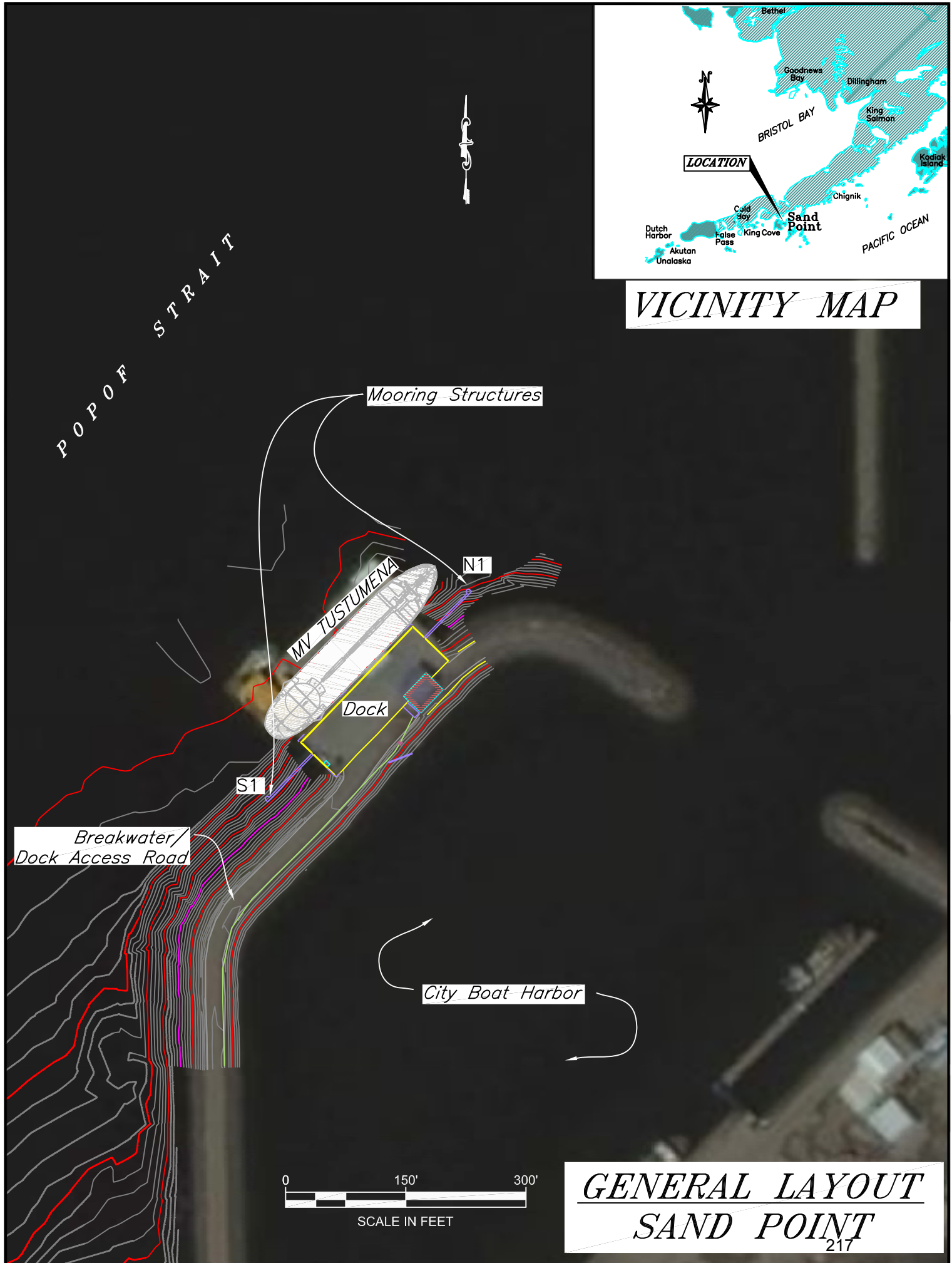


VICINITY MAP



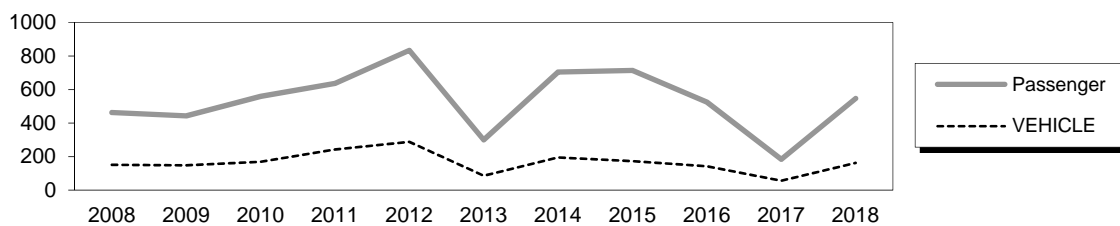
GENERAL LAYOUT SAND POINT

Sand Point City Dock

Owner: City of Sand Point

Contact: Richard Kochuten, Harbormaster 907-383-2331

Terminal Description: The M/V TUSTUMENA docks at the Sand Point city dock on its east/west passage through the Aleutian Chain. The Sand Point facility is a multi-use freight wharf, constructed in 1983 by the City of Sand Point. It is located at the northeast end of the small boat harbor breakwater. The dock is approximately 200' long and 60' wide and consists of pre-stressed concrete deck panels supported by steel beams and steel pipe piles. There are six fenders along the dock face. Each fender has two steel pin piles, a steel framework with timber face and is attached to the dock with rubber cylinders. Steel mooring dolphins with fender systems are located at each end of the dock and accessed by catwalks. The US Army Corps of Engineers extended the riprap breakwater around to the East to protect the City's small boat harbor in 2006. The breakwater serves as a new single-lane access road. The facility is a multi-purpose facility and is utilized by other vessels. AMHS is not in control of the operation or maintenance of this facility. The past 10 years of total passenger and vehicle traffic at Sand Point is shown below. The M/V Tustumena was out of service most of 2013, causing a steep dropoff in traffic at the terminal.



The most recent above water survey was completed on September 21, 2018. The underwater inspection occurred on July 12, 2014. The most recent fracture critical inspection was on September 15, 2012.

Vessels	
Name	Berthing, Alignment
Tustumena	Starboard

Tidal Data (MLLW=0.0 feet)	
Highest Observed	9.5
MHHW	-
MHW	-
Lowest Observed	-3.0

Terminal Building
This facility does not have a terminal building.

Generator & Building
This facility does not have a generator on-site.

Utilities @ Dock	
Fuel:	No
Electric:	No
Water:	No

Uplands	
Short-Term Parking:	N/A
Long-Term Parking:	N/A
Staging Area:	250 lineal feet

City Dock - #1756	
Year Built:	1983
Submerged steel coating:	Black coal tar epoxy; 80% of the coating has failed
Fenders:	Steel pin piles with timber face
Mooring bollards/cleats:	Cleats mounted along edge of docks
Lighting:	Light posts mounted on dock
Condition:	Fair
Load Posting Sign:	N/A
Original Design Load:	400 psf / 988 Loader / 150 Ton Mobile Crane

Dolphins							
Dolphins	Dolphin Piles	Fender Support	Fender Face	Anodes	Built	Cond.	Notes
N1	1B, 1V	Mooring Only		No	1983	Poor	Red navlight & reflector
S1	1B, 1V	Mooring Only		No	1983	Poor	Red navlight

Observations

1. The dock deck consists of precast concrete panels spanning between pier caps. There is no additional wearing surface on the panels. The most recent Fracture Critical inspection found enough deficiencies to rate the deck in **poor** condition. There is cracking, spalling and delamination in the underside of deck panels between Stringers 2 and 5. There are a pattern of circular spalls, lateral cracks along a line coincident with steel rods embedded in the panels between steel angles. Moderate efflorescence and rust staining is also evident within the cracks, at the angles along the panel edges. There are also several spot spalls up to 3' diameter that occur at the quarter points of the panels. Efflorescence, rust staining and where exposed, corroded reinforcement, is typical.

The concrete deck was heavily traversed by forklifts, with chains on the tires during the winter, for many years. The City has recently restricted forklift access, but the top surface of the concrete panels area abraded with widespread spalling around the edges of deck panels. The City's Harbor Dept. staff monitor loads on the dock when they're on shift during the day.

A load rating study by the DOT&PF bridge department, completed in 2015, found that the dock has the capacity for carrying standard highway vehicle loads. The City should hire an Engineering firm to evaluate the dock for heavier freight loading.

2. The pier caps consist of rolled steel girders supported by vertical steel pipe piles. Stringers consisting of rolled steel girders span between the pier caps. The pipe piles are welded to 24" diameter circular bearing plates, which are welded to the bottom flanges of the pier caps. The most recent Fracture Critical inspection found enough deficiencies to rate the pier caps/stringers in **poor** condition.

The splice plates at the stringer/pier cap connections and bolted field splices were replaced with smaller plates with no paint coating, so excessive corrosion (and white rust) has formed and spread to other parts of the stringers and pier caps. 20-30% section loss is typical on flanges, webs, splice and stiffener plates, with higher section loss at isolated locations. Bolts are missing or too short in stringer to pier cap connections and there are several 1/2" to 1" deep impact damages on flanges.

3. The piles consist of 16" diameter steel pipe piles. According to the most recent fracture critical inspection the piles are in **poor** condition with laminar corrosion up to 1/4" and 1/16" of pitting is typical. Ultrasonic thickness measurements indicate that there is up to 25-30% section loss in the areas with heavy corrosion. It was also noted that numerous piles were driven out of alignment with the pier caps. The caps are off-center 2-3" from the centerline of the pier caps.

4. There are six fender modules equally spaced along the face of the dock. Each is supported on pin piles with large side-loaded rubber cylindrical energy absorbing units bearing against the dock face. The fender panels consist of steel framing and vertically oriented timbers. Each fender module includes an integral emergency ladder. Retaining brackets are damaged on all modules, likely from the combination of vessel impact and mooring line loads. Fender 4 is displaced 32" to the left and the retaining brackets are destroyed. Several timber elements are broken or missing on each module. It also appears that the support piles have settled on several of the fender units. Fender 4 is missing its transition plate. There are no lateral chains on any modules.

The AMHS vessel Tustumena Master was on-site during the '18 inspection, and noted that he must be very cautious when landing at the dock.

5. Dolphin N1 appears to have been impacted by a vessel. Sections of open grating are missing on top of the dolphin & catwalk, grating that remains on the dolphin is severely bent, the tube frame support for the grating has sheared away from the dolphin cap & the end catwalk handrail & navlight support are bent shoreward. Coatings are failing on the catwalks and dolphins.
6. The bollards are fastened to cast-in-place concrete pedestals and the surface of the concrete has failed prematurely. The concrete has spalled, exposing some of the steel reinforcement. Two pedestals have been repaired yet three still need repair. Cracks line the concrete curb along the outer face of the dock, likely transferred from vessel impacting the fender system.

Observations (continued)

7. The dock is relatively narrow and vehicle transfer can be difficult, particularly when there are vehicles dropping off or meeting passengers on the dock. The cable guardrail, north of the dock, is substandard and failing. The last section of cable rail, transitioning to the dock, was not reassembled after construction and the cable lies on the riprap slope.
8. The City of Sand Point provides line handling for the M/V Tustumena. Exterior lights affixed to the City Building on the dock are glaring, and seriously disturb visibility for approaching vessel captains. Navigational lights are missing on the end dolphins (S1 & N1).
9. Soundings between top of deck and mudline, are leadline readings at locations along the fender face in 2018 and range from 41 to 46-feet.
10. The most recent inspection ('18) took cathodic protection readings averaging -1.04V on the dock support piles & mooring dolphins, and -0.67V on the fender modules. Any reading less negative than -0.8V indicates the steel is not adequately protected from corrosion.

Inspection Summary		
Structure	Priority	Recommendations
<i>Category I - Safety Issues</i>		
Dock - Fender Modules	1	Replace damaged fender mount brackets and cracked timbers. Install cross chains between the top fender panel and the dock to properly transfer mooring line loads. If fender support piles have settled, then install vertical support chains & dock connections.
Load Rating	2	The cracking, efflorescence, and rust staining on the underside of the dock indicate overloading of the concrete. The City should hire an Engineering Firm to load-rate the dock for heavy freight loads. Or post a sign restricting use to standard highway vehicles only.
Dock Support Piles	3	Repair the damaged pile on the dock face. Cut out the damaged portion, install a new pile section, and reapply the protective coating. The pile cap may require repair as well.
Transition Guardrail	4	Re-install the transition section of guardrail adjacent to the north corner of the dock.
Lighting	5	Install non-glare lighting along the dock and repair damaged/missing navigational lights at each end dolphin (S1 & N1).
<i>Category II - Rehabilitation Work</i>		
Dolphins	6	Repair the cap (including the tube frame support, open grating, end catwalk handrail, & navlight support) on dolphin N1.
Coating Repair	7	Coatings are failing on both catwalks. Re-coat the steel superstructure and the splash zone portion of the piling.
Mooring cleats	8	Repair remaining damaged concrete cleat supports.
<i>Category III - Upgrades Needed</i>		
Dock Replacement	9	The new dock under construction will be the AMHS port of call. But this facility will still be open for use by the City of Sand Point. It is recommended that they procure funding for repairs, especially to the fendering modules and the steel support piles. We also highly recommend a Structural Engineering firm perform a load rating of the dock in its current state.

Project #SFHWY00006 – Sand Point City Dock Replacement:

This project is currently under construction. The project is being constructed adjacent to the southwest end of the existing dock and will be approximately 70-ft wide and 220-ft long. The dock will be constructed utilizing concrete deck and framing on driven steel piles. New shot rock fill will be placed behind the structure to extend the existing breakwater and to create additional uplands area for safe passenger staging and maneuvering of equipment. Project completion slated for Fall 2019.