APPENDIX A

SAN MATEO COUNTY HARBOR DISTRICT
STRATEGIC BUSINESS PLAN
EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT
DRAFT, DECEMBER 2014

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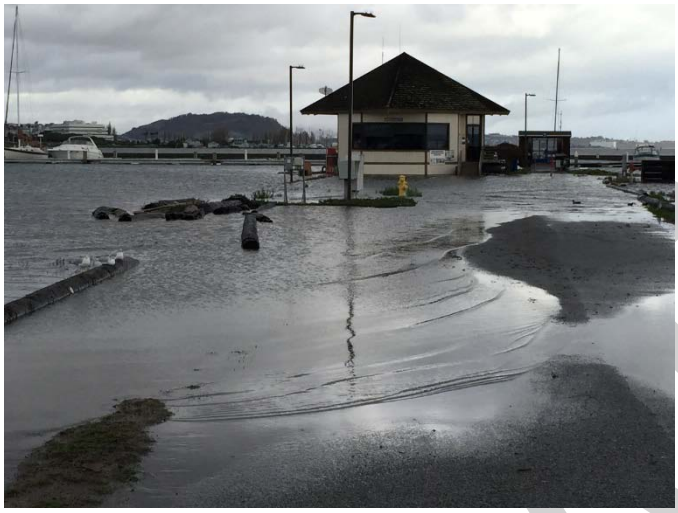

A.1: SEA LEVEL RISE BEST PRACTICES

EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT

SAN MATEO COUNTY HARBOR DISTRICT

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1.1. SEA LEVEL RISE ANALYSIS

The study and predications of sea level rise have varied significantly from difference sources since the topic has come into the public forefront. The recently-released documents, and most widely accepted as credible, include:

- Intergovernmental Panel on Climate Change (IPCC), The Physical Science Basis (AR5), 2013
- National Research Council (NRC), Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future, 2012
- Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), State of California Sea-Level Rise Interim Guidance Document, Mar. 2013 update
- San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Bay Plan, 2011 amended

The NRC report contains sea level rise projections for the years 2030, 2050, and 2100 relative to year 2000. Because these projections consider local geologic processes, they are more applicable for design along the West Coast than the global IPCC projections. The reports also consider additional, more conservative, analyses compared to the IPCC projections.

The BCDC released the amended San Francisco Bay Plan in 2011, which recommends that Bayfront developments consider a 16-inch sea level rise value by 2050 (mid-term) and a 55-inch sea level rise value by 2100 (long-term). The California State Coastal Conservancy (SCC) has issued a similar guidance policy, with the same mid-term and long-term values. These values were based on the work done by CO-CAT in 2010, which has been updated with the 2013 update. Given the 2013 CO-CAT document recommends use of the 2012 NRC local projections, the 2012 NRC projections are the most relevant for a sea level rise strategy for the facilities at Oyster Point in San Francisco Bay and Pillar Point Harbor on the Coast. Table 1 summarizes these sea level rise projections, including the low and high range values, for the San Francisco Bay Area.

TABLE 1 SEA LEVEL RISE PROJECTIONS FOR SAN FRANCISCO, CALIFORNIA
(inches) (NRC, 2012)

Time Period	Low	Projected	High
2000-2030	2	6	12
2000-2050	5	11	24
2000-2100	17	36	66

The BCDC released the amended San Francisco Bay Plan in 2011, which recommends that Bayfront developments consider a 16-inch sea level rise value from high tides by 2050 (mid-term) and a 55-inch sea level rise value by 2100 (long-term). The California State Coastal Conservancy (SCC) has issued a similar guidance policy, with the same mid-term and long-term values. These values were based on the work done by CO-CAT in 2010, which has been updated with the 2013 update. Given the 2013 CO-CAT document recommends use of the 2012 NRC local projections, the 2012 NRC projections are the most relevant for a sea level rise strategy for the facilities at Oyster Pt in San Francisco Bay and Pillar Point Harbor on the Coast.

1.2. Oyster Point Risks

There is frequent flooding of the parking lot between the East and West Basins at the Harbormaster's office now (see Figure 1 and cover photo), which is caused by high tides. The flooding will only get more frequent in the next 10 years. The harbor office should be moved to higher ground as placing fill to raise the ground will increase surcharge and induce settlement on the compressible landfill below.

Other features that will be affected further into the future are the access gates to all the docks. Figures 2 and 3 show flooding in these areas with sea level rise from the table above. The tops of guide piles may need to be extended if they are not replaced by 2050. The elevations need to be confirmed to ensure the docks will still be restrained. The breakwater is an item of concern as well as it has been "overtopped" during combination high tides and storm surges.

Photograph 1-Flooding at Oyster Pt.

Figure 1-Oyster Pt, Existing Water Level (blue shade) During King Tides

Figure 2-Oyster Pt, Water Level (blue shade) During King Tides with 12 inches SLR

Figure 3-Oyster Pt, Water Level (blue shade) During King Tides with 36 inches SLR

1.3. PILLAR POINT RISKS

The elevation of Johnson Pier and the shoreside facilties at Pillar Point are above the tide level of the sea level rise projections described above. This elevation along with the protection from

wave runup provided by the breakwaters, makes the facility at low risk for flooding in the future as sea level rises. Figures 4 and 5 show the existing water level and with 36 inches of sea level rise with little change in the shoreward extent of the sea.

The current western slope within the harbor is sloughing down into the harbor, resulting in the rip rap falling and the soil being exposed. With SLR this will expose the bare slope to greater erosion and cutting back of the soil. The rip rap protection should be repaired or a seawall installed similar to the portion at the Harbormaster Building and East Basin.

Figure 4-Pillar Pt, Existing Water Level During King Tides

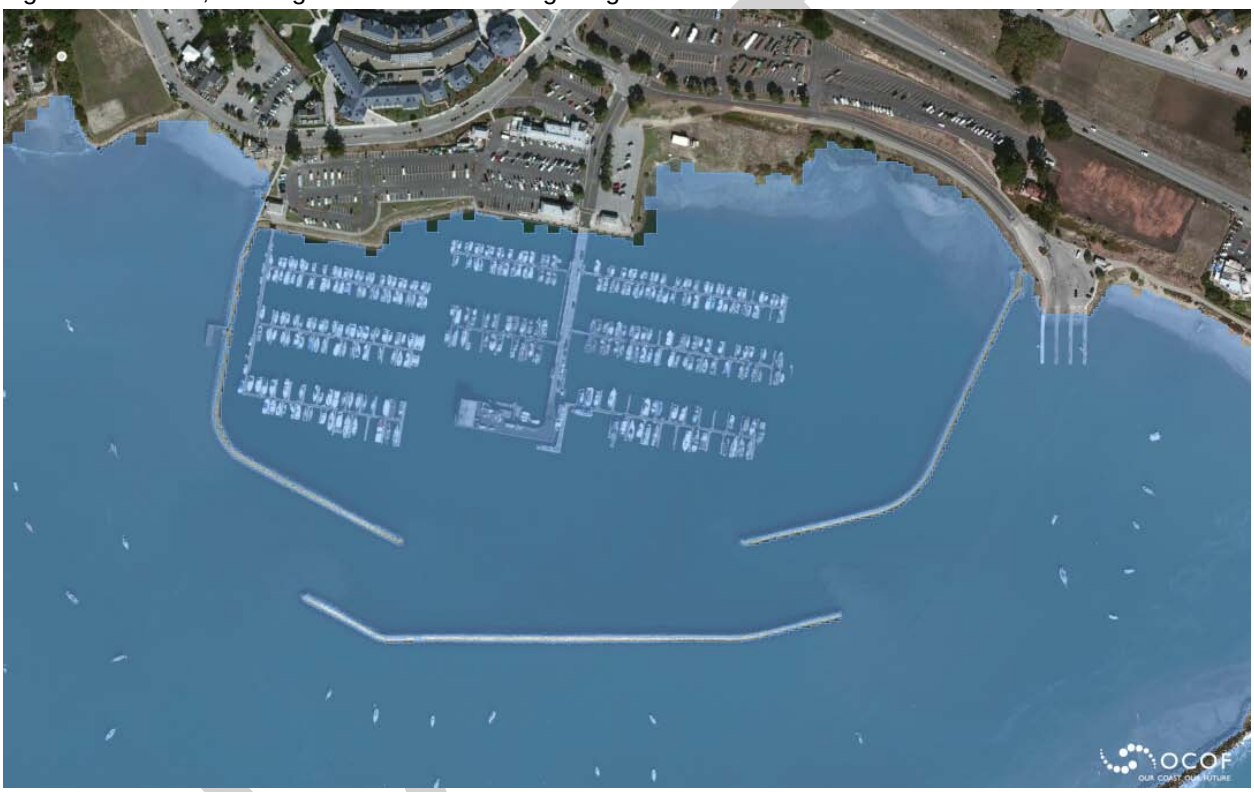
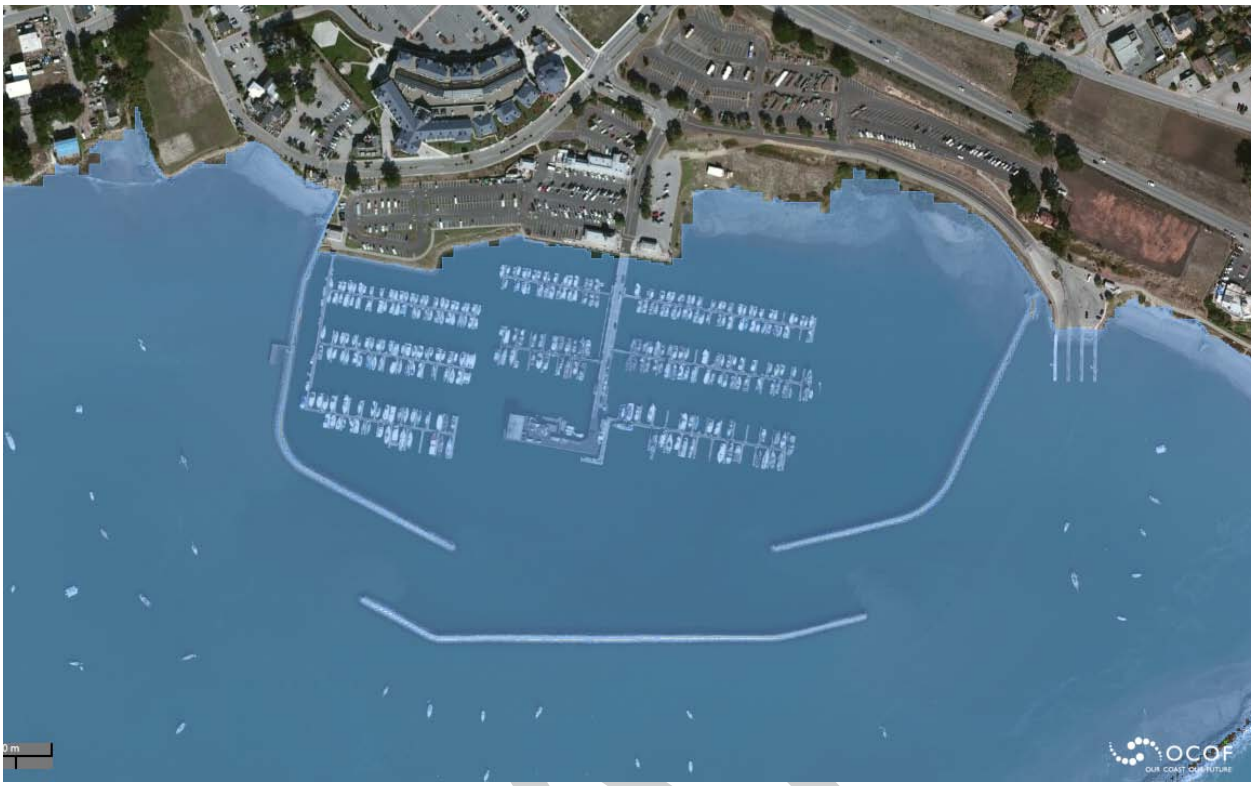


Figure 5-Pillar Pt, Existing Water Level During King Tides with 36 inches SLR



1.4. MONITORING AND ADAPTIVE MANAGEMENT PLANS

Ongoing measurements of sea level rise from the scientific community should be incorporated into a Monitoring and Adaptive Management Plan for the SMCHD facilities. The *Adaptive Management Strategy* should define specific triggers for action, based on the observed changes in sea level. For example: move the Harbormaster building at Oyster Point when Sea Level is is 6 inches, raise the grade 2 ft on the shoreline when sea level rise reaches 12 inches, etc.

The *Adaptive Management Strategy* could also require 5- or 10-year updates based on observed changes in sea levels as well as any other effects of climate change (e.g., more or less extreme wind conditions). Any updates, as well as the initial strategy that includes coastal and Bay development permits, should be coordinated with relevant stakeholders including the City of South San Francisco, San Mateo County, BCDC and the CCC. Case studies and potential guidelines aimed at informing the *Adaptive Management Strategy* will be included in the next steps of the Strategic Business Plann process.

A.2: CIRCULATION & PARKING ASSESSMENT

EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT

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This section of the Existing Infrastructure and facilities Assessment (Appendix A to the Strategic Business Plan) provides an access, circulation, parking, and connectivity analysis of the Harbor District's facilities. The analysis includes information on all modes of ground transportation (including bicycling, walking, transit, and private automobiles) serving Pillar Point Harbor and Oyster Point Marina/Park. In addition, a description of the Water Emergency Transportation Authority's (WETA) ferry service to Oyster Point is included, along with a description of the WETA ferry service's emergency preparedness role.

A.2.1. PILLAR POINT HARBOR & SURROUNDINGS – CIRCULATION & PARKING ASSESSMENT

Pillar Point Harbor is located in coastal San Mateo County, adjacent to the unincorporated communities of El Granada and Princeton-by-the-Sea. A small portion of Pillar Point Harbor lies within the City of Half Moon Bay.[1] The harbor's waterside facilities include Johnson Pier, 369 boat berths, a public boat launch facility, a public recreational fishing pier, and an outer harbor for anchoring and moorings that supports commercial fishing and recreational activities. Recreational trails include a beach trail to Half Moon Bay as well as the Mavericks Trail, providing access to the sands of Mavericks Beach. A California Coastal Trail alignment also runs through the harbor. At the time of this report, the San Mateo County Harbor District also maintains ownership of the "post office parcel", a vacant property in El Granada vacant property,.

Commercial and sport fishing and recreational tourism at Pillar Point Harbor are thriving industries, enhancing the local economy and economic and social activity throughout the coastal region. The harbor is also host to a number of community and tenant events and activities throughout the year. Together, these various activities generate a significant number of bicycle, pedestrian, transit and private motor vehicle trips.

MOTOR VEHICLE ACCESS AND ROADWAYS

State Route 1 (SR 1) and Capistrano Road form the gateway for drivers traveling to Pillar Point Harbor and related properties under harbor district jurisdiction. SR 1 connects to neighboring coastal cities, as well as the Bay Area via State Route 92. Capistrano Road is a two-lane facility that loops through Princeton-by-the-Sea, with a single access point into the harbor's commercial and recreation areas, and other connections to adjacent commercial areas and the highway.

The intersection of SR 1 and Capistrano Road has been the subject of recent studies, including the 2010 Highway 1 Midcoast Safety & Mobility Improvement Study. More details about this study are available in the following sections.

[1] The Pillar Point Harbor RV Park leasehold, as well as a narrow adjacent strip of oceanfront land, lie within Half Moon Bay city limits. The narrow strip of land, which stretches from just east of the boat launch ramp to just west of Surfer's Beach, includes the stretch of coastal trail leading from the boat launch ramp to Pillar Point RV Park and the outer breakwater.

JOHNSON PIER

Johnson Pier is the focal point of commercial fishing activity at Pillar Point Harbor. The pier supports a commercial fishing fleet of over 100 vessels, businesses, and related semi-trailer truck and van transportation, in addition to sport fishing, boating, and tourism.

In 2014, a Transportation Investment Generating Economic Recovery (TIGER) grant funding application for Johnson Pier infrastructure improvements identified peak commercial activity at an average of 53 semi-trailers, vans, and other loading vehicles accessing the Pier through SR 1 and Capistrano Road. According to the funding application, Johnson Pier and streets as currently designed do not adequately support this level of activity. This potential project would modify the Pier to improve truck loading capability while enhancing multimodal safety, mobility, and circulation in the harbor area, at a cost of $3.4 million.[2]

Site visits by the consulting team and numerous interviews with commercial fishermen and other stakeholders confirmed that numerous concerns exist regarding access and safety on the Pier. Those include a lack of separate sidewalks for pedestrians, high levels of activity, particularly on busy weekends and during peak seasons during as squid, crab and salmon seasons. This can include the simultaneous movement of semi- trailer trucks backing onto the Pier; forklifts loading and unloading trucks; commercial fishermen and pier workers operating hoists and loading boats; members of the general public (including families with children) purchasing seafood directly from commercial fishing boats; smaller automobiles and trucks belonging to commercial fishermen loading, unloading, and parking on the Pier; and even occasional intrusions by motor vehicle belonging to the general public, despite clearly signed prohibitions forbidding general motor vehicle traffic on the Pier.

AUTOMOBILE LEVEL OF SERVICE

STANDARDS

Automobile level of service (LOS) is a quantitative performance measure of automobile traffic flow through an intersection under peak hour conditions. LOS A means that motorists experience relatively free flow with minimal delay, while LOS F represents congested conditions with considerable delay. LOS standards in the Pillar Point Harbor area are established by the San Mateo County Local Coastal Program (LCP), with LOS D considered acceptable during commuter peak periods and LOS E considered acceptable during recreation peak periods.[3]

EXISTING LOS

A 2007 traffic study related to a proposed development in Princeton-by-the-Sea, analyzed the LOS of several key intersections in the road network surrounding Pillar Point Harbor. The table below summarizes the results of the study for the intersections most relevant to Pillar Point Harbor.

[2] San Mateo County Harbor District. 2014. *Johnson Pier: Commercial Fishing Pier Transportation Expansion Project Tiger Grant 2014 – Rural Area*. http://www.smharbor.com/harbordistrict/tiger_grant_2014.pdf (accessed December 10, 2014)

[3] County of San Mateo. Planning and Building Department. 2013. *Local Coastal Program Policies*. http://www.co.sanmateo.ca.us/planning/pdf/lcp_1098.pdf (accessed December 10, 2014)

FIGURE 1 PILLAR POINT HARBOR EXISTING LEVEL OF SERVICE

Intersection	AM LOS and Average Delay (in Seconds)	PM LOS and Average Delay (in Seconds)
SR 1/Capistrano Road South	C-25.4	C-23.0
Capistrano Road/Prospect Way	A-6.9	A-7.4
Broadway Avenue/Prospect Way	A-8.1	A-8.2
Airport Street/Stanford/Cornell Avenue	A-2.0	A-2.6

Source: Christopher A. Joseph and Associates. 2007. *Big Wave Office Park and Wellness Center*. http://www.montarafog.com/video/2009/Big_Wave_Hexagon_Traffic_Study_2.pdf (accessed December 10, 2014)

None of these intersections exceeded the LOS threshold as of 2007, and the LOS standards set forth by the LCP have remained unchanged from the time of the study to the present. Capistrano Road and SR 1 had an acceptable LOS C, and the remaining intersections had acceptable LOS A.

Bicycle and Pedestrian Facilities and Policy

Relevant Planning Documents

2000 San Mateo County Comprehensive Bicycle Route Plan (CBRP)

The 2000 CBRP assessed bicycle infrastructure and identified fifteen key projects across a 231-mile network of bicycle routes. These projects included the Coastside Bikeway Projects, part of which is an extension of the California Coastal Trail north from Half Moon Bay. This paved multi-use trail is an alternative route along Highway 1 for recreational cyclists and commuters, and several sections of the trail have now been completed.[4]

2011 San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP)

The 2011 CBPP updated the 2000 plan to include a pedestrian assessment, new projects including those necessary to complete the Countywide Bikeway Network, progress on projects identified in 2000, and recommendations on wayfinding and bicycle parking signage.[5]

2010 Highway 1 Midcoast Safety & Mobility Improvement Study

This study developed a plan for multimodal safety and mobility improvements for SR 1 between Half Moon Bay Airport just north of Pillar Point Harbor and the City of Half Moon Bay. The study recommended a number of crossing and connectivity improvements adjacent to Princeton-by-the-Sea and the harbor, designating SR 1 sections here as known to have increased multimodal activity on and off the highway. This study named SR 1 and Capistrano Road as a major gateway into Princeton-by-the-Sea and Pillar Point Harbor, and analyzed the feasibility of transforming the conventional design of the four-legged intersection at SR 1 and Capistrano Road into a roundabout. This new design can potentially improve safety for pedestrians and cyclists while calming vehicle speeds, though the community has yet to determine the optimal

[4] City/County Association of Governments. 2000. *San Mateo County Comprehensive Bicycle Route Plan*. http://old.ccag.ca.gov/pdf/documents/archive/San%20Mateo%20County%20Comprehensive%20Bicycle%20Route%20Plan%202000.pdf (accessed December 10, 2014)

[5] City/County Association of Governments. 2011. *San Mateo County Comprehensive Bicycle and Pedestrian Plan*. https://performance.smcgov.org/download/r4g3-aghc/application/pdf (accessed December 10, 2014)

design solution. The study also identified potential key trail links, including a Class II bicycle lane on Capistrano Road, a Class I bicycle path along the coast through the harbor, and phased completion of the California Coastal Trail.[6]

Existing Pedestrian and Bicycle Facilities

Pedestrian infrastructure at Pillar Point Harbor consists of access to the main harbor properties and Johnson Pier via five foot wide sidewalks on both sides of Capistrano Road and marked crosswalks with signage. However, access to Mavericks Trail through West Point Avenue notably lacks sidewalks and designated crossings, despite pedestrian and bicycle traffic and higher vehicle speeds. Pedestrians often walk in the narrow roadway, which lacks shoulders and has steep terrain on both sides. Exposure to wave, swell stormwater runoff has caused deterioration of the Mavericks Trail, and emergency repairs are needed. The California Coastal Trail is a recreational, paved multi-use trail connecting the harbor northward to the Pillar Point Bluffs via streets in Princeton-by-the-Sea and southward to Half Moon Bay, running parallel to SR 1.[7]

Bicycling infrastructure surrounding the harbor consists of a Class III bicycle route designation on Capistrano Road (i.e., the street is designated as a bicycle route but does not provide striped bicycle lanes on the roadway) and wide paved shoulders on SR 1. However, the paved shoulders on SR 1 are not designated as a bicycle facility, and at times of high demand, sections may be partially or entirely blocked by parked motor vehicles. Sections of the California Coastal Trail leading north to the harbor are designated as a Class I bicycle facility (i.e., an off-street bicycle and pedestrian path), transitioning to roadway shared with motor vehicles in Princeton-by-the-Sea, and then to a multi-use dirt path in the Pillar Point bluffs.

Planned Pedestrian and Bicycle Facilities

The Harbor District has a strong interest in better extending the California Coastal Trail to and through the harbor. The 2011 CBPP recommended several key pedestrian and bicycle projects to improve accessibility and connectivity to the area surrounding Pillar Point Harbor. Pedestrian improvements include new paths and new or enhanced crossings along SR 1. New multi-use pedestrian and bicycle facilities include the SR 1/Coastal Trail/Parallel Trail project, which would create or upgrade trails from Montara to Half Moon Bay into Class I (i.e., off-street bicycle/pedestrian path) and Class II (on-street bicycle lane) facilities.

[6] Local Government Commission. 2010. *Highway 1 Safety and Mobility Improvement Study, San Mateo County Midcoast Communities: Princeton, El Granada and Miramar, California*. http://www.co.sanmateo.ca.us/Attachments/parks/Files/Parks%20Planning/Highway%201%20Safety%20and%20Mobility%20Improvement%20Study.pdf (accessed December 10, 2014)

[7] San Mateo County. 2014. *Plan Princeton: Existing Conditions Report.* http://www.planprinceton.com/uploads/8/1/1/9/8119166/princeton_ecr_compiled_051414_low.pdf (accessed December 10, 2014)

TRANSIT

FIXED-ROUTE SERVICE

Pillar Point Harbor is served by two fixed-route bus lines managed by SamTrans and the San Mateo County Transit District. The nearest bus stops are located at SR 1 & Capistrano Road and Capistrano Road & Prospect Avenue, which serve both Routes 17 and 294.

Route 17 provides weekday service along the coast between Montara and Pescadero and weekend service that extends farther north to Pacifica, from 5:30 AM to 9:30 PM. The line has 15-minute headways during the AM peak that increase to two hours at other times.[8]

Route 294 provides key regional service every day to the Hillsdale Caltrain Station in San Mateo in addition to the coastal cities served by Route 17, from 5:30 AM to 9:00 PM. The line has headways ranging from 1.5 to two hours.[9]

DEMAND-RESPONSIVE SERVICE

Limited demand-responsive transit service for the harbor area is managed by RediCoast, a paratransit subsidiary of MV Transportation. This service provides curb-to-curb transportation for disabled citizens that are unable to use fixed-route bus service and live between Devil's Slide and the Santa Cruz County boundary on the coast. RediCoast operates every day, including holidays, and one-way trips are priced at $3.75 as of 2013.[10]

PARKING

There are a number of on-street and off-street parking facilities at the harbor. Parking facilities are governed by zoning regulations under the County of San Mateo.

On-street parking is available to the public on Capistrano Road and has no price or time restrictions. No on-street parking is allowed on West Point Avenue leading to the Mavericks trailhead due to limited sight distances and limited right-of-way, but an off-street parking facility is available for recreational users at the trailhead itself.

Off-street parking is available in several lots. The 2014 Plan Princeton Existing Conditions Report provides an inventory of parking spaces in and around Pillar Point Harbor (see Figure 2).[11]

One promising option for improving parking availability, for harbor tenants, visitors, surrounding users and the general public is to develop shared parking solutions for parking at the harbor and nearby destinations, such as businesses and other land uses in Princeton-by-the-Sea and El

[8] San Mateo County Transit District. SamTrans. 2014. *Route 17*. http://www.samtrans.com/schedulesandmaps/timetables/17.html (accessed December 10, 2014)

[9] San Mateo County Transit District. SamTrans. 2014. *Route 294*. http://www.samtrans.com/schedulesandmaps/timetables/294.html (accessed December 10, 2014)

[10] San Mateo County Transit District. SamTrans. 2013. *Paratransit*. http://www.samtrans.com/Accessibility/Paratransit.html (accessed December 10, 2014)

[11] San Mateo County. 2014. *Plan Princeton: Existing Conditions Report*. http://www.planprinceton.com/uploads/8/1/1/9/8119166/princeton_ecr_compiled_051414_low.pdf (accessed December 10, 2014)

Granada. Such shared parking approaches are commonly used in other coastal communities (e.g., downtown half Moon Bay, Monterey Harbor & downtown, San Francisco's Fisherman's Wharf), in order to meet parking needs while minimizing parking capital and operation expenses, land required for parking, and the stormwater and water pollution impacts created by runoff from paved parking areas. The parking inventory table provided below therefore provides information on both Harbor District parking lots and other parking areas nearby.

FIGURE 2 PILLAR POINT HARBOR AND PRINCETON-BY-THE-SEA PARKING INVENTORY

Parcel Number	Parking Type	Number of Spaces	Regulations
Harbor District Property			
Harbor Lot A	Off-Street	215 Standard 5 Disabled 12 Trailer 90 Reserved Standard 1 Reserved Disabled	Free public parking for recreational users and customers. Reserved spaces for boater tenants with slips
Harbor Lot B	Off-Street	52 Standard	Free public parking for recreational users and customers.
Harbor Lot C	Off-Street	105 Reserved Standard 2 Reserved Disabled 40 Reserved Trailer	Reserved for boaters with permits
Boat Launch & Trailer Lot	Off-Street	61 Reserved Standard 4 Reserved Disabled 70 Reserved Trailer	$13 launch ramp fee includes parking for the boater's vehicle and trailer
Harbor Commercial Fishermen Lot	Off-Street	38 Reserved Standard 2 Reserved Disabled 2 Reserved Trailer	Reserved for commercial fishermen
Pier	Off-Street	20 Standard	Loading
Launching Facility	Off-Street	18 Standard	Free public short-term parking
Pillar Point Recreational Area	Off-Street	34 Standard 1 Disabled	Free public parking
Pillar Point RV Park	Off-Street	31 RV Size 22 Standard 1 Disabled	$77/day for ocean view; $55/day for partial view; $1100/mo for other sites with max 1 month stay
Post Office Parcel	Off-Street and On-Street	28 Standard 3 Disabled	Undesignated
TOTAL		683 Standard (all spaces) 19 Disabled (all spaces) 124 Trailer (all spaces) 31 RV Size	

Nearby Parking Supply			
Capistrano Road (SR 1 to Prospect Avenue)	On-Street	34 Standard	Free public parking
Barbara's Fish Trap	Off-Street	35 Private Standard 2 Private Disabled	Free, customers only
Half Moon Bay Yacht Club	Off-Street	10 Private Standard 5 Private Disabled	Patrons only and public access during non-club hours
Pillar Point Inn	Off-Street	11 Private Standard 2 Private Disabled	Free, patrons only
Half Moon Bay Brewing Co (SE lot)	Off-Street	38 Private Standard 5 Private Disabled	Free, customers only
Half Moon Bay Brewing Co (NW lot)	Off-Street	50 Private Standard	Free, customers only
Nasturtium	Off-Street	12 Private Standard	Free, customers only
American Legion	Off-Street	25 Private Standard 2 Private Disabled	Free, customers only
Mezza Luna	Off-Street	35 Private Standard 2 Private Disabled	Free, customers only
Café Capistrano	Off-Street	8 Private Standard 1 Private Disabled	Free, customers only
Harbor Village Lot	Off-Street	90 Standard 389 Private Standard 9 Private Disabled	Free public parking (90 spaces) for beach access and remaining spaces for customers
TOTAL		737 Standard (all spaces) 28 Disabled (all spaces)	

Source: San Mateo County. 2014. *Plan Princeton: Existing Conditions Report*. http://www.planprinceton.com/uploads/8/1/1/9/8119166/princeton_ecr_compiled_051414_low.pdf (accessed December 10, 2014)

At Pillar Point Harbor, land is primarily owned by the San Mateo County Harbor District and lies within unincorporated San Mateo County. The Pillar Point RV Park leasehold lies within Half Moon Bay city limits. The "post office lot" in El Granada is, as of this writing, pending sale.

Off-street parking requirements are set by the County of San Mateo Zoning Code for new developments. Figure 3 below shows requirements for land use types that are commonly found in or near Pillar Point Harbor.

Parking capacity, restrictions, safety, conveniences and associated fees were noted by several Harbor District stakeholders as a problem in Pillar Point Harbor and Oyster Point Marina Park. The Strategic Business Plan will address identify potential strategies for addressing these concerns.

FIGURE 3 OFF-STREET PARKING REQUIREMENTS

Land Use	Parking Requirement
Dwellings	1 space for each dwelling unit having 0 or 1 bedroom 2 spaces for each dwelling unit have 2 or more bedrooms
Hotels	1 for each 4 guest bedrooms
Medical or Dental Clinics, Banks, Business Offices, Professional Offices	1 for each 200 sq. ft. of floor area
Restaurants and Bars	1 for each 3 seats or stools
Warehouses	1 space for each 2 employees on largest shift

Source: San Mateo County. 2014. *Plan Princeton: Existing Conditions Report.* http://www.planprinceton.com/uploads/8/1/1/9/8119166/princeton_ecr_compiled_051414_low.pdf (accessed December 10, 2014))

The LCP additionally requires that new parking facilities allocate a portion of parking spaces for recreational use and beach access. Section 10.22 states that new commercial or industrial parking facilities of ten or more spaces within a quarter-mile radius of an established shoreline access area must designate 20% of the total spaces for beach user parking during the day from 10:00 a.m. and 4:00 p.m. Bus and secure bicycle parking must also be provided.[12]

Coastal Access

Coastal access is governed by the California Coastal Act (CCA) and the County of San Mateo Local Coastal Program (LCP), which establish requirements for new development related to public shoreline access and protection of environmental integrity.

Regulations Governing Coastal Access

1976 California Coastal Act

The CCA governs the actions of the California Coastal Commission and establishes development standards within the designated Coastal Zone. The CCA decrees that:

- Development must not interfere with the public right to access the sea
- New development must provide access from the nearest public roadway to the shoreline, unless it interferes with safety, military security, agriculture, or fragile coastal resources, or adequate access exists nearby
- Public parking areas and facilities must be distributed such that they mitigate overuse or crowding by the public of any single area
- New development must maintain and enhance public access to the coast with respect to public transit, mixed-use development that minimizes use of coastal roads, promote

[12] County of San Mateo. Planning and Building Department. 2013. *Local Coastal Program Policies.* http://www.co.sanmateo.ca.us/planning/pdf/lcp_1098.pdf (accessed December 10, 2014)

non-motorized travel, provide adequate parking or alternative transit options, and prevent overloading of recreational areas by users through adequate facilities

- New development must minimize adverse impacts to life, property, the environment, and special communities and neighborhoods that are popular visitor destination points[13]

County of San Mateo Local Coastal Program

The LCP implements the CCA in the unincorporated areas of San Mateo County, and establishes County responsibility for issuing Coastal Development Permits. All development in the Coastal Zone requires such a Permit.

Existing Facilities

Pillar Point Harbor and Johnson Pier is a major public coastal access point. The California Coastal Trail has a multi-use paved portion along the roadway connecting the boat launch facility with Capistrano Road. This trail becomes a dirt path near the entrance of the boat launch parking lot, continuing between the lot and the breakwater in an alignment away from the roadway and closer to the pier.

Capistrano Road also has a walkable beach area that abuts the shoreline directly, which is not accessible during high tide. Though the beach is accessed by stairs connected to Capistrano Road, the stairs are obstructed by riprap that must be climbed by users.

Other coastal access points in the area include the southern ends of Broadway Avenue and Vassar Avenue, the Half Moon Bay Yacht Club on Ocean Boulevard, and West Point Avenue/Pillar Point Parking Lot. The Half Moon Bay Yacht Club allows the public to cross its property to reach the shoreline, as it has a ramp that is currently the only break in existing riprap for those with restricted mobility to access the beach. West Point Avenue and the Pillar Point Parking Lot provide access to beach areas that are walkable even in high tide.

Planned Facilities

Several planning studies have identified planned facilities for improved coastal access. The 2002 Coastal Access Improvement Plan/Five Coastal Sites, LCP, and California Coastal Trail SMC Midcoast Pillar Point to Mirada Surf plans have prioritized a number of improvements, including:

- Beach access stairways and ramps
- Trail improvements, network completion and extensions
- Enhanced protection of vulnerable, sensitive beach and bluff areas
- Restroom and public facility improvements at trailhead parking lots
- Wayfinding and signage improvements[14, 15]

[13] State of California. California Coastal Commission. 1976. *California Coastal Act*. http://www.coastal.ca.gov/ccatc.html (accessed December 10, 2014)

[14] County of San Mateo. 2002. *Coastal Access Improvement Plan/Five Coastal Sites*. https://parks.smcgov.org/sites/parks.smcgov.org/files/documents/files/Coastal%20Access%20Improvement%20Plan%20-%20Final.pdf (accessed December 10, 2014)

A.2.2 OYSTER POINT MARINA/PARK AND SURROUNDINGS

Oyster Point Marina/Park is located in the City of South San Francisco, along the San Francisco Bay. The marina has 455 public berths and Oyster Point Park is a 33-acre recreational green space. Oyster Point is located east of US Highway 101 (US 101) and Caltrain tracks. In addition to the Marina/Park, recreational access includes the San Francisco Bay Trail. The Marina Park is owned by the City of South San Francisco and operated by the Harbor District, with some parcels leased out for visitor-serving and marine-related commercial uses, as shown in Figure 5.

FIGURE 4 OYSTER POINT BOUNDARY

MOTOR VEHICLE ACCESS AND ROADWAYS

Oyster Point Marina/Park is located in South San Francisco, accessible by the US 101 freeway. On and off ramps are located at Airport Boulevard. US 101 is the main point of access from the locales to the south on the Peninsula and to the north, such as San Francisco and Marin. Nearby land uses include Genentech, Inc., Oyster Point Business Park, and numerous other biomedical and pharmaceutical companies.

At Oyster Point Marina/Park, there are two main roadways accessing the site: Oyster Point Boulevard and Marina Boulevard. Marina Boulevard is a circuitous roadway that provides access to the marine facilities such as berths, the dock, the fishing pier, and the swimming

[15] Midcoast Community Council. Midcoast Parks and Recreation Committee. 2010. *California Coastal Trail San Mateo County Midcoast Pillar Point to Mirada Surf.* http://www.midcoastcommunitycouncil.org/storage/issues/parks/2010-03-23-CCT-PillarPt-MiradaSurf.pdf (accessed December 10, 2014)

beach. Oyster Point Boulevard provides access to Oyster Cove Marina and a number of private business properties.

Automobile Level of Service

Automobile level of service at 23 traffic intersections was measured in 2008 as a component of the Oyster Point Specific Plan. The automobile level of service founder that study for locations near Oyster Point Marina /Park is noted below in Figure 5. Oyster Point Boulevard operates at LOS C during both peak periods, which is an acceptable operation for signalized and all-way stop intersections according to the City of South San Francisco's standards. The US 101 freeway segments nearby operate at LOS D and C during peak periods, an acceptable level of service for peak hours, according to the California Department of Transportation's standards for this freeway.

FIGURE 5 LEVEL OF SERVICE AT TRAFFIC INTERSECTIONS

Intersection	AM Peak LOS & Delay in Seconds	PM Peak LOS & Delay in Seconds
Oyster Point Boulevard/Dubuque Avenue/US 101 Northbound On-Ramp	C-23.0	C-22.2
Oyster Point Boulevard/Gateway Boulevard/US 101 Southbound On-Ramp	C-30.0	C-22.3
Oyster Point Boulevard/Gull Drive	C-22.5	C-31.6
US 101 Segment-North of Oyster Point Blvd. (Northbound Traffic)	D Volume: 7,452 Density: 30.1	D Volume: 7,530 Density: 30.5
US 101 Segment-North of Oyster Point Blvd (Southbound Traffic)	D Volume: 6,774 Density: 26.3	C Volume: 6,314 Density: 24.1

Source: City of South San Francisco, "Chapter 16: Transportation and Circulation," Oyster Point Specific Plan and Phase I Project, 2011.

The following tables provide the projected levels of service for 2015 and 2035 at traffic intersections in the study area, and include base projections and projections that reflect the full buildout of the land use is allowed under the Oyster Point Specific Plan. The Oyster Point Boulevard Southbound US 101 ramps are projected to experience the most significant delays, in addition to the northbound traffic segment on US 101. Figure 6 provides more detail on this topic.

FIGURE 6 2015 PROJECTED LEVEL OF SERVICE AT TRAFFIC INTERSECTIONS

Intersection	2015 Base (AM Peak LOS & Delay in Seconds)	2015 Base + OPSP (AM Peak LOS & Delay in Seconds)	2015 Base (PM Peak LOS & Delay in Seconds)	2015 Base + OPSP (PM Peak LOS & Delay in Seconds)
Oyster Point Boulevard/Dubuque Avenue/US 101 Northbound On-Ramp	C- 20.2	C-22.5	C-25.0	C-25.2

Oyster Point Boulevard/Gateway Boulevard/US 101 Southbound On-Ramp	F-91.1	F-130.1	D-52.8	E-58.3
Oyster Point Boulevard/Gull Drive	B-10.7	B-18.9	C-32.5	D-33.5
US 101 Segment-North of Oyster Point Blvd. (Northbound Traffic)	D Volume: 8099 Density: 34.0	D Volume: 8116 Density: 34.1	D Volume: 8092 Density: 33.9	D Volume: 8205 Density: 34.8
US 101 Segment-North of Oyster Point Blvd (Southbound Traffic)	D Volume: 7260 Density: 28.5	D Volume: 7376 Density: 29.2	D Volume: 6792 Density: 26.1	D Volume: 6808 Density: 26.1

Source: City of South San Francisco, "Chapter 16: Transportation and Circulation," Oyster Point Specific Plan and Phase I Project, 2011.

FIGURE 7 2035 PROJECTED LEVEL OF SERVICE AT TRAFFIC INTERSECTIONS

Intersection	2035 Base (AM Peak LOS & Delay in Seconds)	2035 Base + OPSP (AM Peak LOS & Delay in Seconds)	2035 Base (PM Peak LOS & Delay in Seconds)	2035 Base + OPSP (PM Peak LOS & Delay in Seconds)
Oyster Point Boulevard/Dubuque Avenue/US 101 Northbound On-Ramp	C-22.7	D-44.1	D-48.3	D-49.0
Oyster Point Boulevard/Gateway Boulevard/US 101 Southbound On-Ramp	F-124	F-231	F-108	F-187
Oyster Point Boulevard/Gull Drive	C-31.4	B-15.0	D-38.0	D-38.7
US 101 Segment-North of Oyster Point Blvd. (Northbound Traffic)	F Volume: 9,379 Density: N/A	F Volume: 9,449 Density: N/A	E Volume: 8,543 Density: 36.2	E Volume: 8,913 Density: 39.6
US 101 Segment-North of Oyster Point Blvd (Southbound Traffic)	F Volume: 9,698 Density: N/A	F Volume: 10,047 Density: N/A	D Volume: 7,847 Density: 31.1	D Volume: 7,930 Density: 31.6

Source: City of South San Francisco, "Chapter 16: Transportation and Circulation," Oyster Point Specific Plan and Phase I Project, 2011.

BICYCLE AND PEDESTRIAN

RELEVANT PLANNING DOCUMENTS

2011 OYSTER POINT SPECIFIC PLAN[16]

The 2011 Oyster Point Specific Plan discusses pedestrian and bicycling infrastructure in Chapter 16: Transportation and Circulation. In this section, the bicycle and pedestrian facilities are described, and discussion of future planned facilities is included. Of significance, there will be a future bike path along the Caltrain right-of-way which residents will be able to utilize as part of their commute. This section also describes the Transportation Demand Management (TDM) plan required of developments that are projected to generate over 100 daily vehicle trips, with a focus on designing new developments to encourage alternative transportation trips. In addition to the TDM Plan, the required mitigation measures for the Oyster Point Specific Plan include pedestrian walkways for the entire length of Oyster Point Boulevard and Marina Boulevard, bicycle lanes for the entire length of Oyster Point Boulevard, and bike parking in the development's garages.

2011 SMC COMPREHENSIVE BICYCLE AND PEDESTRIAN PLAN[17]

The CBPP provides a countywide assessment of the bicycling and pedestrian infrastructure in San Mateo County. The report describes countywide facilities and needs, and describes pedestrian and bicyclist behavior in the county. In South San Francisco, 0.4% of the population bicycle to work, 2.6% of the population walk, and 9.2% of residents use transit for their commute trips.

Current challenges described for bicyclists and pedestrians include road crossings over/under Highways 1, 101, 280, and the Caltrain railroad line. As a result, a list of needs for alternative transportation users included: direct connections, appropriate crossings, continuous facilities, well-designed infrastructure, and reduced traffic speeds. New Class I (off-street bicycle/pedestrian path) facilities were recommended to complete the San Francisco Bay Trail in South San Francisco.

2012 SAN BRUNO / SOUTH SAN FRANCISCO COMMUNITY BASED TRANSPORTATION PLAN[18]

The 2012 San Bruno / South San Francisco Community Based Transportation Plan was a joint effort plan to improve the bicycle amenities, provide free or low cost bicycles to community

[16] City of South San Francisco, Oyster Point Specific Plan and Phase I Project, 2011, http://www.ssf.net/DocumentCenter/Home/View/1701

[17] County of San Mateo, San Mateo County Comprehensive Bicycle and Pedestrian Plan, 2011, https://performance.smcgov.org/Livable-Community/San-Mateo-County-Comprehensive-Bicycle-and-Pedestr/r4g3-aghc

[18] City/County Association of Governments, San Bruno/South San Francisco Community Based Transportation Plans, 2012, http://sanbruno.ca.gov/comdev_images/SBSSF%20CBTP%20-%20Final%20Feb%202012.pdf

members, improve pedestrian amenities, and increase public transportation access and options. Overall, the report identified nine transportation strategies, including those mentioned above, along with specific strategies on increasing access and service on specific transportation networks. The short-term strategies includes improving the affordability of public transportation to low-income users, providing free or low-cost bicycles, increasing public access to information about transportation, and increasing SamTrans Bus Service. Longer term strategies included improving transit stops and amenities, improving bicycling amenities, and improving connectivity of existing transit service. The strategies identified in this plan may assist in improving access to Oyster Point for customers, tenants, and the general public.

Existing Bicycle and Pedestrian Facilities

The pedestrian infrastructure near Oyster Point Marina/Park includes the following:

- Sidewalks on both sides of Oyster Point Boulevard
- Sidewalks on one side of Gull Drive
- At Oyster Point Park, multi-use paved paths are provided for pedestrians and cyclists, which connect to the San Francisco Bay Trail

There are no sidewalks along Marina Boulevard and into the Oyster Point Marina/Park.

The bicycling infrastructure around Oyster Point Marina/Park includes Class II bicycle lanes on Oyster Point Boulevard, from Gateway Boulevard to Marina Boulevard. The lanes do not extend past Marina Boulevard toward the commercial development north of the marina. The Class II lanes extend to Marina Boulevard and Gull Drive. The San Francisco Bay Trail is classified as a Class I bicycle facility, and wraps around Oyster Point Marina.

FIGURE 8 BICYCLE FACILITIES AROUND OYSTER POINT MARINA/PARK

Street Name	Type of Facility	Length
San Francisco Bay Trail	Class I	5.55 miles
Gull Drive	Class II	0.26 miles
Marina Boulevard	Class II	0.47 miles
Oyster Point Boulevard (Gateway Blvd to Marina Blvd)	Class II	0.59 miles
Oyster Point Boulevard (Marina Boulevard to terminus)	Class II	*Planned*

Planned Bicycle and Pedestrian Infrastructure

The San Mateo County Comprehensive Bicycle and Pedestrian Plan outlined a number of projects that would improve the bicycle and pedestrian network connectivity in South San Francisco and Oyster Point. Broader goals for the area included connections to transit centers such as Caltrain and BART. The new bicycle facilities proposed include a Class I trail along the Caltrain corridor right-of-way, Class I facilities along Oyster Point Boulevard, Class I facilities along Forbes Boulevard, and unclassified on-street facilities along Gateway Boulevard leaving toward

Oyster Point Boulevard. In addition, the plan highlighted Oyster Point Marina/Park as a pedestrian focus area, and proposes a new pedestrian path from Caltrain to Oyster Point Marina/Park.

TRANSIT

South San Francisco is served by regional transportation networks, such as Caltrain and BART, providing access to San Francisco, the East Bay, and the Peninsula. The Oyster Point Marina is also directly served by the Water Emergency Transportation Authority's San Francisco Bay Ferry, connecting passengers to Oakland, Alameda, and San Francisco. Lastly, both public and private shuttles operate from these major transportation centers to provide direct access to employment centers in the Oyster Point and Utah/Grand areas.

CALTRAIN

The South San Francisco Caltrain station near Oyster Point provides limited stop and local service northbound to San Francisco and southbound to San Jose. Morning frequency varies from 20 minutes to 40 minutes, with all trains from 7:00 am to 9:30 am running limited stop service northbound. The southbound service runs three limited stop trains hourly from 6:40 am to 8:40 am. Evening southbound receives six limited stop trains, with 20 to 40 minute frequency. Caltrain weekday service span ranges from 5:43 am to 12:17 am. Of all the Caltrain stations, South San Francisco ranks 21 of 29 in ridership, with 432 total average weekday boardings and 439 total average weekday alightings.

BART

In addition to Caltrain, Bay Area Rapid Transit (BART) serves South Francisco with two lines: Pittsburg/Bay Point to SFO/Millbrae and Richmond to Daly City/Millbrae. The joint Millbrae BART/Caltrain Station lies approximately seven miles south of Oyster Point, with connections to Oyster Point provided by local bus and shuttle service. Each BART route serves the station every 15 minutes during peak hours, with trains arriving every 7-8 minutes at the platforms. BART service spans from 4:17 am to 1:27 am. The Richmond to Daly City/Millbrae line terminates in the evenings at 8:00 pm.

SAN FRANCISCO BAY FERRY

The Water Emergency Transportation Authority's San Francisco Bay Ferry provides service from Oyster Point Marina to Oakland, Alameda, and San Francisco. The San Francisco Bay Ferry service consists of weekday-only commuter service between Oyster Point and Oakland's Jack London Square and Alameda Main Street terminals in the East Bay; and weekday mid-day service five days a week between South San Francisco and the San Francisco Ferry Building. From Oakland and Alameda, weekday service includes three morning trips and one evening trip to Oyster Point. Return service to the East Bay from Oyster Point also consists of four runs per day, with one ferry departing Oyster Point at 7:20 am and three evening departures. Travel time is 30 minutes to Alameda and 40 minutes to Oakland. Service from Oyster Point to the San Francisco Ferry Building consists of one morning departure, with one return trip to South San Francisco in the afternoon. Travel time to San Francisco Ferry Building is 30 minutes. As of 2013, ridership on

the South San Francisco to Oakland and Alameda route was approximately 255 one-way trips per weekday.[19]

Aside from providing typical commuting services, the Water Emergency Transportation Authority (WETA) provides transportation in the event of an emergency or disaster affecting Bay Area transportation systems. WETA is responsible for coordinating efforts with local, state, and federal agencies for transporting first responders and disaster service workers, evacuation assistance, and provision of basic mobility for the public. WETA has an Emergency Water Transportation System Management Plan in place, with provisions for following directions from State Operations Center, which are to be carried out by the Regional Emergency Operations Center, of which WETA is a participant, along with Caltrans, the California Highway Patrol, the United States Coast Guard, and the Metropolitan Transportation Commission. The potential use of the Oyster Point Ferry Terminal in a regional emergency response effort is discussed in greater detail in a following section.

SHUTTLES

A number of publicly-funded shuttles cater to employment centers in the area, with shuttle stops provided at several locations in and/or adjacent to Oyster Point Marina/Park. Shuttle stops are located at the Oyster Point Ferry Terminal, and along Oyster Point Boulevard and Gull Drive adjacent to the Marina. The shuttles are free to riders and are operated by Alliance Shuttle. The following employers are participants:

- Apria Healthcare
- CB Richard Ellis
- Centennial Towers
- Cushman & Wakefield
- Cytomx
- diaDexus
- Life Technologies
- Monogram BioSciences
- Permanente Medical Group
- Sanrio Inc.
- Shorenstein Realty Services
- South San Francisco Business Center

Aside from the Oyster Point shuttles listed below in Figure 9, there are three shuttles that serve employment areas south of the Oyster Point Marina/Park area. The shuttles served the Utah/Grand Area from the Ferry, BART, and Caltrain stations as well. The South San Francisco-Utah/Grand Ferry shuttle serves different employment centers than those listed above, but is outlined in the table, given that it crosses into the project area. The Utah/Grand area includes Genentech, Inc. campus, South San Francisco Conference Center, a number of biomedical

[19] The Daily Journal, "Ferry ridership boom short-lived: After BART strike halted, commuters return to previous routine," July 2013, http://www.smdailyjournal.com/articles/lnews/2013-07-10/ferry-ridership-boom-short-lived-after-bart-strike-halted-commuters-return-to-previous-routine/1771493.html

and pharmaceutical companies. Genentech, Inc. also operates its own private shuttle service from the ferry terminal to/from its main campus.

FIGURE 9 SHUTTLE SERVICE IN OYSTER POINT

Shuttle	Service Span	# of Loops	Funding
So. San Francisco – Oyster Point Ferry	M-F: 7:25 am – 9:13 am 3:44 pm – 6:20 pm	3	Bay Area Air Quality Management District, City/County Association of Governments, San Mateo County Transportation Authority, and Water Emergency Transportation Authority
So. San Francisco – Oyster Point BART	M-F: 6:40 am – 10:02 am 3:00pm – 6:14 pm	7	Bay Area Air Quality Management District, City/County Association of Governments, San Mateo County Transportation Authority, San Mateo County Transit District
So. San Francisco-Centennial Towers BART/Caltrain	M-F: 6:50 am – 10:03 am 4:11 pm – 7:14 pm	5	City/County Association of Governments, Peninsula Corridor Joint Powers Board, San Mateo County Transportation Authority-Measure A
So. San Francisco-Oyster Point Caltrain	M-F: 5:47 am – 9:52 am 2:52 pm – 6:38 pm	8	Bay Area Air Quality Management District, City/County Association of Governments, San Mateo County Transportation Authority, Peninsula Corridor Joint Powers Board
So. San Francisco-Utah/Grand Ferry	M-F: 6:45am – 9:25 am 3:35 pm – 6:10 pm	3	City/County Association of Governments, Peninsula Corridor Joint Powers Board, San Mateo County Transportation Authority, Water Emergency Transportation Authority

SamTrans: RediWheels

RediWheels is the paratransit service in San Mateo County that serves the bayside communities of the county. The system is targeted at those with mobility issues who cannot ride regular SamTrans buses. There is a fare for the service at a rate of $3.75 each way, or $1.75 for low-income users. Participants may travel within San Mateo County, San Francisco County, and Palo Alto. Participants in possession of a RediWheels identification card may ride the regular SamTrans buses for free.[20]

Parking and Transportation Demand Management

For all non-residential development that is expected to generate more than 100 or more Average Daily Trips (ADT), the City of South San Francisco requires the implementation of transportation demand management measures to achieve a minimum alternative mode share of at least 28% of all trips. The specific purposes for these objectives include the following: [21]

[20] SamTrans, "Paratransit Service", July 2012, http://www.samtrans.com/Assets/__Agendas+and+Minutes/SamTrans/Board+of+Directors/Presentations/2012/1-11-12+Mobility+Management+-+Paratransit.pdf

[21] City of South San Francisco Municipal Code § 20.400.

- Reduce the amount of traffic generated by new non-residential development, and the expansion of existing non-residential development.
- Ensure that expected increases in traffic resulting from growth in employment opportunities in the City will be adequately mitigated.
- Reduce drive-alone commute trips during peak traffic periods by using a combination of services, incentives, and facilities.
- Promote the more efficient utilization of existing transportation facilities and ensure that new developments are designed in ways to maximize the potential for alternative transportation use.
- Provide developers with alternatives to provide parking capacity below minimum requirements.

All projects required to submit a TDM Plan in South San Francisco are subject to an annual survey to determine the compliance of specific projects with the TDM Ordinance. Applicants seeking an FAR (Floor Area Ratio) bonus, which are available to developments listed in Figure 10, must also submit a triennial report to measure compliance with prescribed ratios. If a development fails to make the necessary TDM changes to achieve these ratios, or fails to submit a triennial report, the City may assess a financial penalty on the basis of project size and actual percentage of alternative mode use.

FIGURE 10 MINIMUM ALTERNATIVE MODE USE SHARE

Project	Base District	Requested FAR	Minimum Alternative Mode Use (percent of total trips)
Non-residential projects resulting in more than 100 ADT	All	n/a	28.0
FAR bonus request	Business and Professional Offices	1.01-1.59	30.0
		1.60-1.99	36.5
		2.00-2.30	45.0
	Business Commercial and Freeway Commercial	0.51-0.69	30.0
		0.70-0.80	32.0
		0.81-0.90	35.0
	Hotels and Motels in Business Commercial and Freeway Commercial	1.21-1.49	30.0
		1.50-1.69	32.0
		1.70-1.80	35.0
	Business and Technology Park	0.51-0.69	30.0
		0.70-0.80	32.0
		0.81-1-00	35.0
		1.01-1.12	38.0
		1.13-1.25	40.0

Source: City of South San Francisco Ordinance. 1432 § 2, 2010

At Oyster Point Marina/Park, the majority of the land is owned by the City of South San Francisco or the Harbor District, or leased to private parties. In this area, there is on-street parking available for public use. In addition, there is free parking available in numerous off-street lots. In total, approximately 683 total spaces exist in the study area. Figure 11 provides further detail on the parking inventory of Oyster Point Marina/Park.

FIGURE 11 PARKING INVENTORY AT OYSTER POINT MARINA/PARK

Parcel Number	Parking Type	Number of Spaces	Regulations
Parcel H	On-Street	37 Standard Spaces 2 Disabled Spaces	Free, 30 minute limit for standard, 72-hour limit for disabled spaces
Parcel G-1	On-Street	25 Standard Spaces 4 Disabled Spaces	Free
Parcel G	Off-Street	54 Oversized Spaces 2 Standard Spaces	$11 Launch Fee $200 Annual Permit 20% Discount for Seniors & Disability
Parcel 1*	Off-Street	326 Standard Spaces 9 Disabled Spaces	Free
Parcel 2*	Off-Street	41 Standard Spaces 4 Disabled Spaces	Free
Parcel D-1	Off-Street	49 Standard Spaces 2 Disabled Spaces	Customer
Parcel B	Off-Street	125 Standard Spaces 3 Disabled Spaces	Customer
TOTAL		657 Standard Spaces 26 Disabled Spaces	

*These parcels were labeled by Nelson\Nygaard to distinguish parking lots.

Parcels A, C, E, E-1, E-2, E-4, E-5, F, and G-2 do not have automobile parking. Parcels E, E-1, and E-2 are dry boat storage lots. Parcels E-4 and E-5 are wet boat parking.

FIGURE 12 SAN MATEO COUNTY HARBOR DISTRICT PARCEL MAP

On-street parking is not allowed on Oyster Point Boulevard and Gull Drive. On-street parking is available in the area along Marina Boulevard with 30-minute time limits.

Off-street parking requirements for the City of South San Francisco are listed by land use in Figure 13 below. Aside from the required number of spaces, the zoning code also establishes design-related regulations for parking structures in Oyster Point Specific Plan District that relate to reducing their physical presence.

FIGURE 13 REQUIRED ON-SITE PARKING SPACES IN THE CITY OF SOUTH SAN FRANCISCO

REQUIRED ON-SITE PARKING SPACES	
Land Use Classification	Required Parking Spaces
Public and Semi-Public Use Classifications	
Colleges and Trade Schools, Public or Private	1 per 3 members of the school population (including students, faculty, and staff) based on maximum enrollment.
Community Assembly	1 for each 4 permanent seats in main assembly area, or 1 for every 28 sq. ft. of assembly area for group activities or where temporary or moveable seats are provided.
Cultural Institutions	For theaters and auditoriums: 1 for each 4 permanent seats in main assembly area, or 1 for every 50 sq. ft. of assembly area where temporary or moveable seats are provided. Galleries, Libraries and Museums: 1 for every 1,000 sq. ft. of floor area. Other establishments: determined by the Chief Planner.

REQUIRED ON-SITE PARKING SPACES	
Land Use Classification	**Required Parking Spaces**
Emergency Shelter	1 per 200 sq. ft. of floor area.
Government Offices	1 per 300 sq. ft. of floor area.
Schools, Public or Private	Elementary and Middle Schools: 1 per classroom, plus 1 per 250 sq. ft. of office area. High Schools: 7 per classroom.
Commercial Use Classifications	
Banks and Financial Institutions (All subclassifications)	1 per 300 sq. ft. of floor area.
Building Materials and Services	1 per 500 sq. ft. of floor area; 1 per 1,000 sq. ft. of outdoor display area.
Business Services	1 per 300 sq. ft. of floor area.
Commercial Recreation	Establishments with seating: 1 for each 4 fixed seats, or 1 for every 50 sq. ft. of seating area where temporary or moveable seats are provided. Athletic Clubs: 1 per 150 sq. ft. of floor area. Bowling alleys: 2 per lane. Golf Courses: 6 per hole Golf Driving Ranges: 1 per tee Miniature Golf: 2 per hole Game Courts (e.g. tennis): 2 per court Swimming pools: 1 per 200 square feet of pool area plus 1 per 500 feet of area related to the pool. Other Commercial Entertainment and Recreation uses: to be determined by Chief Planner.
Eating and Drinking Establishments	
Bars/Night Clubs/Lounges	1 per 75 sq. ft. of customer seating area.
Coffee Shops/Cafes	1 per 100 sq. ft. of customer seating area.
Restaurants, Full Service	1 per 75 sq. ft. of customer seating area; no parking is required for outdoor seating when seats provided equal to 50 percent or less of total indoor seating.
Restaurants, Limited Service	1 per 100 sq. ft. of floor area.
Food and Beverage Retail Sales	1 per 300 sq. ft. of floor area.
Lodging	
Bed and Breakfast	1 per room for rent in addition to parking required for residential use.
Hotels and Motels	1 per each sleeping unit, plus 2 spaces adjacent to registration office. Additional parking required for ancillary uses, such as restaurants, according to the parking requirements for the ancillary use. See Subsection 20.330.006(C) Airport-Oriented Hotels and Motels.
Live-Work	1.5 per unit or 1.5 for every 1,000 sq. ft. of floor area, whichever is greater

REQUIRED ON-SITE PARKING SPACES	
Land Use Classification	**Required Parking Spaces**
Maintenance and Repair Services	1 per 600 sq. ft. of floor area, plus one space for each fleet vehicle.
Offices	
Business and Professional	1 per 300 sq. ft. of floor area up to 100,000 sq ft. 1 per 350 sq. ft over 100,000 sq. ft.
Medical and Dental	1 per 200 sq. ft. of floor area.
Walk-In Clientele	1 per 300 sq. ft. of floor area.
Parking, Public or Private	1 per attendant station (in addition to the spaces that are available on the site).
Personal Services	1 per 300 sq. ft. of floor area.
Retail Sales	1 per 300 sq. ft. of floor area. 1 per 750 sq. ft. of floor area for appliance and furniture stores.
Neighborhood	4 spacer per 1,000 sq. ft.
Community	4.5 spacer per 1,000 sq. ft.
Regional	5 spacer per 1,000 sq. ft.
Employment Use Classifications	
Intermediate Processing Facility	1 for each 2 employees on the maximum work shift, or 1 per 1,000 sq. ft. of floor area, whichever is greater.
Research and Development	1 per 350 sq. ft.
Salvage and Wrecking	1 per 500 sq. ft. of building area plus 1 per 0.5 acre of gross outdoor use area.
Warehousing and Storage	
Freight/Truck Terminals and Warehouses	As provided in the Parking and Circulation Study required pursuant to Section 20.350.019, Freight/Truck Terminals and Warehouses.
Indoor Warehousing and Storage	1 per 2,000 square feet of area up to 10,000 square feet, 1 per 5,000 square feet over 10,000 square feet, plus 1 per 300 square feet of office
Outdoor Storage	1 per 2,000 square feet of area up to 10,000 square feet, 1 per 5,000 square feet over 10,000 square feet, plus 1 per 300 square feet of office
Personal Storage	1 space per 75 storage units, plus 1 space per 300 square feet of office area. A minimum of 5 spaces shall be provided.
Wholesaling and Distribution	1 per 2,000 sq. ft. of use area up to 10,000 sq. ft., 1 per 5,000 sq. ft. over 10,000 square feet, plus 1 per 300 sq. ft. of office plus 1 truck parking space for each delivery vehicle on-site during the peak time.
Transportation, Communication, and Utilities Use Classifications	
Light Fleet-Based Services	1 per 300 sq. ft. of office floor area, plus one space for each fleet vehicle.
Transportation Passenger Terminals	To be determined by the Chief Planner.

REQUIRED ON-SITE PARKING SPACES	
Land Use Classification	Required Parking Spaces
Utilities, Major	1 for each employee on the largest shift plus 1 for each vehicle used in connection with the use. Minimum of 2.
Utilities, Minor	None.
Waste Transfer Facility	To be determined by the Chief Planner

Source: City of South San Francisco Ordinance. 1432 § 20.330.004, 2010

WETA AND EMERGENCY PREPAREDNESS

The Water Emergency Transportation Authority (WETA) operates ferry service on the San Francisco Bay. As a result of Senate Bill 976, the agency is also tasked with coordinating the water transit response to regional emergencies that slow or disable the Bay Area transportation system. In the event of such an emergency, WETA is responsible for the following:

- Coordinating response efforts with local, state and federal agencies as well as coordinating the emergency water transportation response with the Golden Gate Bridge Highway and Transportation District (GGBHTD) and private passenger vessel operators
- Providing passenger water transit service

In this context, ferries will be utilized to:

- Assist with the transportation of law enforcement, disaster service workers, and other first responders
- Provide evacuation assistance for heavily damaged or unsafe areas
- Provide increased transit service, especially in corridors where other existing transportation options are affected or no longer functional

While WETA's San Francisco Bay Ferry service to South San Francisco / Oyster Point is currently limited to five daily departures and five daily arrivals, in the event of an emergency the facility could see increased ferry activity. For example, during the 2013 Bay Area Rapid Transit (BART) strike, an additional ferry run was added to the South San Francisco route, corresponding with a 134% increase in ridership (595 riders vs. an average of 255 daily riders). Similarly, during the closure of the Bay Bridge in the late summer of 2013, a 53% spike in ridership was observed.[22]

WETA does not maintain specific facilities for the sole purpose of emergency response, primarily due to the lack of an operating subsidy for such purpose. Such facilities would require on-going maintenance and rehabilitation to ensure their smooth operation in the event of an emergency. WETA is currently investigating options for dedicated emergency response facilities. However, current policy is to utilize existing ferry terminals in the event of an emergency. As such, the Oyster Point terminal could potentially be utilized as a staging area for disaster relief efforts in San

[22] Summary of 2013 Emergency Response Activities, Water Emergency Transportation Authority (June 2014) http://sanfranciscobayferry.com/sites/default/files/weta/publications/Summary2013EmergencyPreparednessResponseActivities.pdf

Francisco and/or Oakland. The terminal could serve as a destination for evacuation efforts, as well as an access point for first responders to heavily affected areas. It would be a particularly important emergency facility in the event of heavy damage to the Bay Bridge, the Transbay Tube, Highways 101 and 280, and other major access points to the urban centers of the Bay Area (such as San Francisco and Oakland). After the response phase of a disaster, the terminal could serve a continued role in recovery efforts, including expanded ferry service in the event that other major transportation infrastructure is under repair.

A.3: PILLAR POINT HARBOR FACILITIES ASSESSMENT

EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT

SAN MATEO COUNTY HARBOR DISTRICT
STRATEGIC BUSINESS PLAN

DECEMBER 2014

moffatt & nichol

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Attachment D: Facility Condition Assessment Sheets

EXECUTIVE SUMMARY

This report addresses the condition of the Pillar Point Harbor marina facility on the California Coast at Princeton operated by the San Mateo County Harbor District. The facility has been in operation since the early 1960s and had major additions in the 1980s. The facility has full time staff who operate and maintain these facilities. The replacement value of the facility is $32 million, as shown on Table 1. The marina is now more than 50 years old and many of the facilities within are near or beyond the expected useful life—the nominal life often used for depreciation.

Because the facility has been maintained, they can be expected to remain in service beyond the expected useful life with increased maintenance effort and cost. At some point the cost or effort to maintain the facility exceeds the replacement cost or the decreased function or appearance of the facility affects revenue at which point it should be replaced. This report identifies and prioritizes maintenance of the facilities and identifies those that are in need of replacement. The floating docks are the greatest asset in terms of replacement cost and a primary factor in the appeal and revenue potential of the marina. The fuel dock is in poor condition and should be replaced or refurbished in the next 1-2 years. The fuel dock is regularly inspected by Harbor Staff and other agencies. All other docks are in fair condition and are serviceable and can remain in service for at least 5 years with increased maintenance. There are no conditions at either marina that pose an immediate threat to life safety or loss of function to boat mooring and access to the water.

The assement of the condition of the facility was performed by gathering information from the Marina staff including the staff's identification of known deficiencies and items in need of maintenance or replacement. This information, supplemented by visual observations by our engineers of the marine facilities (docks, piers, and breakwaters), buildings and site facilities (paving, utilities, and lighting) was used to assess the condition of facilities. Based upon the condition, needed repairs were identified, costs estimated and categorized (capital, maintenance or improvement) and prioritized from 1 (highest) to 3 (lowest). All repairs identified will continue to extend the useful life and replace those items that are beyond the useful life to ensure continued function.

A total of $2.0 million worth of repairs were identified to be performed over the next 5 years—the planning horizon. Some of the major components include replacement of the fuel dock, providing ADA accessibility to the Harbor Master Building, improving security and safety at the dock gates, and increasing the electrical capacity on Johnson Pier-currently in design in a separate SMCHD project.

The assessment also addresses the potential effects of Sea Level Rise at the marina. The largest impact will be increased vulnerability to the already failing slope protection on the west portion of the harbor.

TABLE 1: FACILITY ASSETS

	Asset Life (YR)			
Facility	**Installed**	**Useful Life**	**Remain**	**Replacement Cost ($)**
Marine				**$ 23,901,050**
Boat Ramp	1992	40	18	$ 4,750,000
Dock A	1985	30	1	$ 1,420,150
Dock B	1985	30	1	$ 1,020,150
Dock C	1985	30	1	$ 1,540,150
Dock D	1987	30	3	$ 980,150
Dock E	1987	30	3	$ 1,150,150
Dock F	1987	30	3	$ 1,610,150
Dock G	1987	30	3	$ 1,690,150
Dock H	1987	30	3	$ 1,760,000
Fishing Pier	1989	50	25	$ 300,000
Fuel Dock	1985	30	1	$ 800,000
Johnson Pier	1961	50	-3	$ 5,920,000
Seawall	1961	50	-3	$ 960,000
Buildings				**$ 4,650,000**
Fish Buyer Building	1961	30	-23	$ 590,000
Harbor Master	1961	30	-23	$ 750,000
Ice House	1985	25	-4	$ 200,000
Maintenance	1979	35	0	$ 180,000
Restroom Comm	1961	40	-13	$ 250,000
Restroom Ramp	1992	25	3	$ 150,000
Restroom West	1982	40	8	$ 150,000
Tenant Row	1961	35	-18	$ 2,380,000
Site				**$ 3,810,000**
Johnson Pier Rd	1961	25	-28	$ 120,000
Main Lot	1961	25	-28	$ 720,000
Middle Lot	1982	25	-7	$ 120,000
North Lot	1992	25	3	$ 1,000,000
Pillar Pt Bl	1961	25	-28	$ 540,000
Restroom	1982	25	-7	$ 110,000
Site Utilities	1961	25	-28	$ 720,000
West Shore	1982	25	-7	$ 480,000
Grand Total				**$ 32,361,050**

TABLE 2: REPAIR PROJECT PRIORITIZED COSTS

Repair Costs ($)					
	Priority				
Repair Project Type	**1**	**2**	**3**	**4**	**Total**
Capital	**$420,000**	**$800,000**	**$255,000**	**$10,000,000**	**$11,475,000**
Access/Existing	$25,000				$25,000
ADA/Accessibility	$25,000				$25,000
ADA/Access	$30,000				$30,000
Boat Ramp and Floats		$10,000			$10,000
Dock Bumpers		$40,000			$40,000
Electrical			$15,000		$15,000
Fire System		$30,000			$30,000
Floats			$200,000		$200,000
Gangway		$110,000			$110,000
Gate structure	$75,000				$75,000
Guide piles			$20,000		$20,000
Lighting	$30,000				$30,000
Misc	$10,000	$35,000			$45,000
Oil Bilge Separator		$50,000			$50,000
Piles	$30,000	$40,000			$70,000
Resurface lots		$200,000			$200,000
Roads	$20,000				$20,000
Security			$20,000		$20,000
Street Lights		$25,000			$25,000
Striping		$30,000			$30,000
Water Heater	$5,000				$5,000
Water-Under Pier Utilities		$30,000			$30,000
Restroom LR		$200,000			$200,000
Floats				$10,000,000	$10,000,000
Fuel Dock	$200,000				$200,000
Maintenance	**$53,000**	**$115,000**	**$115,000**		**$283,000**
Access/Exiting		$4,000			$4,000
Cleats	$10,000				$10,000
District Owned		$10,000			$10,000
Doors		$3,000			$3,000
Exterior Lighting	$3,000				$3,000
Floats			$100,000		$100,000
Floor		$6,000	$5,000		$11,000
Floors	$4,000				$4,000
HVAC	$10,000				$10,000
Interior		$60,000			$60,000
Misc		$5,000			$5,000
Paint/finish	$5,000				$5,000
Pile Caps			$10,000		$10,000
Roads		$5,000			$5,000
Sidewalk	$5,000				$5,000
Signage	$2,000				$2,000
Tenant Improvements		$5,000			$5,000

Repair Costs ($)					
	Priority				
Repair Project Type	**1**	**2**	**3**	**4**	**Total**
Transformers		$10,000			$10,000
Utilities on docks	$5,000				$5,000
Walls	$9,000				$9,000
Warehouse		$3,000			$3,000
RR Comm Doors		$4,000			$4,000
Improvement	**$30,000**	**$400,000**	**$33,000**		**$463,000**
Elec Abnd	$30,000				$30,000
Landscape			$33,000		$33,000
Switch Gear/ Transformer		$400,000			$200,000
Grand Total	**$503,000**	**$1,315,000**	**$403,000**	**$10,000,000**	**$12,221,000**

1. INTRODUCTION

The purpose of this report is to provide a summary of the facility condition survey (FCS) performed at Pillar Point Marina (Pillar Point) located in Half Moon Bay, California. San Mateo County Harbor District (SMCHD) asked Moffatt & Nichol (M&N) to visually inspect and evaluate the conditions of the waterside and shoreside structures at the facility. This report identifies the components that require repairs, a prioritized schedule for repair and maintenance of each survey component (i.e., docks, hoists, buildings, etc.), and costs for repair.

The inspections were performed in February and March 2014. Photographs of deficiencies, along with general photographs referenced in this report are provided in Attachment A. Attachment B presents the locations of the various facilities, and Attachment D lists the deficiencies at these facilities.

1.1. SCOPE

The services performed for this report are based upon our proposal dated November 4, 2013 and summarized here:

1. Meet with SMCHD staff to receive information and input on known deficiencies at Pillar Point to serve as the basis for the FCS.

2. Perform on-site inspections over 4 person-days at each marina to observe the overall condition of:

- Waterside: floats, docks, piers, ramps, moorings, and utilities (topside and in a boat)

- Shore side: buildings, mechanical and electrical systems, road and parking lot paving, storm drains, signage, and electrical distribution

- Identify Code deficiencies observed on site

3. Prepare a Report on the Condition Survey to include:

- Condition Ratings of each component

- Estimated remaining life span expectancy in 5 year increments (e.g. 5, 10, 15, etc.)

- Costs: 5-Year costs to repair, presented as estimated Maximum Allowable Construction Cost (MACC) including an inflation factor

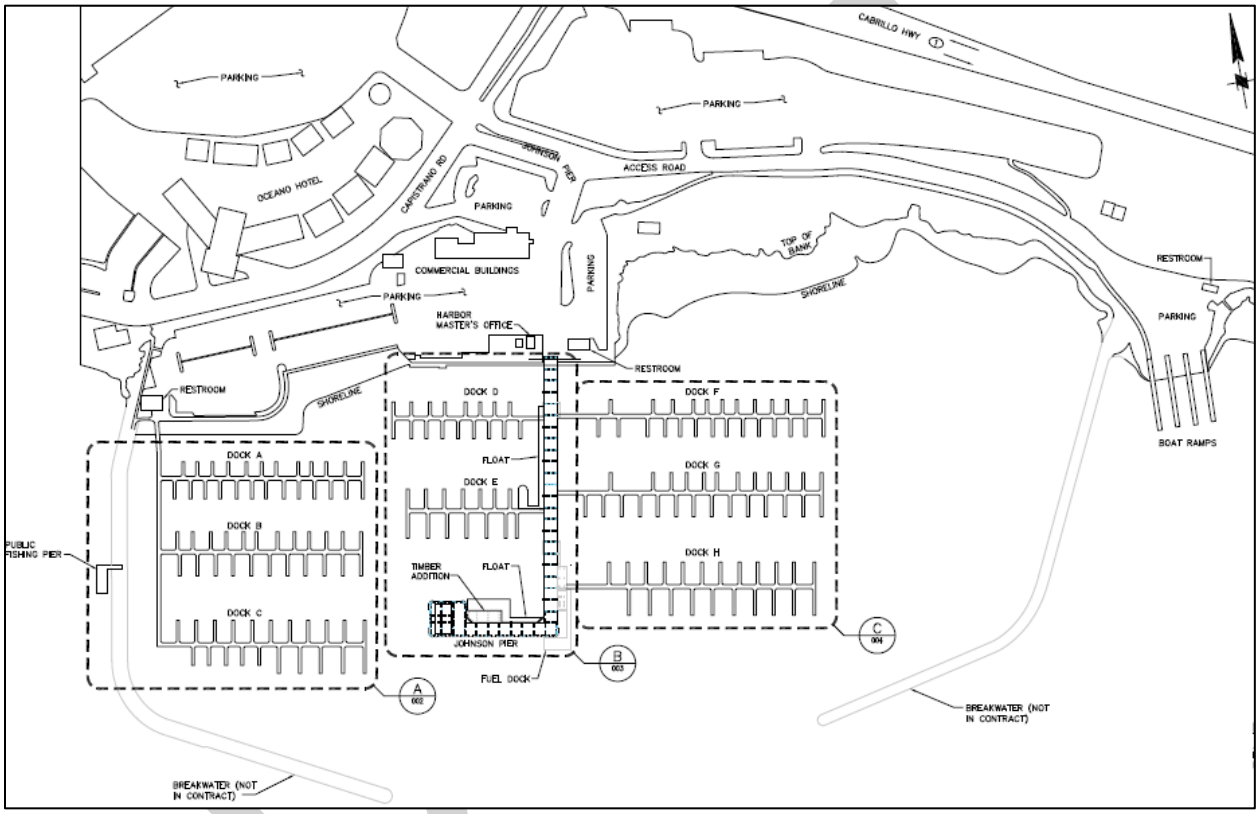
- Repair priority based on the condition, remaining life expectancy, and fire/life safety considerations

1.2. DESCRIPTION OF FACILITIES

Pillar Point Harbor includes a working fishing pier, 369-berth marina, commercial fishing facilities, floating docks, backlands buildings and other facilities. A figure showing the layout of Pillar Point is provided in Figure 1 and a larger version is provided in Attachment B.

The visual assessments of the eight buildings were conducted during February 2014. The building inspection consisted of the harbor office, the maintenance shop, tenant row, the fish buyer building, the ice house, and three restroom buildings.

FIGURE 1: PILLAR POINT SITE PLAN (SEE LARGER VERSION IN ATTACHMENTS)



1.3. METHODOLOGY

The facility survey was based upon input received from SCMHD onsite personnel at meetings held on December 18, 2013. Following the meeting, engineers made visual observations onsite of the conditions of the facilities during January to March 2014. The bulkhead seawall at Pillar Point were observed by boat. The conditions were rated using a system similar to that used on the previous condition assessment report ("SCHD Marina Evaluation, October 2007 Bluewater Design Group) to facilitate comparison of the changes over time. Once the condition was rated, the priority and cost and any needed repair or replacement was determined. The methods for these 3 parameters of condition, priority and cost are described following.

Condition Rating is a numeric score from 0 through 100 given for each component that allows ranking comparison of facilities. The number is based upon visual observations of the facilities qualitative condition as described in Table 3. The remaining service life is the amount of time the component is expected to remain serviceable without further maintenance, in its present condition. The range is generally five year intervals, such as "5-10" or "10-15." The measure of remaining service life is to be distinguished from the "useful life" that is used in the valuation of an asset, described below.

The overall rating of an entire system, such as a group of docks (e.g. Dock 4 at Oyster Point) is comprised of the average of all of the individual ratings given to each item within the system (e.g. each dock finger and the main walkway), compiled within a spreadsheet from the onsite ratings.

TABLE 3: CONDITION RATING

Condition	Description	Remaining Service Life	Condition Rating
NEW (N)	Like-new condition	More than 15	100
GOOD (G)	Generally new condition	10-15	80
FAIR (F)	Serviceable condition, lightly worn due to normal wear	5-10	60
WORN (W)	Exhibits cracking, corrosion, or other indicators of deterioration. Still serviceable but requires maintenance to extend the service life.	Less than 5	40
REPLACE (R)	Worn to the point of needing immediate replacement or major repair.	Should replace in 1-2 years	20

Priority is the level of importance or urgency that the component should be repaired or replaced. The numeric assignment is based upon safety and the function of the component as follows:

1. System or element is in failure, or is expected to fail in the next year. Safety: Such failure will pose significant risk of injury. Function: will adversely affect the facilities ability to operate (e.g. separation of a dock would block access to the remaining dock even if not a safety risk)

2. System or element is currently functional, but has a probability of failing before the next scheduled inspection or 5 years. Safety: such failure poses little risk to safety. Function: may result in a temporary and minor loss of facility operations.

3. System or element is expected to remain functional until the next scheduled inspection or at least 5 years. If failure does occur, it poses no safety risk and will not likely result in the significant loss of facility operation

Cost- the cost for repair or replacement is based upon the following

- Means Building Construction Cost Data and Heavy Construction Cost Data
- Cost data from construction of similar projects
- Input from SCMHD and Engineering judgment

Type –The cost and type of repair or replacement project is further broken out into a budgetary category as follows:

C- Capital - One time repair or replacement typically costing over $10,000 to correct.

M- Recurring Maintenance - Repair/maintenance actions that occur with a frequency of less than 10 years with a cost of less than $10,000 per action

M1- Scheduled Maintenance - Repair/maintenance actions that typically occur annually or more frequently with a cost of less than $5,000 per year.

I- Improvement-a repair or replacement that provides greater functionality than the existing system.

Asset Life

When a facility is first placed in service (new) it is assigned a nominal "useful life"-a duration of time during which function can be expected with little or no maintenance. The duration is based upon experience with the type of facility. For example, a concrete structure may have a useful life of 50 years, where the same structure built of timber may have a useful life of 30 years. This duration is often used for depreciating an asset in financial planning. The remaining useful life is the difference between the years an asset has been in service and the original useful life. The remaining useful life is guideline in planning of maintenance and replacement costs; as it approaches 0 increased maintenance to extend the service life (actual years in use, described previously) or replacement should be planned.

Facility Groups

The facilities within the marinas were classified into 3 groups: Marine, Buildings and Site and given number groups by hundreds with which to identify individual features as follows:

- Marine
    - 100 Docks (floats, piles)
    - 200 Gates (access pier, gate, gangway)
    - 300 Structures (piers, boat ramps, bulkhead, rip rap)
- Buildings 400 (shoreside and on piers)
- Site 500 (Roads, parking lots, paving, utilities, lighting)

For example the gates are number 201, 202, etc. and buildings 401, 402, etc in addition to their existing names. The plans of each marina (Attachment B) and the Detail Condition Survey Sheets (Attachment D) use these numbers to group and identify features.

These procedures and symbols were used to record the data in the inspection, and are used in this report to present the results of the survey.

2. CONDITION ASSESSMENT

2.1. WATERSIDE

DOCKS (A-H)

Cleats are in good condition with a few isolated exceptions. Many of the cleats on the fuel pier are corroded and the anchorage is pulling out due to the warping timbers. Replacement and reattachment has been performed as ongoing maintenance and should continue. Many of the rub strip fenders are worn or loose on the docks and should be replaced or reattached.

GUIDE PILES

All the guide piles are in good condition, no deficiencies were found.

PILE GUIDES

The pile guides at all the docks consist of steel angles bolted to the dock surface. The pile guides are generally in good condition. One of the five pile guides at the fuel dock should be replaced within the next two years, as the corrosion of the frame prevents the roller from being able to rotate. The locations of this guide can be found in Attachment B.

UTILITIES

The utilities on the docks at Pillar Point are new within the last 10 years. The boxes for utilities are generally in good condition. There are a few locations of corrosion on the boxes, and it is recommended to recoat these areas during the normal maintenance cycle. The hangers are in good condition.

2.2. GATE STRUCTURES

Only Dock A has a locked gate that restricts access onto the docks. The gates on Johnson pier do not have controlled access. Locking gates and wing walls should be installed to provide better security onto the docks.

GANGWAYS

The gangways are in good condition. The walking surface is even and has non-slip surfacing although some has been worn and should be replaced or recoated.

ADA/ACCESSIBILITY

Currently there is not an accessible gangway at Pillar Point. To comply with ADA guidelines, a gangway of 80 ft length should be installed and a number of slips should be designated that have the proper clearances and widths.

2.3. MARINE STRUCTURES

BOAT RAMP AND FLOATS

The boat ramp is 22 years old. Most of the flotation tubs are in good condition, however the fiberglass tubs closest to the land have a few large cracks in them. The nonskid coating on the upper portion of the floats has worn and should be recoated.

JOHNSON PIER

The pier is in good condition. The pavement and concrete substructure have no visible deficiencies. There is a small amount of efflorescence (salt seepage) on the underside of the dock, which should be monitored. It is normal to have some efflorescence, but too much can signify problems in the concrete.

A pile has been damaged at the fish sales dock and should be replaced. This was due to a vessel collision.

PIER

The fishing pier is a timber structure supported on concrete piles. The condition of the timber and concrete is good, there were no visible deficiencies with the exception of the bolts for the timber handrails. The bolts securing the handrails appear to be too close to the edge of the wood and are causing large splits in the wood. The handrail could potentially not be able to withstand the California Building Code design loads. The handrail posts and bolts should be replaced at these locations.

2.4. BUILDINGS

FISH BUYER BUILDING:

STRUCTURAL

This is a two story building with 2,200 square foot lower floor and 1,600 square foot upper floor at the west end of Johnson Pier. No information was provided on the age of construction. This building appears to be in fair condition structurally. The roof and second floor are plywood over wood framing and the walls are wood studs over four feet high reinforced concrete stem walls. The walls are sheathed with plywood and there are interior walls between the three tenant spaces and large roll up doors at the front and back of each space. The floor is the concrete pier deck which is supported by concrete piles. The finishes consist of built up roofing, exterior wood siding and interior gypsum board. This building services commercial fisheries and we observed several tenant modifications to the building (Photograph 1). It was reported that there had been a fire on the west side of the second floor between the northern tenant's space and the center tenant's space and repair work done (Photograph 2).

The General Condition of the Exterior and Access

The condition of the exterior is generally fair to worn. The siding and exterior paint are in fair condition. The paint is consistent and shows little signs of wear. The exterior windows seem to be in fair condition and do not show excessive signs of leaking or wear. Several exterior man-doors are showing signs of moderate to severe corrosion around the door and the frame. Some of the man-doors have had their operating hardware removed, possibly due to excessive corrosion. Gutters and downspouts look to be in fair condition, with the exception of one downspout on the northeast corner of the building which has separated from the gutter. The roll-up doors are in good condition and may have been recently replaced.

The exit path from the west end of the Pier, behind the building, is blocked on the north side of the building due to equipment located there. This should be relocated to allow a clear exit path.

The General Condition of the Interior Layout and Finishes

Because the interior of the building is the responsibility of the tenant, the interior survey was limited to a general overview. The interior improvements vary depending on the various tenants. The most common areas of wear were the stair handrails, interior doors and restroom fixtures.

Suggested Accessibility and Operational Improvements

There is demand for electric service of 480 volt 3 phase at the building (see 2.6-Transformers).

Suggested Deferred Maintenance and Repair

1. Replace all exterior man-doors and frames
2. Repair gutter and downspout on the northeast side
3. Patch and paint small areas of corrosion on exterior

Ice House:

Structural

This is a two story building with a 600 square foot upper floor which houses the ice generating equipment and the lower floor stores the ice. No information was provided on the age of construction. This building appears to be in fair condition structurally. The roof consists of built-up roofing over plywood supported by 2x roof rafters slightly sloped to the west side of the building. The walls are conventionally frame stud walls with plywood sheathing with aluminum siding over rigid foam board insulation. The building is built over a concrete pile supported reinforced concrete deck adjacent to the southeast side of Johnson Pier (Photograph 3). Adjacent to the ice building is a 130 square foot modular building which serves as the ice plant and fueling office.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

The exterior paint and siding are mostly in good condition. Areas near the base of the building show signs of damage from equipment and corrosion from resulting damage.

There are no downspouts connected to the gutter system on the west (pier) side.

Conduit cover box on the north side of the building is severely corroded and needs to be replaced.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The interior is all equipment and ice storage.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

None

SUGGESTED DEFERRED MAINTENANCE AND REPAIR

1. Minor repairs to the damaged siding
2. Replace corroded conduit cover
3. Install downspouts on the west side

SEAWALL

The seawall is in good condition. There is some minor cracking and spalls of the concrete on the cap that connects the concrete sheets together.

2.5. SHORESIDE

BUILDINGS

HARBOR OFFICE BUILDING:

STRUCTURAL

This is a one story 2,300 square foot building with a 200 square foot second story observation tower estimated to have been constructed in late 1950s or early 1960s. Structurally this building appears to be in fair condition. The roofing is asphalt shingle over the sloped portions of the wood framed mansard roof and built-up roofing on the flat portions. The observation tower has wood framed walls and the first floor walls are a mix of masonry and conventional wood framing (Photograph 4). The foundation consists of a raised reinforced concrete slab on grade. The finishes consist of exterior wood siding and interior gypsum board. Based on the estimated age of the original construction we suspect that the anchorage of the masonry walls to the roof framing is not adequate for earthquake loading.

The Building Functions and Operations Consist

The building houses all of the administrative functions of the harbor and consists of at least two distinct phases of construction. There is a small waiting area and service counter. Behind which is an office for the front desk staff. There are (3) private offices in the building for the Harbor Master and other administrators. There is also an open workspace/corridor for file storage, server/telecommunications, and copying. At the western end of the building is a break room with a full kitchen. Improvement drawings of the harbor are stored in open tubes on the west end of the building. There are (2) single-occupancy restrooms and a locker area with a single shower. There is an observation tower which is accessed by a steep and narrow stair.

The General Condition of the Exterior and Access

The entrance to the front of the building is not ADA-compliant. The ramp at the rear of the building is outdated and needs to be updated to current ADA standards.

Exterior siding looks to be in good condition. The paint overall is consistent and shows no signs of leaks or cracking. There is some cracking and peeling on the southern face of the observation tower.

The roof also looks to be in good condition. The north side of the roof has moss growing in between the shingles. The eaves and soffits look to have been recently painted and are in good condition. Gutters and downspout look new and are in good condition. Exterior windows are in good condition and show no signs of leaking or corrosion.

The General Condition of the Interior Layout and Finishes

The main entry and pathways throughout the building are not ADA-compliant. The front counter is also not at an ADA compliant height. Currently, H.C. access is on the north side of the building at the expansion.

There are six different types of floor finishes throughout the building: three different types of tile and three different colors of carpet. All the floors are in worn condition. The walls are scuffed and scratched throughout from general wear and are in worn condition. The lay-in grid ceiling shows damage in some places over the copying area.

The shower and locker area are in worn condition. The tile in the shower is cracked and missing in some places and shows heavy signs of staining. The fixtures are worn but functioning. The restroom finishes are similarly worn.

The kitchen in the break room looks to be recently remodeled. The finishes and appliances are in good condition.

Lighting controls throughout the building are in fair condition. Controls in the break room are in need of repair.

The finishes in the observation tower are in worn condition. The carpet is stained and worn through in some places. There are significant scratches and scuffs on the walls and the window sills are in need of replacement.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

1. Create an accessible ramp to the main entrance of the building
2. Upgrade ramp on the north side of the building
3. Remodel restrooms; potentially changing their location for accessibility
4. Rework interior of building for complete ADA compliance

Suggested Deferred Maintenance And Repair

1. Replace restroom and shower finishes
2. Upgrade and standardize floor finishes throughout the building
3. Install new ADA compliant service counter
4. Repair lighting controls throughout the building
5. Repair ceiling grid in copy area

MAINTENANCE BUILDING:

STRUCTURAL

This building was originally constructed as a one story 1,000 square foot warehouse in the late 1960s and appears to be in fair condition structurally. The mansard roof consists of 1/2" plywood over 2x wood rafters at 24" supported by 2x12 joists at 16". The exterior walls are reinforced concrete masonry over a reinforced concrete spread footing foundation. The anchorage of the masonry walls to the roof framing appears to not be adequate for earthquake loading. The north side of the building is built into the hill side below Capistrano Road. The floor is concrete slab on grade. A wood framed mezzanine has been added to the west end of the building. The mezzanine's wood framing is supported by wood ledgers bolted through the masonry walls. At the northeast side of the building, there appears to be a 120 square foot addition with a lower roof height (Photograph 5). This appears to be constructed of similar material. The finishes consist of asphalt shingle on the sloped portions of the roof and build-up roofing on the flat portions.

THE BUILDING FUNCTIONS AND OPERATIONS

The building houses all the maintenance materials and equipment. There are work benches and work areas for the maintenance staff.

The General Condition of the Exterior and Access

The exterior walls look to be in fair condition. The paint looks to be consistent throughout with only a few areas of discoloration. The roof is also in fair condition. There is moss growing in between the shingles on the north side. Bolts visible on the west exterior facade above the door are corroding and staining the wall.

The gutters and downspouts look to be in fair condition. The soffit vents and fascia board, however, are beginning to deteriorate.

The exterior man-doors are showing signs of moderate to severe corrosion. The frames and door hardware are showing similar signs of corrosion and are beginning to fail. The exterior windows on the south side of the building are in fair condition. There are few signs of corrosion. Two of the windows have been boarded up with plywood and painted the same color as the rest of the building.

Conduit running along the exterior of the building is in worn condition. Most of it is showing signs of corrosion moderate corrosion. Some areas have begun to detach from their mountings to the wall. In places, there is exposed romex cable that should be enclosed in conduit.

The General Condition of the Interior Layout and Finishes

The second floor of the maintenance building contains the staff locker rooms. The finishes are generally in worn condition and in need of replacement.

There is a lack of adequate heating and ventilation in the locker room.

Suggested Accessibility and Operational Improvements

None

Suggested Deferred Maintenance and Repair

1. Replace exterior conduit
2. Replace exterior soffits and fascia board
3. Address areas of corrosion
4. Replace corroded doors and frames
5. Repair/replace (2) boarded up windows
6. Replace interior finishes in upstairs locker room
7. Improve heating and ventilation in upstairs locker room

TENANT ROW BUILDING:

STRUCTURAL

This is primarily a one story building with masonry walls and a timber framed mansard roof. No information was provided on the age of construction however, it appears to be constructed in the late 1960s or early 1970s around the same time as the harbor office building and maintenance shop. Structurally this building appears to be in fair condition. It has asphalt shingle on the sloped portions of the roof and build-up roofing on the flat portions. On the west side a portion of the building is two stories and there is a large enclosed glass sun room (Photograph 6). On the northwest side of the building there is a two story portion of the building that extends to an upper parking lot (Photograph 7). The south wall has several large openings with timber header above (Photograph 8). Based on the estimated age of the original construction, the anchorage of the masonry walls to the roof framing is most likely inadequate for earthquake loads. Portions of the exterior masonry walls have been covered by wood siding. Interior walls appear to be wood framed with gypsum board.

THE BUILDING FUNCTIONS AND OPERATIONS

This building houses five businesses ranging from a seafood market to a surf shop.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

There is one H.C. accessible parking space with compliant striping on the east end of the building and one on the west end of the building. The space on the west end of the building does not have a striped access aisle. The H.C. space on the west end also does not have an ADA compliant approach ramp. The H.C. parking space on the east end has an approach ramp but should be updated.

Each of the businesses has varying degrees of non-compliant thresholds at the doors as well as short ramps that are too steep.

Most of the exterior finishes are in good condition. Exterior paint and siding is in good condition and show no unexpected signs of wear. Soffits look recently painted and are in good condition. Gutters and downspouts are in good condition. The roof overall is in good condition. The north side of the roof has spots where water from other parts of the roof are draining onto them and moss is growing in between the shingles.

Aluminum storefront windows and doors on all businesses are in good condition and show little sign of leaking or corrosion.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

1. Update parking striping
2. Replace approach ramps with compliant design
3. Rework sidewalks and entrance thresholds to be ADA compliant

SUGGESTED DEFERRED MAINTENANCE AND REPAIR

None

RESTROOM #1:

STRUCTURAL

Restroom #1 is a one story 1,200 square foot building with wood framed mansard roof and masonry exterior walls in fair condition (Photograph 9).

THE BUILDING FUNCTIONS AND OPERATIONS

This restroom is located on the west end of the harbor site. This facility contains a men's and women's restrooms, showers and a laundry facility in the men's side. Access is controlled with key fob access points to each side. There is also a janitors room in between the men's and women's facilities.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

There is one H.C. accessible space outside this restroom. The accessible route from this space is in worn condition. There is alligatoring in the asphalt. The ramps leading to the showers are too steep and do not have compliant handrails.

The exterior block walls are in fair condition. There are areas of efflorescence on the southern face. The soffits and fascia board are in good condition. The roof looks to be in good condition and shows little signs of wear. The windows have metal grates which are in good condition. Exterior doors, also, look to be in good condition. There is some patching of the concrete block over the main entrances to the men's and women's restrooms.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The interiors of both the men's and women's restrooms and showers look to have been recently remodeled. Finishes and fixtures look new and show little sign of wear. The laundry facility also looked to be in good condition.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

1. Improve access path from H.C. accessible parking space
2. Update ramps leading to showers at the west restroom

SUGGESTED DEFERRED MAINTENANCE AND REPAIR

Address efflorescence on the south side of the building.

RESTROOMS #2:

STRUCTURAL

Restroom #2 is a one story 900 square foot building with wood framed mansard roof and masonry exterior walls with exterior wood siding in fair condition (Photograph 10). Similar to the other buildings with masonry walls, we suspect that the anchorage of the masonry walls to the roof framing is not adequate.

THE BUILDING FUNCTIONS AND OPERATIONS

This restroom is located across from the Harbor Office. It has men's and women's restrooms and two shower facilities. Access to the restrooms is public; however showers can only be accessed via key fob.

The showers at this restroom are only accessible by stairs. This may not need to be changed to a ramp because the "like facilitation" provision of an ADA accessible ramp is available at the Restroom #1.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

There is a ramp leading to the main entrance of the restrooms, however they are on the other side of the building from the two H.C. accessible parking spaces. This ramp and handrails do not meet current ADA standards. The condition of the ramp and handrails is fair. There is some paint wear on the handrail. The showers do not have a H.C. accessible route. There was ponding in front of the building at the time of the survey.

The exterior siding is in good condition and shows little signs of wear or deterioration. The same is true of the soffits, fascia, gutters and downspouts. The roof is in fair condition with moss growing in between some of the shingles.

The exterior doors to the showers show moderate to severe corrosion on the doors, hardware and frames. The door vents are the most severely and the hardware is beginning to fail. The exterior windows look to be in good condition. The hardware on the exterior restroom doors is failing and should be replaced with lever-style handles.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The finishes in the shower facilities are in fair condition. The floor tile is uneven and stained in several places. Walls and ceiling are in fair condition. Fixtures seem to be functional and in fair condition. One of the shower facilities has a large area of mismatched tile in the shower area. This same shower also has a damaged floor drain.

The restrooms are in fair condition. The floors, walls and ceilings are in fair condition with some signs of wear. Fixtures are functional but seem old and in need of replacement.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

Update the accessible ramp to current standards.

SUGGESTED DEFERRED MAINTENANCE AND REPAIR

1. Replace corroded exterior doors, frames and hardware
2. Address ponding issue in front of restroom entrance
3. Repair/replace worn tile in shower areas

RESTROOMS #3:

STRUCTURAL

Restroom #3 is a one story 350 square foot building with conventional wood framed gable roof and stud walls with wood exterior siding in a worn condition (Photograph 11). The foundations are concrete slab on grade. The roofing consists of asphalt shingle on sloped roof and built-up roofing on the flat portions of the mansard roofs.

THE BUILDING FUNCTIONS AND OPERATIONS

This restroom is located on the east side of the harbor site. There are public men's and women's restrooms. There is no controlled access or shower facilities.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

There is one H.C. accessible space with proper signage but no access aisle. The exterior overall is worn. Siding is deteriorating in several places. There is damage on privacy screens in front of the entrances to the restrooms. The roof looks to be in fair condition. There are no gutters.

Exterior doors to the restrooms are showing severe signs of corrosion. The door hardware is beginning to fail. Exterior conduit for lighting is showing moderate signs of corrosion.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The interior finishes overall are in worn condition. The floors of both restrooms are worn out and have severe staining in some areas. Walls are stained from leaking plumbing fixtures. The metal base trim around the walls is separating and showing signs of severe corrosion in some areas.

Fixtures are functional but are showing sever signs of corrosion in some places. Exposed wood beams are in fair condition but are showing signs of age. Toilet partitions are also in fair condition. Skylights are in fair condition showing little sign of leaking or deterioration.

SUGGESTED ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

Add striped aisle to H.C. accessible parking space.

SUGGESTED DEFERRED MAINTENANCE AND REPAIR

1. Replace corroded exterior doors, frames and hardware
2. Replace plumbing fixtures
3. Repair walls and replace metal trim throughout
4. Repair damaged exterior privacy screens
5. Repair/replace siding
6. Install gutters and downspouts
7. Replace conduit for exterior lighting

2.6. SITE

ROADS

The roads appear to be in fair condition (Photograph 12) with some alligator cracking in the asphalt pavement.

PARKING

The parking area near Tenant Row appeared to be in fair condition with some cracking in the asphalt pavement. The west side parking area appeared to be in poor condition (Photograph 13). The north side parking area appeared to be in poor condition (Photograph 14).

SIDEWALKS

The sidewalks appear to be in good condition, however the sidewalk at the tenant building is not ADA compliant (Photograph 8).

UNDERGROUND UTILITIES

The underground utilities were not inspected but most of them are now over 50 years old. The sewer line to the tenant row buildings was recently replace due to blockages and separations. The sewage pump that serves the entire Harbor is in need of replacement.

SURFACE UTILITIES

The parking lot storm drain system appeared to be in good condition with drop inlets in the roadway (Photograph 15). It may be prudent to have testing and further investigation of the underground storm drain system.

TRANSFORMERS

The existing electrical service to shoreside facilities is adequate. The service to the fish buyer buildings on Johnson Pier is becoming inadequate for the increased equipment in use. The electric service to the fish buyer building is 120/240 volt single phase, provided in the original construction in the early 1960s. The electric service to the ice house and transformers on the docks located off Johnson Pier is 480 volt 3 phase which was installed when the docks were installed in the 1980s. Increased use of electrical equipment at the Fish Buyer buildings has created demand for 480 volt 3 phase service. A separate project with the SMCHD is currently being designed to provide the ability to obtain 480 volt 3 phase service at the Fish Buyer Buildings.

LANDSCAPING

Landscaping is minimal since most of the site is paved. The area between the parking lot and the harbor waters had ground cover that was mowed but appeared natural with a pathway (Photograph 16) The parking lots had landscaped areas with miscellaneous nautical themed items displayed (Photograph 17). The trees located in the parking lot appear to be in good condition. There is a small area that has been recently improved located behind Tenant Row and is in new condition. The Harbor Office has planters around the perimeter of the building and the plants appear to be in good condition. Restroom #2 has a planter in the front with plants in worn condition. The landscaping near Restroom #1, Restroom #3 and on the hill adjacent to the Maintenance Shop have native foliage in fair condition.

ADA/ACCESS

See previous section on sidewalks.

2.7. SEA LEVEL RISE ANALYSIS

The current western slope within the harbor is sloughing down into the harbor, resulting the rip rap falling and the soil being exposed. With SLR this will expose the bare slope to greater erosion and cutting back of the soil. The rip rap protection should be repaired or a seawall installed similar to the portion at the Harbormaster Building and East Basin.

3. RECOMMENDED REPAIRS

See Table 2 for a summary of repairs. See Attachment D for descriptions of deficiencies and needed repairs at the various facilities and Attachment B for locations of the facilities.

At Pillar Point, further investigation and detailed analysis may be warranted to determine the earthquake risk associated with the masonry building's wall to roof connections. The investigation will require selective demolition of obscuring finishes to access and document existing condition.

Perform electrical inspections annually per State Fire Code requirements and thermal scans of electrical panels.

Attachment A: Photographs

PHOTOGRAPH 1: FISH BUYER BUILDING

PHOTOGRAPH 2: FISH BUYER BUILDING

PHOTOGRAPH 3: ICE HOUSE

PHOTOGRAPH 4: HARBOR OFFICE BUILDING

PHOTOGRAPH 5: MAINTENANCE SHOP

PHOTOGRAPH 6: TENANT ROW

PHOTOGRAPH 7: TENANT ROW

PHOTOGRAPH 8: TENANT ROW & PARKING

PHOTOGRAPH 9: RESTROOM #1

PHOTOGRAPH 10: RESTROOM #2 & SIDEWALK

PHOTOGRAPH 11: RESTROOM #3 & SIDEWALK

PHOTOGRAPH 12: ROADS

Photograph 13: Potholes & Alligator Cracking West Parking Lot

Photograph 14: Alligator Cracking North Parking Lot

Photograph 15: Storm Drain Drop Inlet

Photograph 16: Landscaped Area Between Parking Lot & Harbor Waters

Photograph 17: Landscaped Area in Parking Lot with Nautical Themed Items Displayed

Attachment B: Facility Location Plans

Attachment C: Input from SMCHD Staff

Attachment D: Facility Condition Assessment Sheet

A.4: OYSTER POINT FACILITIES ASSESSMENT

EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT

SAN MATEO COUNTY HARBOR DISTRICT

STRATEGIC BUSINESS PLAN

DECEMBER 2014

moffatt & nichol

Table of Contents

EXECUTIVE SUMMARY

This report addresses the condition of the Oyster Point marina facility on San Francisco Bay operated by the San Mateo County Harbor District. The facility has been in operation since the early 1960s and had major additions in the 1980s. The facility has a full time staff that operates and maintains the facility. The replacement value of the facility is $26 million, as shown in Table 1. The marina is now more than 50 years old and many of the facilities within are near or beyond the expected useful life—the nominal life often used for depreciation.

Because the facility has been maintained, it can be expected to remain in service beyond the expected useful life with increased maintenance effort and cost. At some point the cost or effort to maintain the facility exceeds the replacement cost or the decreased function or appearance of the facility affects revenue, at which point it should be replaced. This report identifies and prioritizes maintenance of the facility and identifies areas that are in need of replacement. The floating docks are the greatest asset in terms of replacement cost and a primary factor in the appeal and revenue potential of the marina. The older docks 12-14 are in poor condition and should be replaced soon. All other docks are in fair condition and are serviceable and can remain in service for at least 5 years with increased maintenance. There are no conditions at the marina that poses an immediate threat to life safety or loss of function to boat mooring and access to the water.

The assement of the condition of the facility was performed by gathering information from the Marina staff including the staff's identification of known deficiencies and items in need of maintenance or replacement. This information, supplemented by visual observations by our engineers of the marine facilities (docks, piers, and breakwaters), buildings and site facilities (paving, utilities, and lighting) was used to assess the condition of the overall facility. Based upon the condition, needed repairs were identified, costs estimated were categorized (capital, maintenance or improvement) and prioritized from 1 (highest) to 3 (lowest). All repairs identified will continue to extend the useful life and replace those items that are beyond the useful life to ensure continued function.

The assessment also addresses the potential effects of Sea Level Rise at the marina. The Harbor Master's building will most likely need to be relocated and the peninsula raised, as well as portions of the Bay Trail to the dock gates.

TABLE 1: FACILITY ASSETS OF OYSTER POINT

	Asset Life (YR)			Replacement
Facility	**Installed**	**Useful Life**	**Remain**	**Cost**
Marine				**$ 22,160,000**
Dock 1	1988	30	4	$ 800,000
Dock 2	1988	30	4	$ 1,300,000
Dock 3	1988	30	4	$ 1,260,000
Dock 4	1988	30	4	$ 1,370,000
Dock 5	1988	30	4	$ 1,320,000
Dock 6	1988	30	4	$ 1,640,000
Dock 8	2012	30	28	$ 640,000
Dock 11	2012	30	28	$ 1,300,000
Dock 12	1983	30	-1	$ 1,420,000
Dock 13	1983	30	-1	$ 1,930,000
Dock 14	1983	30	-1	$ 1,260,000
Fishing Pier	2006	50	42	$ 500,000
Gates	1983	50	19	$ 1,300,000
Boat Ramp	2009	30	25	$ 1,500,000
Breakwaters	1980	50	16	$ 4,620,000
Building				**$ 2,140,000**
Entrance Kiosk	1988	30	4	$ 20,000
Harbor Master	1988	30	4	$ 410,000
Maintenance	1984	30	0	$ 390,000
Utility	1984	30	0	$ 40,000
Utility Vacuum	1983	30	-1	$ 80,000
Restroom 4	1988	30	4	$ 240,000
Restroom 5	1988	30	4	$ 240,000
Restroom 2	1988	30	4	$ 240,000
Restroom 3	1988	30	4	$ 240,000
Restroom 1	1988	30	4	$ 240,000
Site				**$ 2,210,000**
Boat Apron	1981	30	-3	$ 120,000
Center Connector	1981	30	-3	$ 170,000
East Road	1998	30	14	$ 410,000
East Lower	1961	30	-23	$ 200,000
East Upper	2011	30	27	$ 310,000
Marina Blvd	1981	30	-3	$ 350,000
South Bay Trail	1998	30	14	$ 70,000
West Road	1981	30	-3	$ 540,000
West Connector	1981	30	-3	$ 40,000
Grand Total				**$ 26,500,000**

TABLE 2: REPAIR PROJECT PRIORITIZED COSTS

	Priority				
Repair Project type	**1**	**2**	**3**	**4**	**Grand Total**
Maintenance	**$ 57,705**	**$ 95,700**	**$ 95,460**		**$ 166,705**
Dock 1		$ 17,000			$ 17,000
Dock 2		$ 18,300			$ 18,300
Dock 3			$ 27,500		$ 27,500
Dock 4			$ 33,300		$ 33,300
Dock 5		$ 15,200			$ 15,200
Dock 6		$ 16,700			$ 16,700
Harbor Master	$ 22,705				$ 22,705
Maintenance		$ 16,000			$ 16,000
Dock 1	$ 12,000				$ 12,000
Dock 2		$ 3,000			$ 3,000
Dock 3		$ 3,000			$ 3,000
Gate			$ 27,000		$ 27,000
Harbor Master	$ 19,000	$ 2,500	$ 2,660		$ 24,160
Maintenance	$ 4,000		$ 5,000		$ 9,000
Restroom 4 & 5		$ 4,000			$ 4,000
Capital	**$ 30,000**	**$ 605,000**	**$ 654,000**	**$ 4,250,000**	**$ 5,539,000**
Dock 12				$ 1,230,000	$ 1,230,000
Dock 13				$ 1,560,000	$ 1,560,000
Dock 14			$ 35,000	$ 1,070,000	$ 1,105,000
East Lower			$ 70,000		$ 70,000
Harbor Master		$ 20,000			$ 20,000
Maintenance		$ 15,000		$ 390,000	$ 405,000
Marina BI			$ 174,000		$ 174,000
Restroom 4		$ 240,000			$ 240,000
Restroom 4 & 5	$ 30,000	$ 50,000			$ 80,000
Restroom 5		$ 240,000			$ 240,000
West Breakwater		$ 40,000	$ 300,000		$ 340,000
East Breakwater			$ 75,000		$ 75,000
Grand Total	**$ 87,705**	**$ 700,700**	**$ 749,460**	**$ 4,250,000**	**$ 5,787,865**

1. INTRODUCTION

The purpose of this report is to provide a summary of the facility condition surveys (FCS) performed at the Oyster Point Marina/Park (Oyster Point) located on the San Francisco Bay in the City of South San Francisco, California. San Mateo County Harbor District (SMCHD) asked Moffatt & Nichol (M&N) to visually inspect and evaluate the conditions of the waterside and shoreside structures at the facility. This report identifies the components that require repairs, a prioritized schedule for repair and maintenance of each survey component (i.e., docks, hoists, buildings, etc.), and costs for repair.

The inspections were performed in February and March 2014. Photographs of deficiencies, along with general photographs referenced in this report are provided in Attachment A. Attachment B presents the locations of the various facilities, and Attachment D lists the deficiencies at these facilities.

1.1. SCOPE

The services performed for this report are based upon our proposal dated November 4, 2013 and summarized here:

1. Meet with SMCHD staff to receive information and input on known deficiencies at Oyster Point to serve as the basis for the FCS.

2. Perform on-site inspections over 4 person-days at the marina to observe the overall condition of:

    - Waterside: floats, docks, piers, ramps, moorings, and utilities (topside and in a boat)

    - Shore side: buildings, mechanical and electrical systems, road and parking lot paving, storm drains, signage, and electrical distribution

    - Identify Code deficiencies observed on site

3. Prepare a Report on the Condition Survey to include:

    - Condition Ratings of each component

    - Estimated remaining life span expectancy in 5 year increments (e.g. 5, 10, 15, etc.)

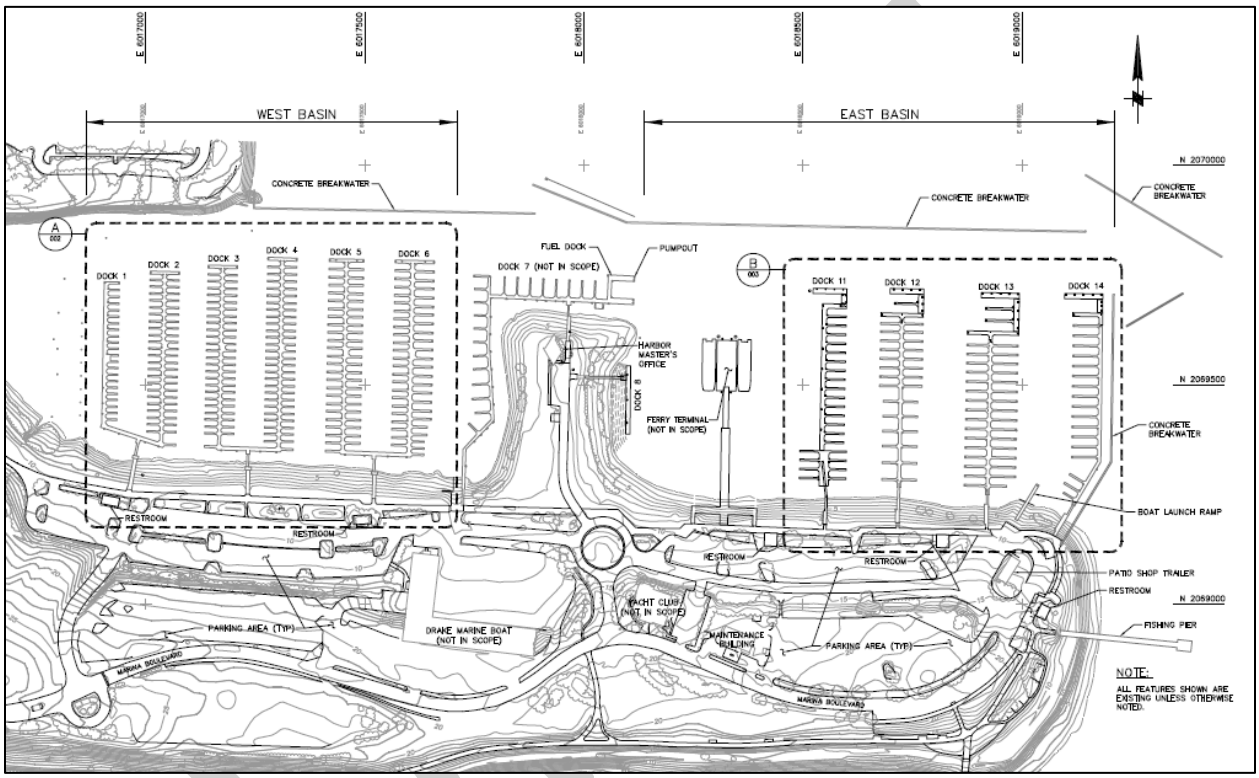
    - Costs: 5-Year costs to repair, presented as estimated Maximum Allowable Construction Cost (MACC) including an inflation factor

    - Repair priority based on the condition, remaining life expectancy, and fire/life safety considerations

1.2. DESCRIPTION OF FACILITIES

Initial construction of the East Harbor at Oyster Point was performed in 1962. The shore facilities are built over a capped landfill. The landfill continued in operation until 1977. The West harbor was constructed in 1978 along with other shoreside improvements. Other improvements were added that include the Fishing Pier, Boat Ramp and additional restrooms and shoreside parking. A figure showing the layout of Oyster Point is provided in Figure 1 and a larger version is provided in Attachment B.

FIGURE 1: OYSTER POINT SITE PLAN (SEE LARGER VERSION IN ATTACHMENTS)



Oyster Point includes a 390-berth marina (floating docks, gangways, piles), boat launch ramp, fishing pier swimming beach, hand launch facility (wind surf, kayak) and other facilities that are not owned by the SMCHD that include: commuter ferry facilities, Drake Marine building and docks (dock 7), a snack bar modular unit, the Oyster Point Yacht Club building, and other facilities. The marina is protected from the San Francisco Bay by multiple concrete sheet pile breakwaters.

Docks 1 through 14 are arranged from west to east, with the Harbor Master's building located on a strip of land dividing the berthing areas into the West Basin (Docks 1 – 6) and East Basin (Docks 11-14). Docks 1-6 are timber deck and frame construction with polyethylene enclosed floatation, Docks 6 and 7 are of similar construction. Docks 12-14 are older and constructed of solid laminated deck on polyethylene enclosed floatation. Docks 8 (guest) and 11 were replaced with new concrete docks in 2013. Concrete docks (floating breakwater dimension) were installed at the ends of Docks 11 to 14 in 2012 as part of modifications to the marina for the ferry

terminal. There is a public fishing pier located outside the east breakwater, constructed of concrete decking and cap beams on top of concrete piles. There is a public two lane boat launch ramp located between docks 13 and 14.

The Harbor District is responsible for eight buildings, roadways, parking lots, and sidewalks for marina access throughout the facility. The visual assessments of these buildings were conducted during February 2014. The building inspection consisted of The Harbor Master's office building, the maintenance building, the entrance kiosk, five restrooms, and an equipment building.

1.3. METHODOLOGY

The facility survey was based upon input received from SCMHD onsite personnel at meetings held on January 28, 2014. Following the meeting, engineers made visual observations onsite of the conditions of the facilities during January to March 2014. The breakwaters and pier at Oyster Point were observed by boat. The conditions were rated using a system similar to that used on the previous condition assessment report ("SCHD Marina Evaluation, October 2007 Bluewater Design Group) to facilitate comparison of the changes over time. Once the condition was rated, the priority and cost and any needed repair or replacement was determined. The methods for these 3 parameters of condition, priority and cost are described following.

Condition Rating is a numeric score from 0 through 100 given for each component that allows ranking comparison of facilities. The number is based upon visual observations of the facilities qualitative condition as described in

Table 3. The remaining service life is the amount of time the component is expected to remain serviceable without further maintenance, in its present condition. The range is generally five year intervals, such as "5-10" or "10-15." The measure of remaining service life is to be distinguished from the "useful life" that is used in the valuation of an asset, described below.

The overall rating of an entire system, such as a group of docks (e.g. Dock 4) is comprised of the average of all of the individual ratings given to each item within the system (e.g. each dock finger and the main walkway), compiled within a spreadsheet from the onsite ratings.

TABLE 3: CONDITION RATING

Condition	Description	Remaining Service Life	Condition Rating
NEW (N)	Like-new condition	More than 15	100
GOOD (G)	Generally new condition	10-15	80
FAIR (F)	Serviceable condition, lightly worn due to normal wear	5-10	60
WORN (W)	Exhibits cracking, corrosion, or other indicators of deterioration. Still serviceable but requires maintenance to extend the service life.	Less than 5	40
REPLACE (R)	Worn to the point of needing immediate replacement or major repair.	Should replace in 1-2 years	20

Priority is the level of importance or urgency that the component should be repaired or replaced. The numeric assignment is based upon safety and the function of the component as follows:

1. System or element is in failure, or is expected to fail in the next year. Safety: Such failure will pose significant risk of injury. Function: will adversely affect the facilities ability to operate (e.g. separation of a dock would block access to the remaining dock even if not a safety risk)

2. System or element is currently functional, but has a probability of failing before the next scheduled inspection or 5 years. Safety: such failure poses little risk to safety. Function: may result in a temporary and minor loss of facility operations.

3. System or element is expected to remain functional until the next scheduled inspection or at least 5 years. If failure does occur, it poses no safety risk and will not likely result in the significant loss of facility operation

Cost- the cost for repair or replacement is based upon the following

- Means Building Construction Cost Data and Heavy Construction Cost Data
- Cost data from construction of similar projects
- Input from SCMHD and Engineering judgment

Type –The cost and type of repair or replacement project is further broken out into a budgetary category as follows:

C- Capital - One time repair or replacement typically costing over $10,000 to correct.

M- Recurring Maintenance - Repair/maintenance actions that occur with a frequency of less than 10 years with a cost of less than $10,000 per action

M1- Scheduled Maintenance - Repair/maintenance actions that typically occur annually or more frequently with a cost of less than $5,000 per year.

I- Improvement-a repair or replacement that provides greater functionality than the existing system.

Asset Life

When a facility is first placed in service (new) it is assigned a nominal "useful life"-a duration of time during which function can be expected with little or no maintenance. The duration is based upon experience with the type of facility. For example, a concrete structure may have a useful life of 50 years, where the same structure built of timber may have a useful life of 30 years. This duration is often used for depreciating an asset in financial planning. The remaining useful life is the difference between the years an asset has been in service and the original useful life. The remaining useful life is guideline in planning of maintenance and replacement costs; as it

approaches 0 increased maintenance to extend the service life (actual years in use, described previously) or replacement should be planned.

Facility Groups

The facilities within the marinas were classified into 3 groups: Marine, Buildings and Site and given number groups by hundreds with which to identify individual features as follows:

- Marine
    - 100 Docks (floats, piles)
    - 200 Gates (access pier, gate, gangway)
    - 300 Structures (piers, boat ramps, bulkhead, rip rap)
- Buildings 400 (shoreside and on piers)
- Site 500 (Roads, parking lots, paving, utilities, lighting)

For example the gates are number 201, 202, etc. and buildings 401, 402, etc in addition to their existing names. The plans of each marina (Attachment B) and the Detail Condition Survey Sheets (Attachment D) use these numbers to group and identify features.

These procedures and symbols were used to record the data in the inspection, and are used in this report to present the results of the survey.

2. CONDITION ASSESSMENT

2.1. FLOATING DOCKS

Each floating dock is made up of a main walkway with finger piers extending on either side. The components evaluated in the inspection were: timber (or concrete) deck, timber waler, and the flotation of the dock. Docks 1 through 6 are in fair to good condition; Dock 11 is in new condition (newly replaced in 2013); and Docks 12 through 14 are in worn condition. Some parts of the docks are worse than others. Problems observed with the decking were heavy build-up of moss causing slip hazards or general wear and splitting of the timber. The timber walers were generally in good condition throughout the facility. The problems observed with flotation were twisting of the fingers and uplifting at finger ends, especially at Docks 1 and 2. This is feature of timber docks over time when the wood warps due to exposure to moisture and permanent set that develops in the timber. It is most feasible to replace the docks when the funds are available.

Some walers have separated from the finger framing. These should be reattached by nailing or bolting. Similarly, the rub strip fenders that are attached to sides of the fingers have been damage from use or are not attached in many locations. These rub strips and walers should be reattached as part of ongoing maintenance.

Decking should be replaced in segments where it is worn. This was observed to have been done in segments at Pillar Point. The decking generally has more moss growth on the ends of the fingers, and more moss growth in general on the fingers towards the ends of the docks. It is recommended to power wash the fingers to remove the moss.

The marine growth on the floats is light to moderate.

The condition of docks 12 through 14 is to the point where it would not be worthwhile to repair; it would be better to replace the entire dock (except for the new concrete end portions).

GUIDE PILES

All the guide piles are in good condition, no deficiencies were found.

PILE GUIDES

The pile guides at all the docks consist of steel angles bolted to the dock surface. Photograph 1 in Attachment A shows a typical pile guide in good condition. The pile guides are generally in good condition, with a few exceptions. The following pile guides should be replaced within the next two years due to missing bolts or corrosion, four pile guides at Dock 1 (Photograph 1 and Photograph 2,) one at Dock 2, and one at Dock 3.

UTILITIES

The boxes for utilities are in good condition. There are a few locations of corrosion on the boxes, and it is recommended to recoat these areas during the normal maintenance cycle.

2.2. GATE

The gate structures are in fair to good condition and some appear to be recently replaced or finished. There are a few areas of corrosion on the grating. It is recommended to monitor this corrosion to see how quickly it increases, however it is not a problem at this time. The concrete caps that support the gate structure are cracked on many of the gates. Some have been repaired with an injection to seal the crack. This is likely due to chloride intrusion that has reached the reinforcing steel and corrosion has initiated and expanded.

GANGWAYS

The gangways are in good condition. The walking surface is even and has appropriate non-slip surfacing. There was no visible corrosion or deficiencies.

ADA/ACCESSIBILITY

The recent replacement of docks 8 and 11 installed 80 ft long gangways onto the docks, as well as accessible slips on dock 11. This provides required access to the marina for disabled persons. If future docks are replaced, the use of a similar 80 ft long gangway should be considered for increased access, though not required.

2.3. MARINE STRUCTURE

BOAT RAMP AND FLOATS

FISHING PIER

The fishing pier is a concrete structure (concrete decking, beams, and piles) and is in good condition. There are no significant cracks or corrosion stains on the deck, beams, or piles. There were signs of epoxy injection ports on some beams near the outside end of the pier, although no rust or cracking was observed. It is likely these were to remedy something immediately after the initial construction. The handrails are constructed of wood, and appear to be sound.

The abutment of the pier was recently fit with an ADA compliant access gangway.

SEAWALL/BREAKWATER

The breakwater is in fair-good condition overall. There are spalls along the top on portions of the structure. These do not presently affect the function of the breakwater, however the exposed rebar at the spall locations could lead to significant corrosion in the rebar and extend further throughout the structure. It is recommended that the rebar get cleaned, coated, and patched up with new concrete. There are many gaps between segments along the length of the breakwater, likely due to initial driving of the sheets wandering. This allows minor leakage during high waves, but does not pose a significant problem.

2.4. BUILDINGS

HARBOR MASTER'S OFFICE BUILDING:

STRUCTURAL

This one story 1,220 square foot building was constructed in the early 1980s and structurally appears to be in fair condition. The roof consists of 1/2" plywood over 2x6 decking with heavy timber framing supported by timber pole columns. The foundation consists of a 12" thick reinforced concrete mat over nine 12" square by 125 foot long concrete pilings. The lateral force resisting system appears to be conventional wood framed shear walls. The finishes consist of wood shake roofing, exterior T1-11 wood siding and interior gypsum board. It is evident that the ground has settled significantly below this building (Photograph 3). The stability of the building is not compromised by this condition due to the deep foundations. It was reported that during high tides of +6.9 or greater the access road to this building and its parking lot are below water.

THE BUILDING FUNCTIONS AND OPERATIONS

The building contains spaces for administrative functions, safety operations and public interface. There is a waiting area and secretary's counter. A multi-purpose room on the south side of the building serves as a meeting space as well as a break room for those working in the office. On the north side of the building is a lofted platform for the harbor master and a general administrative work area. There is one restroom.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The finishes are generally in fair to worn condition. Floor tile in the waiting area is cracked and missing in some places. The tile damage is caused mostly by shifting of the building due to settlement. The carpet throughout the building is worn and in need of replacement. The metal frame around the main entrance door is corroded because of rain infiltration. The windows on the south face of the building are due to be replaced. The sills on the interior are worn and show signs of leaking in some areas. Some areas of the walls show signs of cracking from settlement and scratches from general use. The paint overall is in fair condition. The handrails along the steps up to the harbor master work area are in good condition but the paint has worn through in some places.

The kitchenette finishes in the multi-purpose room are in fair to worn condition. The fixtures and appliances are functioning. The upper cabinets are metal while the lower cabinets are wood. The countertop is plastic laminate. The upper cabinets are worn and are in need of replacement.

The restroom finishes are in good condition. The restroom looks to have been recently remodeled. Walls, floors and fixtures are all clean and operational. The restroom appears to be ADA compliant with proper door size, five-foot interior clearance and grab bars.

The heat exchanger has been recently replaced.

The General Condition of the Exterior and Access

The exterior finishes are in worn condition. The roof looks original to the building. There is a considerable amount of moss growing on the north side of the building's roof. The siding is cracked and shows signs of corrosion from the windows weeping and nail-heads which have begun to rust. Siding has been added as a skirt below the original siding because of the settlement of the surrounding site. Downspouts around the building are being pulled down because of the subsiding site and the exposed, unpainted areas are rusting through. The HVAC and exterior plumbing connections to the main building are being damaged as they sink and separate from the main building. The condenser pad has sunk because of soil settlement, as well.

Clerestory windows on the north side of the building have been reported to leak. They were recently sealed by harbor staff.

The ramp leading to the main entrance of the building is too steep to meet current ADA standards. The handrails are also non-ADA compliant and are in worn condition.

Accessibility and Operational Improvements

The ramp and handrails leading up to the main entrance need to be made compliant.

Deferred Maintenance and Repair

1. Roof needs to be replaced; clerestory windows can be addressed concurrently
2. Exterior siding needs to be replaced
3. Exterior windows need to be replaced
4. Interior window sills need to be replaced
5. Interior floor finishes need to be replaced
6. Walls need to be repaired and repainted
7. Cabinets in the multi-purpose room should be replaced

Entrance Kiosk:

Structural

This is a small one story 100 square foot building constructed in the early 1980s and structurally appears to be in fair condition. The roof consists of conventional wood framing over stud walls with a 4" thick slab on grade. The finishes consist of wood shake roofing, exterior T1-11wood siding and interior gypsum board. The raised concrete pad beyond the kiosk's foundation appears to have settlement cracks (Photograph 4).

MAINTENANCE BUILDING:

STRUCTURAL

This one story 2,300 square foot prefabricated metal building was constructed in the early 1980s and structurally appears to be in fair condition. The roof consists of standing seam metal panels over cold formed steel purlins over rigid steel frames. The exterior has metal siding with horizontal wall girts between frame columns. The foundation consists of a slab on grade with a masonry retaining wall on the south side of the building. The interior space has been in filled with partition walls with gypsum board finishes. A wood framed mezzanine has been added to the west end of the building. The mezzanine is supported by wood posts at its center and supported by wall girts on its north side and a masonry wall on its south side. It appears that the mezzanine's load on the wall girt may have bowed out the wall at the northwest corner of the building (Photograph 5).

THE BUILDING FUNCTIONS AND OPERATIONS

The building houses a large area for maintenance and storage of equipment and materials. A loft space above the maintenance area, accessed via ladder, serves as extra storage space. There is also a small office with a service window, a restroom with a shower and a small kitchen/break room. Outside of the administrative spaces is a half-height wall with lockers on either side.

The building is also completely uninsulated.

THE GENERAL CONDITION OF THE INTERIOR LAYOUT AND FINISHES

The interior finishes of the building are generally in very worn condition. The floor of the maintenance area is uneven and sinking in several areas. The frame around the exterior door on the south side of the building is crooked because of shifting of the building. There is a large gap along the top of the door.

There is vinyl tile floor in front of the lockers and in the office and is in worn condition.

The finishes in the kitchen/break room are in fair condition. The tile floor is in fair condition. Cabinets, countertops and fixtures are functional and in fair condition.

The restroom finishes are generally in worn condition. The floor tile is cracked and missing in some places. Some areas have been patched with mismatched tile. The walls are scuffed and stained and are in need of repainting. Toilet partitions are in worn condition with heavy staining and damage to the metal base trim. Pieces of the ceiling grid are damaged and show signs of water damage. The base cabinets and countertop are in fair condition. Fixtures are in fair condition and are functional.

THE GENERAL CONDITION OF THE EXTERIOR AND ACCESS

The metal siding on the exterior is in fair condition. The roll-up metal doors are in fair condition. Exterior windows and doors are stressed and show signs of corrosion.

ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

The building has shifted significantly and should be considered for total replacement.

DEFERRED MAINTENANCE AND REPAIR

1. Exterior windows and doors need to be replaced
2. Large sections of the interior slab should be replaced
3. Vinyl tile flooring should be replaced
4. Finishes and fixtures should be updated and replaced

UTILITY BUILDING:

STRUCTURAL

The 80 square foot building serves as a used oil collection facility. It looks to have been built within the last five years. It is generally in good condition. The exterior paint and finishes look new. The roll-up door is in good condition with the exception of corrosion forming at the bottom of the door. The equipment inside is in good condition.

RESTROOMS #1, #2 & #3 EAST SIDE:

STRUCTURAL

These structures are one story prefabricated metal buildings originally constructed in the early 1980s and recently refurbished (Photograph 6). The buildings appear to be in good condition structurally. The roofing is cedar shake over 1x4 wood skip sheathing over 22 gauge standing seam roofing supported by cold formed steel roof framing. The walls are constructed of 18 gauge cold formed steel studs with T1-11 exterior wall siding and 18 gauge metal interior wall panels. Restrooms #1 and #2 are approximately 560 square foot and restroom #3 is approximately 440 square foot. The foundations consist of reinforce concrete slab foundation with raised curbs. The exterior of the building has ornamental timber poles and roof outriggers.

THE BUILDING FUNCTIONS AND OPERATIONS

Restroom 1 is located at the easternmost edge of the site. It serves as the public restroom facilities and has no controlled access. There is also a storage room in the back of the building. There is one H.C. accessible space immediately adjacent to the facility. The accessible route looks new and up to current ADA standards. There is a small sewage facility located directly behind the restroom building.

Restroom 2 is located west of Restroom 1. This is a private, access controlled facility with men's and women's restrooms. The H.C. accessible route looks new and up to current ADA standards.

Restroom 3 is located west of Restroom 2. This is a private, access controlled facility with men's and women's restrooms and two shower facilities. There are two H.C. accessible parking spaces with the accessible route covering over 150 LF. This route looks new and up to current ADA standards.

The General Condition of the Exterior and Interior

The interior and exterior finishes of all three restrooms were in like-new condition at the time of the survey. The materials and fixtures were appropriately chosen and work well for their intended use.

Restrooms #4 & #5 West Side:

Structural

These one story 440 square foot buildings appear to be in fair condition structurally. No information was provided on the age of construction. They are conventionally framed wood buildings with similar dimensions and layout. The roofing is asphalt shingle over 2x decking over 2x stud bearing walls. They have a slab on grade foundation. The exterior finish is T1-11 siding and the interior is finished fiberglass panels over particle board. The particle board was installed between the wall framing making it difficult to remove. The exterior of the building has ornamental timber poles and roof outriggers. It was reported that the interior particle board has been replaced in some areas due to swelling and moisture damage. Swelling of the wall panels was observed in the men's restroom at a few locations (Photograph 7).

The General Condition of the Exterior and Access

Both restrooms have non-compliant ramp approaches to the restroom facilities. Siding and other exterior finishes are in worn condition with some areas of the trim beginning to separate from the building. The exterior doors are also worn and have handles and hardware that are beginning to fail.

The roof seems to be in fair condition.

The General Condition of the Interior Layout and Finishes

The interior finishes are generally worn. The floors throughout are fading and cracked. The toilet partitions show signs of abuse and the fixtures need to be updated and replaced. The metal base trim around the walls is separating in some areas and showing signs of corrosion. Benches in the shower areas are worn and show signs of rot.

Suggested Accessibility and Operational Improvements

Updating building ramp from the parking lot; making it ADA compliant.

Suggested Deferred Maintenance and Repair

1. Replacing floors throughout
2. Upgrading fixtures; including partitions
3. Repairing walls and metal wall trim
4. Replacing exterior doors and hardware

ELECTRICAL VACUUM BUILDING:

STRUCTURAL

This is a small one story building 190 square foot building and structurally appears to be in fair condition. It has asphalt shingle roofing over plywood sheathing supported by carpenter trusses with conventional exterior stud walls (Photograph 8). The foundation is slab on grade with a pit for the vacuum equipment. The exterior finish is T1-11 siding with no interior finishes.

2.5. SITE

ROADS

The roads appear to be in a worn condition with the exception of the new asphalt concrete pavement in the east basin. Potholes and alligator cracking (Photograph 9) were observed as well as standing water due to inadequate drainage (Photograph 10).

PARKING

The parking areas appear to be in a worn condition with the exception of the new paved areas in the east basin. A large percentage of the parking areas are unpaved with a gravel surface. Standing water was observed in several paved and gravel lots (Photograph 11 and Photograph 12).

SIDEWALKS

The asphalt sidewalks appeared to be in fair condition (Photograph 13).

UNDERGROUND UTILITIES

No observations of the underground utilities was made. Based upon input received, the main problems are in the East Basin: there is corrosion in electrical conduit that makes pulling of new cable difficult and splices below ground corrode and need to be sealed. The electric switchgear is obsolete and should be replaced. All utilities need to be raised above the capped landfill as many are below the cap.

SURFACE UTILITIES

The parking lot appeared to have a storm drain system with drop inlets near the landscaping areas but standing water was observed in the parking area (Photograph 14). It may be prudent to have further investigation of the underground storm drain system.

LANDSCAPING

The landscaping area by the boat launch ramp consisted of trimmed lawn in good condition. The landscaping near the fishing pier appeared to be native foliage in worn condition. The landscaping near the parking lots appeared to be in fair condition (Photograph 15) and well maintained.

2.6. SEA LEVEL RISE (SLR) ANALYSIS

The consensus approach to SLR is to plan for 16 inches of increase by 2050 and 55 inches by 2100. The annual highest tide in 2014 at Oyster Point is 8.29 ft (MLLW), projecting this would correspond to 9.62 in 2050 and 12.87 in 2100. It should be noted that higher tides of almost 2 ft have been observed (estimated) than 8.29 ft, however, planning for the highest annual tide will rarely be exceeded.

There is frequent flooding of the parking lot between the East and West Basin at the Harbormaster's office now, which will only get more frequent in the next 10 years. It is likely that the office should be moved to higher ground as placing fill to raise the ground will increase surcharge and induce settlement on the compressible landfill below.

Other features that will be affected further into the future are the access gates to all the docks, which are presently at elevation 10, approx. The tops of guide piles may need to be extended if they are not replaced by 2050. The elevations need to be confirmed to ensure the docks will still be restrained. Similarly, the top of the breakwater and wave overtopping may occur as sea levels rise.

3. RECOMMENDED REPAIRS

See Table 2 for a summary of repairs. See Attachment D for descriptions of deficiencies and needed repairs at the various facilities and Attachment B for locations of the facilities.

Perform electrical inspections annually per State Fire Code requirements and thermal scans of electrical panels

Attachment A: Photographs

PHOTOGRAPH 1: TYPICAL PILE GUIDE -GOOD CONDITION (DOCK)

PHOTOGRAPH 2: PILE GUIDE DAMAGE – DOCK 1, SLIP 6-8

PHOTOGRAPH 2A: DOCK 4

PHOTOGRAPH 2B-DOCK 13 FINGERS

PHOTOGRAPH 2C-DOCK 13 FINGER

PHOTOGRAPH 2D-DOCK 11 GATE

PHOTOGRAPH 3: HARBOR MASTER'S OFFICE BUILDING

PHOTOGRAPH 4: KIOSK BUILDING

PHOTOGRAPH 5: MAINTENANCE BUILDING

PHOTOGRAPH 8: ELECTRICAL VACUUM BUILDING

PHOTOGRAPH 6: RESTROOM #1

PHOTOGRAPH 9: POTHOLES & ALLIGATOR CRACKING

PHOTOGRAPH 7: RESTROOM #4

PHOTOGRAPH 10: STANDING WATER

PHOTOGRAPH 11: PAVED PARKING LOT

PHOTOGRAPH 12: GRAVEL PARKING LOT

PHOTOGRAPH 13: SIDEWALK

PHOTOGRAPH 14: STORM DRAIN AND STANDING WATER IN OYSTER POINT PARKING LOT

PHOTOGRAPH 15: LANDSCAPING

Attachment B: Facility Location Plans

Attachment C: Input from SMCHD Staff

Attachment D: Facility Condition Assessment Sheet

A.5: MARINE SPECIES AND WATER QUALITY ASSESSMENT

EXISTING INFRASTRUCTURE & FACILITIES ASSESSMENT

SAN MATEO COUNTY HARBOR DISTRICT

STRATEGIC BUSINESS PLAN

DRAFT

DECEMBER, 2014

A.5.1 RESOURCE STEWARDSHIP OPPORTUNITIES FOR OYSTER POINT MARINA AND PILLAR POINT HARBOR

INTRODUCTION

The marine habitats and associated species that occur in Oyster Point Marina and Pillar Point Harbor are described in this document to help in natural resource stewardship planning and management that may occur as a result of harbor and marina operations, maintenance, repair, and new construction. No specific construction projects are addressed here. Rather, opportunities for sustaining and enhancing species and habitats through restoration that could be potentially used to offset impacts from a variety of projects are described and discussed. Controlling non-indigenous (non-native) species that can impede restoration can be essential for restoration to succeed, and is discussed in context with the restoration opportunities.

Harbors and marina managers and owners are typically in different stages of planning and permitting, maintenance, repair, and new construction for projects to support the needs of their clients. Clients include commercial and recreational fishers, fish buyers and processors, rescue services, law enforcement, concessionaires, other businesses, and the general public. Projects that involve construction, maintenance, and repair of docks, wharves, boat ramps, hoists, jetties, and projects that involve dredging have the potential to impact the marine environment and associated aquatic species. Projects need to be planned to avoid impacts to the greatest extent possible; however, even with the best planning, some impacts cannot be fully avoided. Restoration may be an alternative to offset unavoidable impacts.

Species that occur on the seafloor (referred to as the 'benthic community') in construction areas are at most risk. Although many of these species have the potential to rapidly recover from minor disturbances, permanent alteration of the habitat can occur due to shading from new docks and wharves and from the boats using these new structures. Shading can reduce or eliminate submerged aquatic vegetation habitat, such as eelgrass. These modifications to the habitat can also result in secondary effects to other species that may use submerged aquatic vegetation for food and refuge.

APPROACH & METHODS

Environmental background descriptions for Oyster Point Marina and Pillar Point Harbor are based on a synthesis of regulatory agency and San Mateo County Harbor District (SMCHD) environmental documents. The examples of the natural resource restoration opportunities that are potentially applicable to Oyster Point Marina and Pillar Point Harbor were from discussions with project managers, including some of the principal scientists associated with restoration programs currently underway in San Francisco Bay. These projects include non-indigenous, invasive species eradication programs. Descriptions also include links to website sources for additional information.

A.5.2. RESULTS – OYSTER POINT MARINA/PARK

MARINE HABITAT AND BIOLOGICAL RESOURCES CHARACTERIZATION

The benthic marine habitat in Oyster Point Marina is largely a flat seafloor of muddy sand. The only hard substrates for organisms to firmly attach to are mainly man-made structures, such as breakwater seawalls, sheet piles along the bank of the shore, pier pilings, and the sides and undersides of docks. Aquatic vegetation is scarce, due to limited hard substrates and insufficient light from the turbid water and shading by docks and boats. Also, the maintenance dredging done periodically prevents the limited existing aquatic vegetation from expanding.[1] Motile and sessile invertebrates associated with the muddy sand bottom can be more common than aquatic vegetation.

In 2000, the Office of Spill Prevention and Response (OSPR) of the California Department of Fish and Wildlife (formerly Fish and Game) along with the California State Lands Commission began a large-scale intertidal, subtidal, and infaunal sampling program to determine the locations and geographic extent of non-indigenous species in California's major ports and outer coastal areas (Marine Invasive Species Program, MISP).[2] The MISP findings showed that San Francisco Bay, which includes Oyster Point Marina, is the most invaded water body in California, with other California major ports and harbors not far behind. On average, about 50 percent of the species in any given area in the Bay can be expected to be non-indigenous.[3] In an independent study and based on invertebrate species that colonized settling plates, non-indigenous species comprised approximately 90 percent of the benthic community inside Oyster Point Marina.[4]

RESTORATION ENHANCEMENT OPPORTUNITIES

One approach to restoration aimed at enhancing and sustaining natural habitats, species, and ecosystem functioning that has received attention and support in San Francisco Bay is the restoration of native (Olympia) oyster beds.[5] Native oysters are considered ecologically important in sustaining biodiversity by providing habitat structure for other species, improving water quality by filtration, and protecting soft sediment shorelines from erosion by dampening wave energy.

Native oysters were once prevalent in the Bay. In the mid- to late-1800s, significant reductions in native oyster populations occurred from overharvesting for human consumption and from sediment burial from runoff associated with hydraulic gold mining that took place in the Bay's watershed during the California gold rush. Recovery has not occurred, and currently there are

[1] http://www.spn.usace.army.mil/Portals/68/docs/P%20and%20Programs/Navigation/Oyster%20Point%20EA_post_ITR.pdf

[2] http://www.dfg.ca.gov/ospr/Science/invasive_species.aspx

[3] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=74418

[4] Personal communication: Dr. Andrew Chang, Marine Invasions Research Lab, Romberg Tiburon Center, San Francisco State University.

[5] http://www.sfbaylivingshorelines.org/sf_shorelines_science.html

limited native oyster beds in San Francisco Bay. Some of the native oyster beds still occur at Oyster Point, and therefore, Oyster Point is an ideal candidate location for a project that would increase the area extent of native oyster beds.

Although native oysters are not designated as being a federally endangered species or a state listed species, native oysters are considered by resource and regulatory agencies to be a 'conservation target species'. As such, restoring native oyster beds in the Bay is a priority resource stewardship goal of many state and federal resource conservation organizations.

A program that includes native oyster and aquatic vegetation (eelgrass) restoration is the San Francisco Bay Living Shorelines Project.[6] This project is a multi-habitat restoration effort that currently has two experimental projects in the Bay, and is based on an approach with demonstrated success on the East and Gulf coasts. Positive results from the two experimental projects in the Bay have led to recommendations for additional testing of techniques and gradual up-scaling to larger projects; the 2010 San Francisco Bay Subtidal Habitat Goals Report [7] recommended the next generation of restoration projects include consideration of integrating multiple habitat types (e.g., incorporate native Pacific cordgrass) to improve linkages between wetland, estuarine, and marine habitats. The project scientists are currently acquiring information on the best locations and best methods to implement native oyster and eelgrass restoration. Information from these efforts would be invaluable if restoration is required to offset the impacts from projects in Oyster Point Marina.

The Living Shorelines Project provides reef habitats for estuarine and coastal organisms. Strategic placement of natural reef materials and rock and shell mounds and modules for native oyster settlement and eelgrass plantings increases the overall habitat value of the area by creating three-dimensional substrate spaces for invertebrates and fishes. Seabirds also become attracted to the new habitats because of the increased food resources.

The Living Shorelines Project is a logical program for the SMCHD to include and support when restoration is necessary to mitigate unavoidable project impacts. The infrastructure involving management, agency partnerships, permitting, methodology, implementation, monitoring protocols, and reporting are provided in the Living Shorelines Project. The research elements, planning, and end goals of this program also consider long-term outcomes that include the likelihood of restoration success in the face of climate change involving shifts in seawater temperature regimes, ocean acidification, and sea level rise.[8] Furthermore, the greater public presence at the Oyster Point Marina, due to the new Bay ferry service, provides opportunities for a demonstration project that combines resource restoration with a high potential for an educational outreach program.

Eelgrass is another species of concern to avoid impacting in waterfront construction projects. It is also a common species in habitat restoration projects in bays and estuaries. Currently however, the habitat appears marginal for supporting eelgrass in Oyster Point Marina and in

[6] http://www.sfbaylivingshorelines.org/sf_shorelines_science.html

[7] http://www.sfbaysubtidal.org/sf_shorelines_about.html, http://www.sfbaysubtidal.org/

[8] http://www.sfbaysubtidal.org/oysters_and_climate-about.html

areas of close proximity. The general area has been classified as being relatively poor eelgrass habitat based on physical factors, such as water depth and turbidity that limit the amount of light reaching the bottom and strong tidal currents that can tend to limit the ability for plants to attach and persist.[9] Consequently, any restoration project involving eelgrass at Oyster Point Marina could have a low likelihood of success.

Eradication and Control of Non-Indigenous Species

Helping to sustain and enhance natural biodiversity includes eradicating and controlling non-indigenous species. For example, a non-indigenous species that can and has interfered with oyster restoration in the Livings Shorelines Project is the Japanese oyster drill (carnivorous snail) that feeds on oysters. This is one of many examples where a non-indigenous species can affect the success of a restoration project.

Possible alternatives to help offset potential impacts from projects in Oyster Point Marina could include the SMCHD partnering with and helping to fund other organizations in their non-indigenous species eradication programs. Such partnering, as mitigation, would need to be evaluated and approved by the permitting agencies on a case-by-case basis.

Existing conservation organizations with restoration and non-indigenous species eradication programs in San Francisco Bay include but are not limited to the San Francisco Bay Restoration Authority (SFBR),[10] the Bay Area Early Detection Network (BAEDN),[11] and the San Francisco Estuary Invasive *Spartina* Project.[12] The SFBR is a relatively new regional government agency established to protect, enhance, and restore natural wetlands and wildlife habitats in San Francisco Bay. BAEDN coordinates early detection and rapid response to infestations of invasive plants before outbreaks can grow into large and costly environmental threats. The San Francisco Estuary Invasive *Spartina* Project implements efforts to eradicate the four non-indigenous invasive species of *Spartina* (cordgrass) in the Bay. The San Francisco Bay Conservation and Development Commission (SFBCDC) is the Bay's planning and permitting authority for the State of California.[13] The San Francisco Bay Joint Venture (SFBJV)[14] is an organization for the conservation of waterfowl and wetlands under the North American Waterfowl Management Plan. The broader focus of the SFBJV includes habitats for all birds, consistent with major national and continental bird conservation plans and the North American Bird Conservation Initiative.

[9] http://www.biomitigation.org/reports/files/Baywide_Eelgrass_Survey_Report_0_157a.pdf

[10] http://sfbayrestore.org/index.html

[11] http://baynature.org/organization/bay-area-early-detection-network/

[12] http://www.spartina.org/

[13] http://www.bcdc.ca.gov/

[14] http://www.sfbayjv.org/about.php

A.5.3. RESULTS – PILLAR POINT HARBOR

MARINE HABITAT AND BIOLOGICAL RESOURCES CHARACTERIZATION

The benthic habitat inside Pillar Point Harbor on the open coast is largely a flat muddy sand seafloor created and protected by a breakwater jetty system that divides the harbor into two areas, an inner harbor and an outer harbor.

Etchell (2012)[15] provides a summary of the species found inside Pillar Point Harbor. The study describes the species that could potentially be exposed to and impacted inside the inner harbor from the combination of dredging at the boat launch ramp and repairs to piers and shoreline revetment. The same species list can likely be applicable to a broader range of construction projects in other areas of the harbor. The study also provides an overview of the federal and state environmental laws and regulations applicable to construction projects in the harbor. The same laws and regulations would apply to construction projects in Oyster Point Marina.

The Etchell (2012) study did not identify any species of special concern or species of special regulatory designation (rare, threatened, or endangered). The report did acknowledge that Pillar Point Harbor was within the geographic range of black abalone, which in 2009 was designated as a federally endangered species under the Endangered Species Act.[16] However, any potential impacts to black abalone from the planned harbor construction were discounted due to the soft substrate in the areas of construction; ideal black abalone habitat is rock and boulder crevices in the intertidal zone. The offshore breakwaters are the only areas of the harbor that provide suitable habitat for black abalone. Outside the harbor, the natural rocky intertidal zone of Pillar Point is designated as critical habitat for black abalone. Any repairs or modifications planned for Pillar Point Harbor breakwater jettys should assume that surveys for black abalone will be required.

RESTORATION AND ENHANCEMENT OPPORTUNITIES

Eelgrass is a species of concern to avoid impacting during waterfront construction projects. It is also a common species in habitat restoration projects inside harbors, bays, and estuaries. Eelgrass is a key primary producer, a substrate for epiphytic algae, a foundation species in detritus-based food chains, and important in nutrient recycling. Eelgrass also stabilizes soft sediments and provides spawning and nursery habitat for many economically important fish and shellfish. Accordingly, eelgrass beds are designated as Special Aquatic Sites by the U.S. Army Corps of Engineers, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS). Eelgrass and eelgrass habitat are regulated under Section 404 of the Clean Water Act, and eelgrass is also designated as Essential Fish Habitat by NMFS. The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act contains Essential Fish Habitat provisions to identify and protect important

[15] Etchell, S. 2012. Biological resources analysis, Pillar Point Harbor dredge, maintenance, and repair projects, One Johnson Pier, Half Moon Bay, California. San Mateo County Harbor District. Prepared for GHD, Santa Rosa, California. August 13, 2012.

[16] http://www.nmfs.noaa.gov/pr/species/invertebrates/blackabalone.htm#status

habitats, such as eelgrass and habitats for eelgrass, for helping to sustain populations of habitat-associated federally managed marine species (e.g. fishes).

Eelgrass and eelgrass habitat can be affected by waterfront construction projects through direct impacts and indirect impacts. As such, California Coastal Commission Coastal Development Permits, U.S. Army Corps of Engineer permits, and City permits for waterfront construction projects will usually specify that surveys be conducted to determine if eelgrass is present in proposed construction areas and to assess potential impacts to eelgrass from the construction, including subsequent effects due to shading from docks and moored boats. The surveys are to be conducted using the California Eelgrass Mitigation Policy (CEMP) protocols adopted by the NMFS, USFWS, and CDFW.[17] The CEMP protocols are recent updates to the protocols of Southern California Eelgrass Mitigation Policy (SCEMP), the policy methods used for eelgrass surveys prior to October 2014. As with the past SCEMP, the current CEMP includes density performance criteria for eelgrass transplanting that must be achieved in any restoration program required to mitigate for impacts that are detected in the surveys.

While eelgrass can be abundant in many harbors, bays, and estuaries, it is unknown if eelgrass is present in Pillar Point Harbor. No eelgrass was found during the survey conducted for the SMCHD prior to dredging at the boat launch ramp in 2013.[18] However, the search area was limited to the boat launch ramp area. Future harbor projects will still likely require eelgrass surveys. If eelgrass is found in an area proposed for construction, the plan may need to be modified to avoid impacts to the habitat and eelgrass, or a mitigation plan may need to be developed that likely would involve an eelgrass transplant/restoration project based on the CEMP protocols. The project could also necessitate creating new habitat for eelgrass if suitable habitat is not available. This could involve using dredge spoils to raise the seafloor to a tidal elevation that is suitable for eelgrass. Potential sites would need to be selected based on habitat suitability characteristics, such as water clarity, circulation, and water depth. Another possible option to create more eelgrass habitat would be to remove unnecessary structures (e.g., old docks, wharves, abandoned vessels) that shade seafloor habitat that would otherwise be potential eelgrass habitat. Eelgrass could then be transplanted into those areas, and would be monitored based on CEMP protocols.

Another opportunity for restoration and enhancement of indigenous marine species in Pillar Point Harbor is to include a Living Shorelines Project native oyster (and possible eelgrass restoration) site inside the harbor, possibly near Pillar Point Marsh. This would provide an opportunity for the Living Shorelines Project to expand its restoration efforts outside of San Francisco Bay. Although it is unlikely that native oysters ever occurred in Pillar Point Harbor, as the area was once an open wave-exposed coast in having no breakwaters and thus not suitable habitat for native oysters, the area is now a relatively enclosed protected embayment with a small estuary influence from Pillar Point Marsh. This may provide appropriate habitat for

[17] http://www.westcoast.fisheries.noaa.gov/publications/habitat/california_eelgrass_mitigation/Final%20CEMP%20October%202014/cemp_oct_2014_final.pdf

[18] GHD, Inc. (Cara Scott) Memorandum, Pillar Point Harbor Maintenance Dredging: Eelgrass Presence/Absence Survey. Job No.: 1044910002.33050. Submitted to: Peter Grenell, San Mateo County Harbor District. August 6, 2013.

native oysters, as the harbor is now relatively protected and with limited freshwater influence. Although this would provide unique habitat, the introduction of native oysters (and possibly eelgrass) into Pillar Point Harbor would likely require authorizations from permitting and resource agencies.

Another potential restoration action to implement in Pillar Point Harbor is seabed debris clean-up efforts. This program would help restore and sustain natural subtidal marine habitat by removing human debris cast off from docks and boats in the harbor. A seabed debris clean-up occurred in Pillar Point Harbor about 15 years ago. The SMCHD with local SCUBA dive clubs and harbor services could organize to repeat this effort. Items removed from similar efforts in other small harbors, such as Morro Bay, have included chairs, tools, heaters, tires, batteries, oil cans, bottles, pipes, netting, abandoned traps, and electric motors.

Eradication and Control of Non-Indigenous Species

In 2004, the Marine Invasive Species Program (MISP, *see description above*) expanded its scope to include outer coastal areas, and focused on rocky shores and headlands proximate to shipping lanes. The areas studied, however, do not include Pillar Point Harbor.

The MISP study of outer coastal areas found fewer non-indigenous species along the outer coast than inside major ports; a total of only six non-indigenous species were identified. The findings indicate outer coastal environments are more resistant and less exposed to colonizations and invasions by non-indigenous species. No non-indigenous species were identified from studies in the Fitzgerald Marine Reserve located to the immediate north of Pillar Point Harbor.[19] This, however, does not indicate that non-indigenous species are absent or scarce in occurrence inside Pillar Point Harbor. Instead, many fouling organisms growing on pilings and on the sides and undersides of floating docks and boat hulls in the harbor are likely non-indigenous. The Etchell (2012) study did not address resource regulatory agency concerns regarding non-indigenous species other than acknowledging that surveys for *Caulerpa taxifolia* may be required by the permitting agencies for construction projects in the harbor (*see below*, Discussion section).

A non-indigenous marine algal species in Pillar Point Harbor that has been of concern and has received stronger attention is *Undaria pinnatifida* (*Undaria*), also known as wakame or Asian kelp. *Undaria* was found growing in Pillar Point Harbor in 2009.[20] *Undaria* grows to six feet in length, and is an annual kelp plant that is cultured in Japan and incorporated in many foods in sushi restaurants (e.g., miso soup, salads). It is also available for purchase in specialty food stores. *Undaria* is native to Japan, Korea, and China, but has spread to New Zealand, France, Great Britain, Spain, Italy, Argentina, and Australia. This alga was first discovered on the West Coast of the United States in Los Angeles and San Pedro harbors in 2000. The next year (in 2001), *Undaria* was found in a small cove on the lee side of Santa Catalina Island, and also to the north in Santa Barbara Harbor and Monterey Harbor. Small populations have been found in later years in San Francisco Bay and in Pillar Point Harbor in 2009. While it is not known how *Undaria* first became

[19] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=24305

[20] http://www.aquaticinvasions.net/2009/AI_2009_4_3_Zabin_etal.pdf

introduced in southern California, the spread in California is thought to be from propagules released from plants attached to the hulls of boats transiting up and down the coast. The concern is always that any established non-indigenous population if left unchecked can function as a seed source, which can promote the continued spread of the species.

Dr. Chela Zabin, a marine scientist at the Smithsonian Environmental Research Center, Tiburon, California, has been working with the Bay Area Early Detection Network (BAEDN), an invasive species management coalition. Dr. Zabin implemented an *Undaria* eradication program at locations in San Francisco Bay, and included Pillar Point Harbor on the outer coast in the efforts. Over a three-year period, *Undaria* plants that were attached to the sides of docks in Pillar Point Harbor and on submerged ropes around the docks were removed. All of the removal work was done by hand from the surface (i.e., from kayaks, leaning over docks). It is believed that there was (and is) no *Undaria* growing on the seafloor, due to the lack of hard substrates on the seafloor and insufficient underwater light.[21] (Dr. Chela Zabin, pers. comm.). The removal efforts were unsuccessful, however. Although it was thought the population in the harbor was completely eradicated, the population rebounded. Eradication efforts have since been discontinued.

An approach being used to address the expansion of *Undaria* in New Zealand combines eradication and harvest for human consumption. It is also possible that *Undaria* could be used as an abalone food supplement or a substitute for *Macrocystis* (giant kelp) in the abalone mariculture business. The Pacific Offshore Farms, a red abalone mariculture facility inside Pillar Point Harbor, uses *Macrocyctis* as its primary food source. However, harvesting *Undaria* for human consumption or for an abalone food supplement should not be considered. The harvesting of *Undaria* for commercial purposes would have the potential for intentional introduction to other areas for economic gain.

Sargassum muticum (*Sargassum*) is another non-indigenous species recently detected in Pillar Point Harbor.[22] *Sargassum* is a perennial brown macro-alga of the order Fucales. It is similar to *Macrocystis* in having gas bladders that float the fronds on the sea surface. Many *Sargassum* plants were seen near the boat launch ramp by Tenera staff during the April 29, 2014 project site visit. Whether this was the first sighting of *Sargassum* in Pillar Point Harbor remains unknown. *Sargassum* was introduced on the eastern Pacific Ocean coast of North America in the 1960s, from propagules believed to be transported with Pacific oysters from Asia. It is not known if *Sargassum* spread into California from new introductions directly from Asia or from places elsewhere along the North American Pacific Ocean coast.[23]

Any efforts to remove *Undaria* should also include removing *Sargassum*. Removing *Sargassum* at the boat launch ramp would also remove a possible boating traffic safety hazard. *Sargassum* fronds can entangle in boat propellers and rudders and can therefore affect the safe operation of boats where this alga is abundant. Any eradication program should involve removing entire plants, since the fronds bear reproductive propagules that spread the species to other areas.

[21] Personal communication: Dr. Chela Zabin, Smithsonian Environmental Research Center, Tiburon, California.

[22] Tenera observations during the kick-off meeting site visit on April 29, 2014.

[23] www.redalyc.org/pdf/578/57821483012

The SMCHD could partner with local dive clubs and dive shops to organize and reinitiate *Undaria* and *Sargassum* eradication efforts. The dive effort could also be combined with the seabed debris clean-up efforts described above.

A.5.4. DISCUSSION

RESTORATION OPPORTUNITIES

Potential Oyster Point Marina restoration projects should consider supporting the Living Shorelines Project, which is focused on increasing native oysters and eelgrass in San Francisco Bay.[24] Oyster Point is one of the few remaining sites in San Francisco Bay that supports native oysters. Therefore, there is a high likelihood that restoration efforts to enhance the abundance of native oysters would be successful at Oyster Point. Successful restoration projects would result in increased biodiversity. An additional benefit would be increased protection of the banks of the shoreline in the area. The increase in oyster beds may provide opportunities for establishment of eelgrass in areas where it has not historically been present, further enhancing the habitat value of the area.

Any restoration at Oyster Point Marina should also be located, if possible, where the projects is highly visible to the public, which would help meet goals for education outreach. Oyster Point Marina is an ideal site for demonstration projects as this, due to its high visitor traffic, particularly with the new ferry terminal service.

Pillar Point Harbor represents a site where opportunities for restoration come with some uncertainties not present at Oyster Point Marina. Although increasing eelgrass habitat is a common goal of restoration projects in similar harbors and embayments in California, there is no current information on the occurrence of eelgrass in Pillar Point Harbor. The lack of eelgrass may indicate that environmental conditions are not favorable in the harbor to support an eelgrass enhancement project, and may also indicate that any transplanted eelgrass would have to come from donor beds in other coastal areas. This increases the uncertainty associated with any restoration project focused on increasing eelgrass in Pillar Point Harbor. Furthermore, creating eelgrass beds in the harbor that has perhaps lacked eelgrass could result in future permitting for waterfront construction projects in the harbor having to address potential impacts to the new eelgrass.

Implementing native oyster enhancement in Pillar Point Harbor through the Living Shorelines Restoration Project has similar uncertainties, since there is no record of native oysters occurring in the harbor area. Also, it may be difficult to obtain the necessary approvals and permits to introduce oysters (and eelgrass) into a water body where the species was not previously documented to occur.

Removing human-related debris that is littering the seabed would help to restore and maintain natural benthic habitat. This could be a volunteer program coordinated by the SMCHD with

[24] http://www.sfbaylivingshorelines.org/sf_shorelines_about.html

local SCUBA dive clubs and dive shops. This type of program is likely only feasible in Pillar Point Harbor. Diving should not be encouraged in Oyster Point Marina, due to poor underwater visibility and questionable water quality conditions that may result in unsafe diving conditions. A commercial salvage company should be used if any debris removal is necessary in Oyster Point Marina.

NON-INDIGENOUS INVASIVE MARINE SPECIES AND CONTROLS

Ballast water of international ocean-going vessels is a major pathway for the introduction of non-indigenous species into California's bays and harbors. Ballast water pumped into a vessel while in port is likely to contain propagules from local species that can be transported across oceans and then discharged at or near the next port of call. These propagules may then develop into healthy reproducing adult populations. At invasive levels, non-indigenous species can displace native species, alter food chains, and affect biodiversity. Faster ships have increased the chances for non-native species to survive long journeys and become established in new harbors. Transport also occurs when foreign organisms and propagules occur incidentally with organisms transported in the aquaculture, bait, and aquarium trades. Propagules released from fouling organisms growing on ship hulls is another transport mechanism for non-indigenous species.

There are many state, federal, and international programs to help control the spreading of non-ndigenous marine species. These include ballast water management programs, use of anti-fouling paints to prevent species from growing on ship hulls, hull cleaning procedures, and inspections.[25] Local programs at marinas and harbors can mainly only target smaller boats used by the recreational and commercial boating communities. The smaller boats, particularly those transported on trailers, can be inspected at launching places prior to launching. Education outreach is an important component to limiting the spreading of non-indigenous species, as it is more efficient and cost effective for boaters to conduct their own inspections. An effective outreach program would help ensure that boats are free of non-indigenous species before launching.

One of the non-indigenous species of most concern in the marine environment in California is the invasive strain of *Caulerpa taxifolia*, a fast-growing, hardy, tropical, marine, green alga.[26] *Caulerpa* is a popular salt water aquarium plant, and the concern is that *Caulerpa* can spread in the wild when aquarium contents with *Caulerpa* are discarded into the ocean. *Caulerpa* has become established in the Mediterranean Sea at invasive levels. It it has formed extensive dense beds carpeting the seafloor, smothering natural communities, and dramatically reducing biodiversity.

[25] http://www.dbw.ca.gov/PDF/CleanGreen/marina-toolkit.pdf
http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Watercraft%20and%20Equipment.pdf
http://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/4_2e_nderwtr_hull_boat_main.shtml
http://www.psmfc.org/ballast/wordpress/wp-content/uploads/2011/05/IPMforBoats_2012.pdf

[26] http://www.waterboards.ca.gov/losangeles/water_issues/programs/water_quality_issues/killer_algae_article.shtml

In summer 2000, the first western North America occurrence of the invasive strain of *Caulerpa* was discovered in southern California, in Agua Hedionda Lagoon and Huntington Harbor. Persistent efforts, however, successfully eradicated *Caulerpa*. [27]

The ocean water temperatures at Pillar Point Harbor and San Francisco Bay (Oyster Point Marina) are considered to be too cold for *Caulerpa* to survive. Morro Bay, located approximately 171 miles (275 km) south of Pillar Point Harbor, is the water body furthest north where *Caulerpa* surveys for waterfront construction projects are required by the NMFS and CDFW. In contrast, *Undaria* and *Sargassum* have a higher potential to become invasive in both Pillar Point Harbor and Oyster Point Marina. Preventing the populations from becoming invasive may be achievable with persistent removal efforts (collecting by hand), but complete eradication may not be achievable.

A.5.5. WATER QUALITY

One of the responsibilities of harbor departments and districts is to protect, improve, and sustain water quality in harbors and marinas. The water quality in Oyster Point Marina is largely the same as the surrounding water in San Francisco Bay. It should be noted that the Bay is on the Clean Water Act 303(d) list as an impaired water body, due to poor water quality. [28] The poor water quality, from pollutants and other stressors, stems largely from the surrounding industries, water commerce, and from contaminants reaching the Bay via creeks and stormwater runoff from the surrounding metropolitan areas, including runoff from agricultural lands. A single harbor department, district, or entity cannot reverse the problem, but can implement measures at their harbors and marinas that do not contribute to further degradation of water quality.

The Clean Marinas Program provides harbor and marina operators with a set of best management practices, that if implemented is to help avoid the further degradation of water quality.[29] The program is an alliance of government and private marina operators and yacht clubs that provides environmentally sound operating practices for protecting the states' waters from pollution. The U.S. Environmental Protection Agency provides additional best management guidelines for harbor and marina operations.[30]

In spring 2013, Oyster Point Marina and Pillar Point Harbor became two of 124 harbors, marinas, and yacht clubs in California to receive Clean Marinas Program certifications in recognition of their accomplishments to protect water quality. Ways in which water quality was protected at the Oyster Point Marina and Pillar Point Harbor include the following:

- Emergencies: contact lists, shut off valve location maps, on-site emergency response equipment;
- Petroleum containment: fueling and spill control procedures;

[27] http://www.globalrestorationnetwork.org/uploads/files/CaseStudyAttachments/71_c.-taxifolia-eradication.pdf

[28] http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/r2_final303dlist.pdf

[29] http://www.cleanmarina.org/

[30] http://www.epa.gov/region2/p2/documents/best_management_practices_marina_facilities.pdf

- Topside boat maintenance and cleaning: containment of pollutants, staging areas;
- Underwater boat hull cleaning: paint applications, cleaning frequency, methods, invasive species controls;
- Marina and yacht club operations: outdoor storage and protective controls, spill response;
- Debris: control of pets, landscape fertilizers, proper garbage disposal;
- Boat sewage discharge: education outreach, proper holding tanks, pump out facilities;
- Solid waste: proper garbage storage and pickups;
- Liquid waste: oil recycling, storage, disposal;
- Fish waste: fish cleaning stations, proper fish waste and non-native live bait disposal;
- Hazardous materials: proper storage, labeling, emergency response plans;
- Stormwater runoff: good housekeeping, minimize pollutant runoff during rains; and
- Environmental programs: foster the Clean Marinas Dock Walker Program for education outreach.

Pillar Point Harbor on the open coast is less exposed to pollution from industrial water commerce and from large metropolitan areas, but fecal contamination has been a water quality concern. Suspected sources have included sewage discharges from people living aboard vessels moored in the harbor and fecal contamination from dogs, birds, and marine mammals. Although all of these sources contribute to the problem, the most significant contributions are from stormwater runoff from inland areas, which transports fecal contaminants from cattle, deer, and other animals into the harbor. [31]

A.5.5. RECOMMENDATIONS

Marine environmental conservation combined with fostering opportunities for restoration and enhancement are important resource stewardship goals and responsibilities for the SMCHD in managing and operating Oyster Point Marina and Pillar Point Harbor. The following can be considered for input into the management plans for the two facilities:

OYSTER POINT MARINA

- Collaborate and provide support for the Living Shorelines Project to establish restoration site(s) for native oysters and potentially for eelgrass at Oyster Point.

[31] http://www.smharbor.com/pillarpoint/rcn_report_022014.pdf
http://www.sanmateorcd.org/PPH/RCD_PPH_FinalReport_012814_no%20appendices.pdf
http://www.smharbor.com/pillarpoint/Kellyx_Nelson_column_022014.pdf
http://www.smharbor.com/pillarpoint/fecal_report_062013.pdf

PILLAR POINT HARBOR

- Re-initiate an *Undaria* control/eradication program, which should include control/eradication of *Sargassum*. Include diving surveys and eradition of subtidal populations. The surveys and eradication efforts can be potentially organized and implemented through local SCUBA dive shops, dive clubs, and kayak clubs.
- Conduct surveys to determine whether eelgrass and native oysters are present in Pillar Point Harbor. This effort should be contracted out to a service provider, due to the expertise required to identify the two species and evaluate potential habitat.
- Investigate the feasibility of implementing a Living Shorelines Project in the harbor to establish native oysters and eelgrass, and support the actions if approved.
- Implement seabed debris clean-up efforts possibly using local volunteer sources.
- Implement public education outreach to provide recognition for resource stewardship efforts.

OYSTER POINT MARINA AND PILLAR POINT HARBOR

- Maintain Clean Marinas Certifications (five-year re-evaluations).
- Establish education outreach signs at boat launch ramps and hoists for boaters to take actions to prevent non-indigenous species from spreading. Require that all boats pass a screening inspection prior to launching. This can be a self-check or can be completed by a trained inspector.
- Partner with resource agencies and conservation organizations whose goals are to maintain and restore indigenous species and habitats, including eradicating and controlling the spread of non-indigenous species. This will help ensure that SMCHD natural resource stewardship goals and outcomes are consistent with and support other programs. Such proactive collaborations should also help facilitate the planning, permitting, and implementation of future SMCHD waterfront projects that need to include marine conservation and restoration projects.