area is publically owned. The easternmost portion of Pillar Point Harbor (including the East Breakwater) and the adjacent shoreline that includes Surfer’s Beach (officially named El Granada Beach), Vallejo Beach, and Miramar beach are within the boundaries of the City of Half Moon Bay. The beach nourishment borrow area (sand source) is located within Pillar Point Harbor, under the jurisdiction of the San Mateo County Harbor District.

Caltrans and County of San Mateo are two other entities that manage public land in the Project area that is severely affected by the accelerated coastal erosion caused by the construction of the East Breakwater. Caltrans is responsible for protecting Highway 1 and maintains a revetment along the bluffs at Surfer’s Beach near the root of the East Breakwater. San Mateo County maintains a revetment that protects coastal development down the coast behind the bluffs at Miramar Beach.

19. Indicate whether any portion of the project area, or the area expected to be impacted by the project, is a recreational beach under control of the

Department of Parks and Recreation. (*Harbors and Navigation Code Section 65.4*)

N/A. The nearest state recreational beach is Half Moon Bay State Beach, located several miles down coast. While it is possible that the project could have a positive effect on sand supply at the state beach, it is unlikely to be significant for a project of the proposed scale.

20. Indicate whether this project has been authorized by Congress for federal financial participation, and if it has, identify the source of the authorization. (*Harbors and Navigation Code Section 65.5*)

N/A. Congress has not authorized the project for federal financial participation.

21. Provide a map of the project location. Include markers on the map to show all existing public access points to the shoreline that are located within the project area. Indicate whether each of these points provides access for physically handicapped shoreline visitors. If the project will create additional access points, identify where they will be created. If the project will include beach nourishment, show the constructed footprint and expected changes over time. (More than one map may be necessary to provide this information.) (*Coastal Act Section 30120*)

See the figures attached to this grant application for preliminary details.

The expected footprint of the sand placement is still in the preliminary design phase and will be refined over the next year or so during the planning phase. Due to unknown parameters that will dictate the final design (e.g. permitting/regulatory requirements, engineering and design considerations, etc.) it not possible, at this time, to provide the requested maps. These maps and drawings will however be developed during the planning phase and can be provided to DBW upon request, when available.

22. Describe any actions by residents, residential communities, or private businesses in or near the project area to block or discourage public access to the project area shoreline. For example, indicate whether residents display signage or communities fence off roadways and sidewalks the public could use to access the shoreline. (*Coastal Act Section 30120*)

N/A. The project area is a widely used public beach, there have been no attempts by any residents, communities or private businesses to block or discourage public access. On the contrary, nearby local residents and private businesses support the proposed project for the protective benefits that it would provide to their property and infrastructure.

23. Will project construction interfere with the public's access to the shoreline? If so, describe the location(s) and duration of the interference. Identify probable construction access routes on the project location map. (Coastal Act Section 30211)

Because of the close proximity of the sediment borrow site (directly inside of the East Breakwater) to the placement area (just outside of the East Breakwater), as well as the existence of a convenient and direct access route that does not require entrance onto Highway 1, any interference with public access would be very minimal, temporary, and limited to localized areas during the excavation of sand from inside the Harbor and the placement of that sand on the adjacent beach. To ensure that public access impacts are minimal pedestrian and traffic management plans will be developed during the planning phase, that is now in progress, and these plans will be implemented during Project construction to mitigate public access impacts and ensure that any potential interference will be kept to a minimum.

Since the Project is currently in the planning phase and a variety of options and engineering and design details are still being evaluated and have not yet been finalized, project specifics such as construction timing and work schedules, construction access routes, equipment to be used, location of staging areas, and specific best management practices have not yet been determined.

24. To the best of your agency's knowledge, are any other construction projects planned within or near the boundaries of the littoral cell that may change the subject shoreline or access to it? If so, describe the projects and their expected impacts. (Coastal Act Section 30212)

To the best of our knowledge, the only project being planned within or near the project area that could potentially affect shoreline access, is an upcoming repair to a County of San Mateo rock revetment protecting the road and other infrastructure at Miramar Beach (see newspaper articles in the attachments to this grant application). This particular project is located approximately 1,500 feet south of the southernmost boundary of the anticipated sand placement area for the proposed Surfer's Beach project. Since severe coastal erosion issues at that location currently impair shoreline access, that revetment repair is expected to result in improved coastal access. It is likely, in light of the significant coastal erosion and storm damage during this year's El Niño event, that additional revetment repairs or expansion in the Project area could also occur prior to the construction phase of the proposed Surfer's Beach Pilot Sand Replenishment project.

Because the proposed project area is a part of the very large Santa Cruz Littoral Cell, which encompasses approximately 75-miles of shoreline, it is likely that other construction projects within this cell are being planned or will

occur prior to or during the construction phase of our proposed project. However, these projects would not have any expected impacts to the proposed Surfer's Beach project area shoreline or access to that shoreline and therefore are not being addressed in this response.

25. Describe the impact the project is expected to have on public facilities, including parking areas and traffic, in and near the project area. (Coastal Act Section 30212.5)

Because of the close proximity of the sediment borrow site (directly inside of the East Breakwater) to the placement area (just outside of the East Breakwater), as well as the existence of a convenient and direct access route that does not require entrance onto Highway 1, any interference with public access would be very minimal, temporary, and limited to localized areas during the excavation of sand from inside the Harbor and the placement of that sand on the adjacent beach. To ensure that public access impacts are minimal a pedestrian and traffic management plan will be developed during the planning phase that is now in progress and will be implemented during Project construction to mitigate public access impacts and ensure that any potential interference will be kept to a minimum.

During beach nourishment activities, heavy machinery will require staging and access to Surfer's and Vallejo Beaches. Worker vehicles will also make trips to and from the project site and require parking areas. Because the project is currently in the feasibility stage, construction activity details such as the location of staging areas and equipment access route to the beaches have not yet been identified. The District assumes a portion of the paid parking area near the root of the East Breakwater would be temporarily used for construction equipment staging and worker vehicle parking because the area has been used for staging in the past.

26. Does this project protect, encourage, and/or create low-cost tourism and recreational opportunities? If so, describe them. (Coastal Act Section 30213)

Yes, this project is expected to protect and enhance several low-cost tourism and recreational activities including surfing and general beach access. It would do so by enhancing public access to and along the beach, providing more usable beach for recreation, and eliminating many of the hazards associated with coastal erosion and storm damage.

27. Describe whether and how Applicant believes the project will impact nearby natural resources and residential uses, and explain the basis for that belief. (Coastal Act Section 30214)

The proposed Project would not have significant adverse indirect or cumulative impacts on the physical, biological, and human environment. Temporary and minor direct adverse effects associated with the proposed action are expected to be short in duration, ending with the completion of construction activities, and would be less than significant given the assumed avoidance measures and Best Management Practices (BMPs) that will be implemented. Long-term impacts of the proposed action would be beneficial in terms of minimizing erosion and improving recreation and habitat at the project site.

The basis for this belief is primarily derived from the results of the Environmental Assessment (EA) completed by USACE that evaluates the potential impacts of a project involving the placement of up to 150,000 cubic yards (twice the volume of the District's proposed Project) of material sourced from inside the Harbor. In addition to the recently completed USACE EA, the basis for the above response also includes a review of environmental documentation from other similar projects that have been recently completed such as beach nourishment projects recently completed at Ocean Beach, San Francisco, San Diego County, and others throughout the state.

Some of the conclusions of the Army Corps' EA relevant to this response include:

- In terms of placement, the proposed action is designed to maximize the amount of fill placed on the sub-aerial beach, and allow for the placed material to erode into the nearshore zone under existing hydrodynamic conditions. Given this, no significant changes to currents, circulation, or drainage patterns at the placement site would be expected.
- The proposed project would not affect any wetlands because there are no wetlands present at or near the project area.
- Given the lack of expected effects to water quality parameters, the BMPs that would be implemented, and the fact that the project would comply with all regulatory requirements of the RWQCB, no significant detrimental impacts to water quality are expected from the proposed action.
- Given the high sand content and lack of contamination in tested materials from the harbor, and the assumed measures that would be employed to minimize turbidity, the proposed action is not anticipated to have any significant adverse turbidity or suspended particulate effects.
- Dredging and placement activities associated with the proposed action are not expected to significantly alter currents, circulation, or drainage patterns within the action area.
- During beach nourishment activities, fencing, barricades, and associated warning signs would be erected to warn and prevent the public from accessing work or staging areas. Given these measures, no significant adverse effects to public health and safety are expected from the proposed action.

- No adverse effects associated with contaminants in dredge or fill material are expected as part of the proposed action.
- Beach nourishment activities associated with the proposed action are likely to result in temporary, minor impacts to aquatic habitats and organisms in the action area, but such impacts are not expected to be significant.
- In the case of the proposed action, temporary, minor impacts to sandy beach habitat and organisms in the Project area would occur, but these would be minimized through construction timing and BMPs, and no significant, irrecoverable effects are expected.
- Snowy plovers are not known to be present or nest on the sand or in the dunes in the vicinity of the Project area. Given the erosion of much of the sand habitat within the action area and the fact that the species is sensitive to disturbances caused by frequent human and dog access, plovers likely avoid the minimal remaining beach in the heavily used project area.
- The proposed action would have minor and temporary effects on recreational activities within and around the proposed action area during construction but would provide benefits to recreation in the longer term.

28. If any diking, filling, or dredging requirements are associated with this project, explain why the activity is necessary, and what mitigation measures will be taken to minimize adverse environmental effects. (Coastal Act Section 30233)

The project involves placement of fill material (in this case, high-quality beach sand) but does not involve any dredging or diking requirements. The placement of fill is necessary to restore the beach, enhance public access, and prevent the need for future hard protective structures.

Since the environmental review and permitting processes have not yet been completed, the precise mitigation measures to ensure minimal impacts are not currently available. However, project planning and implementation necessitates the involvement and review from numerous state and federal resource management agencies (see response to *questions 6 and 17* of this application). The permits and other requirements associated with this extensive agency oversight will entail the establishment of numerous mitigation measures and Best Management Practices to ensure minimal impacts. For example, in order to be permitted by NOAA's Monterey Bay National Marine Sanctuary, California Coastal Commission, and others, it is a requirement that the project not cause any long-term or significant impacts. The US Environmental Protection Agency and Army Corps of Engineers also have similar project approval criteria, pursuant to the Clean Water Act. More information about specific mitigation measures will be available as the planning phase of the Project progresses.

29. If this project will construct a revetment, breakwater, groin, harbor channel, seawall, cliff retaining wall, or other similar structure that would alter natural shoreline processes, please describe the structure to be built and the anticipated impact of the structure on the shoreline. (Coastal Act Section 30235)

N/A. This project does not involve construction of any structures.

30. Explain all steps that have been taken to ensure that this project will not duplicate or affect other existing or planned projects near the project area and within the littoral cell.

Due to the extensive stakeholder coordination and collaboration required for the planning and implementation of this project (including for example involvement by all relevant jurisdictions, municipalities, and regulatory agencies), and the fact that the entirety of the project area is located within publically owned land, it is highly unlikely that another project could occur without our knowledge that would duplicate or interfere with the proposed Surfer's Beach pilot project.

We can say with certainty that the project being proposed by the District is presently the only beach nourishment project being considered in this area. Any other currently proposed and recently completed projects in the vicinity of the proposed Surfer's Beach project are solely focused on shoreline hard protective structures such as the rip-rap revetment that was recently constructed by Caltrans at Surfer's Beach, and the revetment fronting Miramar Beach which is undergoing planning for and emergency repair by the County of San Mateo.

31. Explain how sea level rise may impact the effectiveness of this project, and what steps will be taken in the project design to account for possible sea level rise. In addition, explain how this project will help to solve the long term issues within the littoral cell related to sea level rise.

The Project is a relatively small-scale pilot effort that involves a one-time nourishment of the beach. While there will be significant expected benefits resulting in mitigation of coastal erosion impacts in the near to mid term, the long-term duration of these benefits is expected to be limited. As such, sea level rise is not expected to have a significant impact on the project and the duration that the sand will remain on the beach and in the nearshore. Accordingly, long-term sea level rise impacts will not be mitigated by this particular project. It will however likely lead the way for larger projects that will have better potential for addressing the coastal erosion and storm damage impacts potentially resulting from long-term sea level rise scenarios.

For example, if sea level were to increase following the USACE Intermediate rate, the water surface would rise by 0.71 ft (0.22 m) in the study area over the course of 50 years. As a result, it is expected that rates of erosion of beach sands and adjacent bluffs would increase as the higher water levels exposed the upper beach and bluff toes to increased wave attack.

32. Indicate whether the proposed project appears in a Local Coastal Program plan that the California Coastal Commission has certified. If it has, provide a copy of the plan or a URL link to it, and identify the relevant page number(s).

N/A. The proposed Project does not appear in a *Local Coastal Program*.

33. Indicate whether the proposed project addresses recommendations contained in a final, published Coastal Regional Sediment Management Plan prepared in collaboration with the Coastal Sediment Management Workgroup (www.dbw.ca.gov/csmw/crsmp.aspx). If it has, identify the Plan and page number(s).

Yes, the proposed project does address recommendations in a final, published Coastal Regional Sediment Management Plan. Surfer's Beach/ El Granada County Beach was included as a *Beach Erosion Concern Area* in the 2015 [Coastal Regional Sediment Management Plan for the Santa Cruz Littoral Cell](#) (CRSMP) and the plan identified this area as a potentially promising site for beach replenishment. The following excerpts from this CRSMP provide a good background to the existing conditions, uses, and issues and highlight the severity of the erosion problem and the need for action at Surfer's Beach:

"At the northern end of the reach, just outside of the Pillar Point Harbor East Breakwater, are El Granada or Surfer's Beach and an area that includes Vallejo Beach and Miramar Beach, which are adjacent, small beaches. This area has experienced significant erosion of the beach and bluff since the construction of the breakwater. In a 2009 report, the USACE stated that the construction of the breakwater accelerated the beach and bluff erosion in this area beyond what would have occurred without the breakwater (U.S. Army Corps of Engineers, San Francisco District, 2009).

The northern end of this reach is popular with local surfers (hence the name). From site visits and a discussion with a local surfer, it was estimated that the average use by surfers was as much as 40,000 per year. According to a representative of the Surfrider Foundation, changed conditions at Surfer's Beach over the last several years – including loss of the beach seafloor scour – have resulted in more dangerous surf conditions as it has become more challenging to exit the surf zone at medium to high tide. As the visible beach continues to disappear and the surf conditions become more dangerous, it is likely that the number of surfers will decrease as compared to the current estimate."

"Because some areas are unprotected, the threat of erosion to Highway 1 is imminent, and preventing or delaying adverse impacts to the highway will require measures such as beach nourishment, armoring of the bluff, or relocation of the road."

"The erosion of the beach and bluffs adjacent to Highway 1 at Surfer's Beach has been a significant source of concern for the local community for decades. This erosion issue has been the focus of a number of studies, with recent work by USACE strongly suggesting that construction of the Pillar Point Harbor outer breakwaters, particularly the East Breakwater, has exacerbated the erosion problem."

"Beach nourishment at Surfer's Beach would likely involve the direct placement of 150,000 to 200,000 cy of sand on the beach (USACE, 2014b). This option presents several advantages, including a wider beach for recreation and access and potentially reducing wave attack on the toe of the eroding bluff. In addition, Surfer's Beach presents a logical placement site for sand dredged from the harbor side of the East Breakwater with minimal transportation costs because of the proximity of this beach to the potential sand source. But, there is considerable uncertainty whether the sand placed on the beach will persist beyond several years, particularly if a large storm were to occur shortly after placement."

34. Indicate whether the area where the project is proposed has been identified as a Beach Erosion Concern Area within the CSMW's California Beach Erosion Assessment Survey (www.dbw.ca.gov/csmw/CBEAS_Final_102510a.pdf).

Yes, the exact project area is listed as a BECA in the CBEAS document (referred to in CBEAS as El Granada County Beach and not Surfer's Beach). The following excerpt is from the description on page 18 of this document:

Problem Assessment: High beach usage/access area. Bluff erosion occurs during high tides and storm wave activity. Erosion threatens a wetland behind the former parking area. Undermining of Highway 1 is imminent. Passive erosion may be contributing to beach width loss due to the presence of rigid structures behind the beach. This location is part of, and subject to regulations pertaining to the Gulf of Farallones National Marine Sanctuary. Accumulated sediment inside the adjacent breakwater for Pillar Point Harbor could be used for nourishment, but such activity is subject to the sanctuary regulations which currently prohibit such activity.

35. If any other shoreline protection projects costing over \$100,000 (including pre- construction costs) have occurred in the project area in the 10 years prior to the date of this Application, describe the projects and the results of those projects.

- The District completed Boat Launch Ramp Maintenance Dredging within the past 5 years.
- In 2006, USACE undertook a revetment repair project on the East Breakwater.
- Caltrans recently (fall/winter 2015) expanded the rock revetment placed along the bluff behind Surfer's Beach by approximately 300 feet to respond to the continued erosion threat to Highway 1.

III. GRANT REQUEST INFORMATION

36. Identify the grant funding amount being requested from DBW in this application. In addition, indicate whether the Applicant would accept a lesser amount of funding if DBW cannot fully fund the project phase this year, and if so, the minimum amount of funding that would be useful for this project phase.

The grant-funding amount being requested is \$800,000—the estimated amount to complete the proposed beach nourishment (project construction) activities and a fairly extensive physical and biological monitoring program. This requested funding is the minimum amount expected fund a project of approximately 75,000 cubic yards, and monitoring during construction and two years thereafter.

The District would certainly accept a smaller amount to conduct a scaled-down project (smaller volume of sand placement and less involved monitoring program with a shorter duration). However, this would not be an ideal situation since this effort is intended to serve as a pilot study that would inform future larger-scale project(s); therefore the volume of sand placed (and the design of that placement) must be of a sufficient scale that it can be objectively measured and conclusions can be inferred about the potential effectiveness and negative impacts of a larger future opportunistic beach nourishment project. It is our opinion that the minimum amount of funding necessary to meet these goals of being an effective pilot study would be \$600,000.

37. Identify the project phase to be funded through this grant; for example, feasibility study, design, or construction.

This grant would fund the project construction phase (i.e. moving the sand from inside the East Breakwater and placing it on Surfer's and Vallejo Beaches). It would also fund an extensive physical and biological monitoring program during construction and the two years thereafter.

38. Provide the expected start date and completion date for this phase of the project, and attach an estimated project schedule that includes all project phases.

Since the Project is currently in the planning phase and a variety of options and engineering and design details are still being evaluated and have not yet been finalized, project specifics such as construction timing and work schedules, construction access routes, equipment to be used, location of staging areas, and specific best management practices have not yet been determined. Also, the permitting process has not yet been initiated and therefore environmental constraints and requirements placed upon the project

by regulatory agencies, which may affect the timing of the Project construction, are unknown at this time. Because of these factors, it is not currently possible to provide a precise timeline.

However, construction is anticipated to begin in spring or summer of 2017 because of the minimal chance of rain and large, damaging waves during this period. The construction phase of the proposed Project is anticipated to require approximately 4-6 weeks to complete; this is based on the results of similar beach nourishment projects completed within the past few years. For example, a project at Ocean Beach, San Francisco was completed several years using a similar methodology as the District's proposed Project to move 73,000 cubic yards of sand. The Ocean Beach project required between 5 and 6 weeks to transport sand several miles (using 8-10 large dump trucks) and place it on the beach down coast (using bulldozers and heavy equipment).

Physical and biological monitoring for the District's proposed Project would occur during construction and periodically following construction for up to two years. A monitoring program with a precise timeline, criteria, and methodology will be developed over the next 1.5 years, and pre-construction monitoring will be completed prior to construction.

Additional components of the project that have been or will be funded through other revenue sources include project design and engineering, environmental review/documentation, a stakeholder collaboration and public engagement process, and permitting and agency review. These activities, many of which are already in progress, will occur between now and project construction approximately 1.5 years from now.

A more detailed estimated schedule will be available, and can be provided to DBW upon request, by mid-to-late summer 2016.

39. Provide a list of estimated benefits (e.g. health and safety, storm damage reduction, ecological, recreational) for this phase of the project, and for the project as a whole, including any benefits that will be realized within the 10 years following completion of construction. Quantify these benefits to the extent possible, and if applicable, include estimated state, local, and county tax benefits. Separately list any benefits that cannot be quantified.

The proposed action is intended to provide immediate beneficial erosion buffering effect for the bluff at Vallejo Beach and a wider beach throughout the project area.

In the long term the proposed action would benefit recreation by creating more usable beach area along Surfer's, Vallejo, and Miramar Beaches and

facilitate continued recreational surfing at the popular Surfer's beach break. The project vicinity supports a variety of recreational activities including boating, swimming, surfing, fishing, kayaking, windsurfing, walking, bird watching, and beach going. These activities that occur within the area that will be nourished will all benefit from the Project through improved access down to and along the beach and the reduction in the existing hazards caused by waves and currents. The California Coastal Trail, located on the bluffs behind Surfer's Beach, is now threatened in several locations and will gain protection from Project construction, which will benefit the pedestrians that use it as a walking and hiking trail.

The proposed Project would also benefit transportation in the long term by providing added protection against erosion of the shoreline and material supporting Highway 1. The USACE projected current bluff erosion rates 10 and 50 years into the future and determined that infrastructure, such as Highway 1 and coastal pedestrian paths leading to the beach, would be significantly threatened without action

The estimated benefits mentioned above are still preliminary. Additional analysis during the planning phase will produce a more detailed quantification of the benefits. An additional resource that will help to provide this quantification is the USACE Economic report that was produced for the CAP 111 study, but not yet been finalized. A more detailed response to this question can be provided upon request from DBW sometime in the future.

40. Provide a list of estimated costs for this phase of the project, and for the project as a whole, including expected maintenance costs and any other required costs that will be realized within the 10 years following completion of construction. Identify the source(s) of funding that are expected to pay these costs, and clearly explain all funding sources for the current project phase, including matching funds and proposed in-kind contributions. Quantify these costs to the extent possible, and if applicable, include contingency costs, permitting costs, inspection costs, and escalation costs. Separately list any costs that cannot be quantified.

Since the Project is currently in the planning phase and a variety of options and engineering and design details are still being evaluated and have not yet been finalized, project specifics such as equipment and construction practices to be used, have not yet been determined. Therefore, it is not possible to provide precise cost estimates until further planning and analysis has occurred. However, the following preliminary costs have been identified for the purposes of this grant application:

- Since this is a one-time beach nourishment effort there will be no ongoing maintenance costs once the sand has been excavated from inside the Harbor and placed on the beach.
- Initial estimates for monitoring costs for this pilot Project are expected to be \$200,000 to \$400,000, depending on the intensity and duration of the efforts. It is our hope that these costs will be covered by a grant from DBW.
- Construction costs are expected to run \$400,000 to \$600,000 depending upon the final volume of sediment placed and the methodology used. It is our hope that these costs will be covered by a grant from DBW.
- Other costs for the remaining work associated with permitting, environmental review, stakeholder collaboration, engineering and design plans and drawings, traffic and pedestrian plans, and construction management, are expected to run approximately \$100,000 to \$150,000. We expect that the source of funding for these remaining tasks will be covered by a combination of sources including mitigation funds from permitted projects, contributions from affected stakeholders (e.g. Caltrans, San Mateo County, District funds, etc.) and other small grants.
- A significant amount of money and in-kind contributions amounting to many hundreds of thousands of dollars has been dedicated to the project already. This includes funding contributed by USACE for the Initial Appraisal (approximately \$100,000) and CAP 111 study (USACE contribution \$538,000 and District's contribution \$89,336 [source](#)). In-kind contributions include many hundreds of hours contributed to the project by agency staff, technical experts, local stakeholders, and public officials.

The preliminary costs along with currently unknown costs will be further refined and determined during the planning phase and can be provided in the future to DBW upon request.

41. Identify potential alternatives to this project, including doing nothing and managed retreat, and explain why the planned project was chosen over these alternatives.

Several different alternatives were studied prior to making the decision to pursue this project throughout the history of this Project. There were a number of potential design measures that were screened out fairly early on due to concerns regarding engineering feasibility, economic viability, safety, and environmental impacts. Notable screened out measures included a rubblemound revetment/seawall (economic viability, environmental impacts), series of groins (environmental impacts), and an offshore reef structure (environmental impacts, safety). Several other design measures were selected for the USACE detailed CAP 111 feasibility analysis but subsequently eliminated because they were either found to have a large impact on waters of the US, did not meet the project purpose, or were

infeasible in terms of constructability or cost. These included a wide array of structural and non-structural actions including beach fill, dredging, alteration of the East Breakwater, construction of a spur breakwater, and managed retreat. These alternatives were formulated with significant input from USACE's coastal engineering section, USACE project team members, the District, and the public. The preferred alternative that was analyzed under the CAP 111 project was a medium beach fill concept that would nourish Surfer's, Vallejo, and Miramar beaches using approximately 150,000 cubic yards of sand dredged from inside the East Breakwater. The currently proposed pilot Project that is the focus of this grant application is a scaled-down version of the preferred alternative that was analyzed by USACE.

The no-action alternative characterizes current and anticipated future conditions at the project site in the absence of the proposed action to address beach and bluff erosion. The USACE has analyzed recent bluff and beach erosion rates at the site and considered the potential impacts of "intermediate" and "high" sea level change on these rates over the next 50 years (Lin et al., 2015). These analyses suggest that high rates of erosion are present along Surfer's, Vallejo, and Miramar Beaches while high accretion of sand is occurring in Pillar Point Harbor adjacent to the East Breakwater. Unabated, this erosion and accretion will result in loss of recreational opportunities as well as threats to public safety along highway one and navigational safety in Pillar Point Harbor.

Under the no-action alternative, the high rates of beach and bluff erosion along the coastline would continue unabated wherever there is not a revetment, and accretion of sediment within Pillar Point Harbor – adjacent to the East Breakwater – would continue. Extrapolating the current bluff erosion rates into the future, Lin et al. (2015) found that an approximately 80-ft-long section of the southbound shoulder of Highway 1 would be undermined in the next 10 years, with approximately 250 ft at risk in the next 50 years. This would create significant impacts to public safety and likely require relocating a portion of the highway, which would be expensive and could cause significant environmental impacts. Continued beach and bluff erosion would also threaten recreational uses in the area. Beach erosion would result in loss of recreational beach area at Surfer's, Vallejo, and Miramar Beaches, while sections of the pedestrian Coastal Trail on the bluffs behind the beaches would likely be lost given that a 25-ft-long section of the pathway at the north end of the San Mateo County revetment is already being actively undermined by bluff erosion.

42. If this is a beach restoration or beach nourishment project, provide information on compatibility of the nourishment sand with the native sand (grain size, angularity, color, percent fines, etc.); what the expected rate of shoreline retreat and sand volume loss will be after the project is completed; how frequently Applicant believes the project site

will need to be renourished, and what sources of sand and funding exist to supply and pay for future renourishments. Also indicate whether the project has the potential to make beneficial reuse of sediment that is expected to be obtained from a separate project.

Dredged-material testing in Pillar Point Harbor in 2007 found that sediment composites were predominantly sand, consisting of 84% to 65% sand near the mudline and 62% to 68% sand at or near 10 ft Mean Low Lower Water (MLLW) with an average of 19 % silt and 11 % clay across all (top and bottom) composites (Kinnetic Laboratories, 2007). Given the high sand content of the material in Pillar Point Harbor, any turbidity or suspended solid increases caused by the proposed actions are expected to quickly return to ambient conditions after the activity ceases. Moreover the material was found to be largely clear of contaminants (Kinnetic Laboratories, 2007), and contaminants generally bind to finer sediment such as silt, clay, and organic matter. The lack of contamination and high sand content of the tested sediments suggests any suspension is unlikely to mobilize sediment-bound contaminants. While the sample sites were not within the shoaled area that would be dredged as part of the proposed action, the results showed that the material was predominantly sand (62 -84%) with an average of 19 % silt and 11% clay. In addition, a previous USACE analysis of sediments underlying the East Breakwater foundation indicated that the sand in the proposed borrow area is similar in grain size to sand in the proposed fill area (USACE, 1996). The total organic carbon content of the samples tested in 2007 was low, ranging from below the reporting limit to 0.5%. The only other organic compounds detected were low levels of tributyltin and a few polycyclic aromatic hydrocarbons well below Effects Range Low (ERL) values established by the NOAA (Kinnetic Laboratories, 2007). Metal concentrations were below ERL values, and Kinnetic (2007) concluded that toxic effects to benthic invertebrates or marine organisms from the material would be unlikely.

The exposed sand that would be used as a source for the proposed project is expected to have a higher sand content than the sediments tested in the above-mentioned analyses. For the proposed Project, this assessment assumes that testing of sediments prior to implementation of the project would occur and would ensure sediments placed along the shore are free of substantial contamination.

The Project is expected to minimize beach and bluff erosion along the shoreline south of the East Breakwater but would not reverse overall erosion at the site, and any decrease in erosion would only last as long as the material remains in the nearshore zone. Placement of material on the beach in a protective berm design is expected to provide a buffer to erosion of the shoreline and bluffs in the medium-term. Based on modeling of the performance of the 150,000 cubic yard project analyzed by USACE, the

expected lifespan of the material placed on the beach would be approximately 6 years under existing erosion conditions, but it is anticipated that the erosion rate will decrease after the placement so the so the expected lifespan would likely be longer (Lin et al., 2015). Moreover, this modeling indicated that much of the eroded placed sand would enter and remain in the nearshore zone where it could provide erosion mitigation benefits for 30-40 years by dissipating wave energy and effectively reducing the amount of wave energy reaching the sub-aerial beach (Lin et al. 2015). It is expected that the proposed Project will have a similar result and lifespan, however the projections have not been analyzed for this smaller-scale (75,000 cubic yard) Project. This will occur during the planning phase and results can be provided to DBW upon request when available.

The Project is a one-time nourishment that will not involve re-nourishments, however, it is expected that this Project (if successful) will lead to a future larger-scale project that will make beneficial reuse of dredged sediments that make up the shoal inside the East Breakwater.

43. Attach any studies, environmental reports, biological surveys, and designs that have been prepared for the project.

A bibliography is attached to this grant application that includes a list of documents that are associated with the proposed Project. There are also a number of important studies and reports that are still under progress and not currently publically available. Finally, there are several studies and reports that will be completed over the next year during the planning phase prior to project implementation that are described in the responses throughout this grant application.

43. If Applicant has retained an outside engineer, designer, or other consultant for the project, provide contact information including individual's name, title, company, address, telephone, and email address.

Brad Damitz is the District's consultant for the proposed Project. Brad is responsible for coordinating the overall planning process, including stakeholder collaboration, environmental review, and permitting.

Brad Damitz, Coastal Management Consultant (Self Employed)

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(415) 259-5766; Brad.Damitz@me.com

Other contractors will be hired during the planning phase over the next year to provide specific expertise and assistance relating to Project engineering and design, environmental review, and biological and physical monitoring.

44. Attach resolutions from all governing bodies that, through this Application, are formally requesting grant funding from DBW for this project phase.

A resolution from the Board of Harbor Commissioners, approved on January 20, 2016, is included as an attachment to this document.

IV. SIGNATURE



Under penalty of perjury, I hereby certify that I am an authorized representative of the Applicant, and that I have been authorized by the Applicant by resolution to execute this Application for DBW funding.

Glenn Lazof
Special Projects
San Mateo County Harbor District