

**St Paul Island**  
**St Paul Harbor**



**Condition of Improvements**  
**31 December 2019**  
**St Paul Harbor**  
**St Paul Island, Alaska**  
**(CWIS Nos. 010169, 010429 & 080526)**

**Authorization** (1) Water Resources Development Act, 17 November 1986 (Public Law 99-662, Section 202) as adopted, provides for an addition to the existing breakwater of 1050 feet at 37 feet above MLLW, a detached breakwater 1000 feet in length at 18 feet above MLLW protecting Village Cove, and a maneuvering area 200 feet wide at 18 feet below MLLW. (2) Water Resources Development Act of 1996, (Section 101(b)(3), Public Law 104-303) provides for an entrance channel at -30 feet MLLW, enlarges the maneuvering basin to 415 by 830 feet with a depth of -29 feet MLLW, creates a wave spending beach at +4 feet MLLW, a tidal channel into the Salt Lagoon at 40 feet in width at -3 feet MLLW for environmental mitigation, and three off-shore reefs 1,300 feet in length at -12 feet MLLW. (3) Water Resources Development Act of 1999, 106<sup>th</sup> Congress, provides for a small boat harbor with an entrance channel at -16 feet MLLW and a maneuvering area at -12 feet MLLW with appropriate wave protection flow directing features consisting of a breakwater of 435 feet at 10 feet above MLLW and a circulation berm of 530 feet at 10 feet above MLLW.

**Local Cooperation** Under Section 204(e) of Public Law 99-662, the Federal government agreed to reimburse the City 80% of the project costs upon acceptance by the Corps of Engineers. Under this agreement, the project was initially funded and supervised by the City of St. Paul.

**Project Usage** The harbor at St. Paul (Pribilof Islands) is an important harbors-of-refuge for the bottom-fishing fleet in the Bering Sea and provides crucial economic support for this remote community.

**Table 1**

<b>Existing Project</b>	<b>Length ft.</b>	<b>Width ft.</b>	<b>Depth ft.</b>
Main Breakwater (Federal)	1050		
Detached Breakwater	1000		
Entrance Channel	2000	varies	-30
Maneuvering Area	varies	varies	-29
Offshore Reefs (3)	1300		-12
Intertidal Beach Area			0

**Table 2**

<b>Small Boat Harbor</b>	<b>Length ft.</b>	<b>Width ft.</b>	<b>Depth ft.</b>
Detached Breakwater	160		
Circulation Berm	485		
Attached Breakwater	435		
Entrance Channel	varies	varies	-16.5
Mooring/Maneuvering Area			-12
Mooring Area (Back)			-8

**Progress of Work**

1989	Construction begins in May and all phases are completed in December.
1990	After the project is inspected and accepted by the Corps of Engineers, the City of St. Paul is reimbursed \$18,150,000 in March.
1995	A condition survey of the breakwaters and entire harbor is completed in July. Minor repairs are made to the main and detached breakwaters by placing armor stone at the damaged sites.
1999	Phase I contract is awarded to construct (3) off-shore reefs to protect the main breakwater.
2001	The latest condition survey of the harbor and breakwaters is completed in July. Phase I contract is modified to repair scour behind the off-shore reefs.
2002	A survey of the three off-shore reefs is conducted in May.

## **Progress of Work**

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- 2003 The three off-shore reefs and the outer entrance channel are surveyed in May. A contract for Phase II dredging is awarded in June.
- 2005 The Salt Lagoon and main harbor are surveyed in March. Phase II construction is completed.
- 2006 Vertical and oblique aerial photography is taken in May. An extensive condition survey was conducted throughout the harbor and Salt Lagoon in May and June.
- 2008 A contract for Phase III construction of the small boat harbor is prepared.
- 2009 The contract for construction of the small boat harbor, Phase III, was awarded in May. Construction will begin in the summer of 2010.
- 2010 As a local feature in the small boat harbor, armored slope protection was added to the breakwater berth area and the harbor dredged to -29 feet. Trenches were dredged to -33 feet in front of the existing docks. The harbor was also updated with a circulation berm, a detached breakwater, and an attached breakwater. The mooring/maneuvering area was dredged to -12.5 feet and an entrance channel was dredged to -16.5 feet. The intertidal beach area was excavated as an environmental mitigation feature. Construction was completed October.
- 2011 A project condition survey was conducted in August.
- 2012 USACE Comprehensive Evaluation of Project Datums (CEPD) Compliance report completed and recorded in September.
- 2014 A project condition survey was conducted in August.
- 2015 Plans and specifications for repair of the detached breakwater, construction of scour protection and maintenance dredging in the main entrance channel, the small boat harbor entrance channel and the sediment management area were completed in July. Repairs to the detached breakwater are necessary as the result of storm damage to some of the armor layer on the seaward side. Contract W911KB-16-C-0001 was awarded to Kiewit Infrastructure West in October for repair of the detached breakwater only. The scour protection and dredging are option items pending the availability of funds.
- 2016 All contract options for dredging and scour protection were awarded in March for a total contract amount of \$19,142,500. Breakwater construction and dredging were completed May-August. Work accomplished includes rebuilding the head and 100 feet of the detached breakwater; placement of a single layer of armor along approximately 400 feet of the seaward side of the detached breakwater; dredging 37,078 CY from the entrance channel (-30' MLLW), 1,987 CY from the small boat harbor (-12' MLLW) and 43,795 CY from the sediment management area (-10' MLLW); and placement of 17,691 CY of scour protection at the head of the main breakwater and 1,766 of scour protection at the small boat harbor entrance channel. Due to quantity overruns, entrance channel dredging was limited to the last 600 feet approaching the harbor entrance and to a distance of 100 feet off the channel centerline on the northeast side. Dredged material was placed in an upland disposal site.

## Progress of Work

2019 A project condition survey was conducted in July. A severe storm in mid-October (remnants of Typhoon Hagibis) causes overtopping of the main breakwater. There appears to be increased scour off the nose of the attached breakwater in the small boat harbor.

**Table 3 Cost to Date**

Project	Description	Cost \$
010169	GI PED Appropriations	534,000
	GI PED Costs	534,000
	O&M Appropriations	21,318,767
	O&M Costs	21,204,120
010429	GI PED Appropriations	696,770
	GI PED Costs	696,770
	CG Appropriations	81,689,449
	CG Costs	81,687,661
	CG Contributed Appropriations	9,373,322
	CG Contributed Costs	9,034,970

**Table 4 Range of Tides in feet**

Tide Station	Mean Range	Diurnal Range	Extreme Range
946 4212 Village Cove, St Paul Island AK	2.08	3.23	7.36

*NOAA Publication Date: 06/17/2019*

**Controlling Depth** In July 2019, project depth of -30 feet MLLW can be found throughout most of the main entrance channel, the eastern boundary of the main entrance channel has shoaled to a controlling depth of -15.0 feet MLLW. A depth of -27.6 feet MLLW controls the northern end of the federally maintained maneuvering basin. The majority of the small boat harbor entrance channel is above the project depth of -16.5 MLLW with points as shallow as -10.2 feet MLLW along the southern boundary. Project depth of -12 feet MLLW can be found throughout 80% of the small boat harbor mooring area, a controlling depth of -3.6 feet MLLW can be found along the northern limits. Project depth of -8 feet MLLW can be found throughout most of the small boat harbor maneuvering area, a controlling depth of -6.8 feet MLLW can be found at the very southeasterly corner.

# Maintenance Dredging Supplement

## A. Sampling and Testing

1. Sediment and soil sampling was accomplished by Kiewit Infrastructure West under contract W911KB-16-C-0001 in April 2016 prior to dredging. Sediment samples were collected at thirteen locations in St Paul Harbor and soil samples were collected at eight locations in the upland disposal area. The harbor sediment samples were evaluated using the test methods as outlined with results below:

**Table 5 Chemical Testing (2016)**

<b>Method</b>	<b>Chemical analysis</b>	<b>Results</b>
AK102 6020	Diesel Range Organics (10) RCRA Metals	ND (none detected )  Arsenic, Chromium and Nickel detected above ADEC screening levels; all others below minimum levels or not detected

*Project limits are defined by ADEC 18 AAC 75 Method 2 Table B1 and B2 Cleanup Level.*

2. The soil samples collected from the upland disposal area contained the same metals above screening level as the sediment samples from the harbor. However the background concentrations of arsenic, chromium and nickel within the upland disposal area were greater than the concentrations present in the sediments to be dredged and the sediments were considered suitable for upland disposal.

# St. Paul Harbor, St. Paul, Alaska



Aerial Image of St. Paul Harbor, 2014



St. Paul Harbor, Detached Breakwater and Spending Beach, July 2019



# St. Paul Harbor, St. Paul, Alaska



St. Paul Harbor Entrance Channel, July 2019



St. Paul Harbor Small Boat Harbor, July 2019