

## **Appendix A:**

Alternatives Considered



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## **Alternatives Evaluated But Dismissed from Further Consideration**

The condition of the existing Sitka Seaplane Base (A29) facilities have deteriorated and the site has insufficient capacity and the inability to expand due to site constraints. A new seaplane base is needed to address the unsafe and hazardous conditions at the existing facility.

Over the last 18 years, the City and Borough of Sitka has conducted three studies evaluating solutions to address the deficiencies at the existing location (HDR 2002, DOWL 2012, DOWL 2016).

Using FAA seaplane base planning criteria and aviation user input, 12 sites were evaluated in 2002 for their ability to accommodate safe takeoff, landing, taxiing, and docking operations and to accommodate the facilities needed to adequately address forecast operations capacity (See Figure A-1). Criteria specifically evaluated included:

- Future Demand – ability to meet long-term demand of 15 slips.
- Water Operating Area Characteristics – including size, current speed, water levels, wave action, debris, maneuvering space, sheltered moorage, safe bottom conditions, wildlife attractants, operational flexibility, prevailing winds, and approach and departure paths.
- Shoreside Facilities – including floating docks, gangways, and haulout ramps
- Upland Facilities – including lease lots, administrative facilities, access, parking

The 2002 study evaluated sites in four steps:

- Site Identification
- Fatal Flaw Screening (including topography, wind characteristics, wave characteristics)
- Conceptual Layouts and Evaluation
- Preferred Alternative Recommendation

The majority of sites (nine) were determined to have fatal flaws from an operations safety perspective due to topography, wind and wave conditions, and other marine traffic congestion issues (Table 1). Topography is a critical consideration, as are protection from wind and waves and proximity to the area to be served. Seaplane bases must have sufficient airspace for safe operations. Southeast Alaska, including Sitka, is an extremely mountainous area with the potential for extreme wind and waves. Sitka Channel provides some protection from the storms of the Gulf of Alaska.

Only three alternatives were identified as reasonable alternatives to provide the needed capacity and provide for safe seaplane operations. The three sites were all located on Japonski Island's northeast shore: Work Float Site, Mount Edgecumbe School Site, and Southeast Alaska Regional Health Consortium (SEARHC) Site (now called Japonski Island site), which became reasonable alternatives (Table 2, Figure A-2). The 2002 study recommended the SEARHC site and developed a master plan concept for a new seaplane base at that location.

**Table 1. Sites Dismissed in Fatal Flaw Screening**

Site Evaluated	Reason for Dismissal from Detailed Analysis
Starrigavan Bay	<ul style="list-style-type: none"> <li>• No protection from open ocean swells</li> <li>• Large wind chop from southeast, north and west</li> <li>• Water typically choppy and rough</li> <li>• Huge wakes from large boats and ferry</li> <li>• No room for upland development</li> <li>• High level of salmon and waterfowl use</li> <li>• Too far from town for seaplane pilots and community</li> </ul>
Existing Site	<ul style="list-style-type: none"> <li>• Rocks and boulders under the water</li> <li>• Heavy bird attractant at adjacent fish processing plant</li> <li>• Significant fishing and boat traffic</li> <li>• Inadequate size for safe maneuvering room</li> <li>• No expansion room to meet existing and forecast demand</li> <li>• No upland area for parking</li> <li>• Small expansion area available only</li> <li>• Narrow wingtip clearances between seaplanes</li> </ul>
Thomsen/Eliason Harbor	<ul style="list-style-type: none"> <li>• Constrained by large boat harbor and shallow water</li> <li>• Insufficient space at low tide to safely accommodate seaplane passage without significant dredging</li> <li>• Salmon run in vicinity</li> <li>• Would need cost-prohibitive dredging and development</li> <li>• High-value wetlands in intertidal area</li> <li>• Freezing concern due to freshwater concentration from anadromous stream</li> <li>• High level of boat traffic</li> <li>• Possible strong local opposition to upland development for seaplane facilities</li> </ul>
Mount Edgecumbe	<ul style="list-style-type: none"> <li>• More aircraft noise in residential and institutional areas</li> <li>• More exposure of dock to wind and wave action</li> <li>• Concern over north and west winds</li> <li>• Insufficient uplands for future seaplane base development</li> </ul>
SEARHC Cove	<ul style="list-style-type: none"> <li>• Dock exposed to more sea swells as they come in between the breakwater and Japonski Island</li> <li>• Seaplane operations very close to SEARHC clinic and residential areas</li> <li>• Insufficient upland area for seaplane base development</li> <li>• Very shallow cove, fairly far waterline retreat during low tide</li> </ul>

Site Evaluated	Reason for Dismissal from Detailed Analysis
	<ul style="list-style-type: none"> <li>Increased road traffic on road next to SEARHC hospital</li> <li>More seaplane noise for land uses at north end of Japonski Island</li> </ul>
Japonski Lagoon	<ul style="list-style-type: none"> <li>Incompatible with Sitka Airport Master Plan</li> <li>Safety problem with wildlife hazard posed by lagoon</li> <li>Wind exposure</li> <li>Sea lane only partially protected from sea swells and larger waves</li> <li>Expense of blasting sea lane channel</li> <li>No breakwater protection for eastern side of sea lane</li> </ul>
Charcoal Island	<ul style="list-style-type: none"> <li>Significant wave, sea swell, and wind energy</li> <li>Long taxi into Sitka Channel</li> <li>Large wind chop from prevailing winds</li> <li>Strong and turbulent winds from Blue Lake</li> <li>Topography limits during cloudy or foggy conditions</li> </ul>
Sawmill Cove	<ul style="list-style-type: none"> <li>Long fetch of Silver Bay with direct access to open ocean via Eastern Channel</li> <li>Large wind chop from prevailing winds</li> <li>Strong and turbulent winds from Blue Lake</li> <li>Topography limits during cloudy or foggy conditions</li> <li>Too far from town for seaplane pilots and community</li> </ul>
Work Float	<ul style="list-style-type: none"> <li>Not well protected from wind</li> <li>Cost and lack of feasible relocation for work float use</li> <li>Seaplanes in close proximity to US Coast Guard vessels and dock</li> <li>Difficult to control access to the storage area and dock</li> <li>Heavy boat traffic at fueling facility and mouth of harbor under bridge</li> <li>Insufficient upland parking area and development potential</li> </ul>
Jamestown Bay	<ul style="list-style-type: none"> <li>Turbulent wind due to surrounding topography</li> <li>Large number of downwind takeoffs</li> <li>Significant exposure to southwest swells</li> <li>High level of small and large boat traffic</li> <li>Upland area mostly residential</li> </ul>
Herring Cove	<ul style="list-style-type: none"> <li>Long fetch of Silver Bay with direct access to open ocean via Eastern Channel</li> <li>Large wind chop from prevailing winds</li> <li>Strong and turbulent winds from Blue Lake</li> <li>Topography limits during cloudy or foggy conditions</li> <li>Too far from town for seaplane pilots and community</li> </ul>

Adapted from HDR, 2002a, 2002b

**Table 2. Sites Evaluated in Identifying 2002 Preferred Alternative**

Site Evaluated	Advantages	Disadvantages
Safe Harbor	<ul style="list-style-type: none"> <li>• Sufficient uplands for vehicle parking.</li> <li>• Some protection from swells, wind, and waves from US Coast Guard dock.</li> <li>• Easily seen/accessed from existing road system.</li> <li>• Least constrained future landside development.</li> </ul>	<ul style="list-style-type: none"> <li>• Seaplanes in close proximity to US Coast Guard vessels and dock</li> <li>• More exposed to prevailing winds and wave action than existing or proposed site</li> <li>• Relatively congested boat traffic area</li> <li>• Not substantially away from wildlife attractants at existing site</li> </ul>
Mount Edgecumbe	<ul style="list-style-type: none"> <li>• More seaplane operations in Western Anchorage, not main Sitka Channel, reducing Channel congestion</li> <li>• Well protected from south and southeast winds</li> <li>• Increased separation from primary bird attraction to 2,000 feet</li> <li>• Potential use of existing ramp for light maintenance and fueling</li> </ul>	<ul style="list-style-type: none"> <li>• More aircraft noise in residential and institutional areas</li> <li>• More exposure of dock to wind and wave action</li> <li>• Concern over north and west winds</li> <li>• Insufficient uplands for future seaplane base development</li> </ul>
SEARHC Cove	<ul style="list-style-type: none"> <li>• More seaplane operations in Western Anchorage, not main Sitka Channel, reducing Channel congestion</li> <li>• Seaplane dock size not constrained by surrounding land</li> <li>• Best location operationally</li> <li>• Reduces proximity to primary bird hazard</li> <li>• Increased separation from primary bird attraction to 3,500 feet</li> <li>• Proximity to airport facilitates passenger transfer and access to fuel and maintenance personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Dock exposed to more sea swells as they come in between the breakwater and Japonski Island</li> <li>• Seaplane operations very close to SEARHC clinic and residential areas</li> <li>• Insufficient upland area for seaplane base development</li> <li>• Very shallow cove, waterline retreat during low tide</li> <li>• Increased road traffic on road next to SEARHC hospital</li> <li>• More seaplane noise for land uses at north end of Japonski Island</li> </ul>

Adapted from HDR 2002a, 2002b



**Figure A1: Alternatives Evaluated in 2002 Alternatives Report**



**Figure A2: Alternatives Re-Evaluated in 2012 Study But Dismissed**



In 2012, CBS updated the seaplane base siting study conducted in 2002 (DOWL HKM 2012). Those alternatives that had been determined to have fatal flaw in 2002 and were outside Sitka Channel were not re-evaluated. The 2012 study re-evaluated three sites in Sitka Channel: 1) the SEARHC site, 2) the existing seaplane base site, and 3) the Eliason Harbor site. This study evaluated a number of potential facility and operating area layouts for each site to see which best met the ability to accommodate forecast capacity and provide for safe seaplane operations. The study again identified the SEARHC site as the preferred site.

In January 2016, a storm damaged the existing seaplane base. Emergency repairs were completed to allow for continued use, but at a lower capacity and on a temporary basis. This heightened the need for proceeding with the location and development of a new Sitka Seaplane Base.

In 2016, CBS again conducted a site analysis to identify the preferred site to move forward to begin seaplane base development (DOWL 2016). The 2016 study expanded on the 2002 and 2012 studies using updated data, findings from field visits, interviews with local officials and seaplane users, public meetings, and input from the Sitka Port and Harbors Commission and the Federal Aviation Administration. The analysis from the 2016 report is summarized in Table 3.

<b>Draft Evaluation Criteria</b>				
Scoring Range 1 - 3 (worst - best); 0 = non-responsive				
Unweighted criteria				
Notes	SPB Site Selection Criteria	Alternatives		
		Eliason Harbor	Japonski Island	Existing SPB ALT 1B
	Facility Requirements			
1	Wind protection	2	1	3
2	Wave protection	2	1	3
3	Icing	1	3	3
4	Capacity	3	3	1
5	Accommodate future growth	2	3	0
6	Aircraft maneuvering room	2	3	1
7	Taxi distance to takeoff area	3	3	2
8	Vehicle parking	3	3	3
9	Fueling facilities	3	3	3
10	Drive-down ramp to floats	3	3	1
11	On-site aircraft maintenance	3	3	0
	Category Score Total	27	29	20
	Category Rank	2nd Best	Best	3rd Best
	Safety Concerns			
12	Wildlife hazards	2	3	1
13	Potential conflicts with boat traffic	1	3	1
	Category Score Total	3	6	2
	Category Rank	2nd Best	Best	3rd Best
	Environmental Concerns			
14	Dredging and/or rock removal	1	3	2
15	Adjacent land uses	1	1	1
	Category Score Total	2	4	3
	Category Rank	3rd Best	Best	2 <sup>nd</sup> Best
	Cost and Feasibility Concerns			
16	Property acquisition	3	1	1
17	Capital cost	1	2	3
18	Operating and maintenance cost	1	2	3
19	Revenue generation potential	3	3	1
	Category Score Total	8	8	8
	Category Rank	Tie	Tie	Tie
	Cumulative Scores	40	47	33
	Overall Rankin	2nd Best	Best	3rd Best

The 2016 study again recommended the site at the northeast end of Japonski Island.

Given the previous analysis on a wide variety of alternatives and additional analysis on the existing Sitka Seaplane Base site, these alternatives were not carried forward for additional analysis in the Environmental Assessment.

Resources Cited:

DOWL HKM (DOWL). 2012. Sitka Seaplane Base, Siting Analysis. June 2012.

DOWL. 2016. Sitka Seaplane Base, Updated Siting Analysis. November 2016.

HDR Alaska, Inc. (HDR). 2002a. Sitka Seaplane Base Master Plan, Alternatives Report, Draft. May 2002.

HDR. 2002b. Sitka Seaplane Base Master Plan. August 2002.