6.0 ALTERNATIVE SITES

6.1 2002 Study

As explained previously, the evaluation of sites builds upon the siting analyses presented in the "Sitka Seaplane Base Master Plan" (HDR, 2002). The 2002 plan evaluated twelve alternative sites for their ability to safety accommodate anticipated demand and resolve deficiencies at A29. The sites considered were:

- Charcoal Island
- Jamestown Bay
- Sawmill Cove
- Herring Cove
- Starrigavan Bay
- Thomsen Harbor/Turnaround area
- Sitka Rocky Gutierrez Airport lagoon
- Former Safe Harbor site next to Japonski Island
- Work float site to Japonski Island
- Site near Mount Edgecumbe High School on Japonski Island
- Site west of Southeast Alaska Regional Health Consortium (SEARHC) on Japonski Island
- A29 site in Sitka Channel

Figure 5: Previously Evaluated Sites

Sites determined by that study to have fatal flaws were eliminated from further consideration. Although "fatal flaws" included characteristics that made the site unworkable from an environmental or capacity perspective, most sites were eliminated because they could not provide a safe operating or docking environment.

Three sites were selected for further evaluation:

- Former Safe Harbor site on Japonski Island
- Site near Mount Edgecumbe High School on Japonski Island
- Site west of SEARHC on Japonski Island

Ultimately, the 2002 study recommended the site west of SEARHC on Japonski Island for further environmental and design investigations, citing several advantages over the other sites evaluated including the potential that the new site could result in decreased aircraft noise along the most heavily developed stretch of the channel. However, two concerns with this site were identified: a potential increase in aircraft noise and vehicular activity in the immediate area, and

it was not clear that access to the site through the United States Coast Guard property could be acquired.

6.2 2012 Study

The purpose of the 2012 study was to reevaluate three potential seaplane base sites and recommend a preferred site for more detailed design and environmental investigations. Sites evaluated during the 2002 study were visited and key seaplane operators, staff from the CBS and FAA, the Sitka Port and Harbors Commission, and other individuals identified by CBS were interviewed. It was agreed that the previous study was justified in removing potential SPB sites outside the Sitka Channel from further consideration. The 2012 study focused on the re-evaluation of three potential SPB sites in Sitka Channel, referred to here as:

Figure 6: Re-evaluated Sites

1. The Existing SPB site (A29)
2. The Eliason Harbor Site
3. The Japonski Island Site

Conceptual layouts were developed for each site based upon the facility requirements identified in Section 5.0. For each of the three sites, the layout that best met the project's purpose and need was selected for a comparison evaluation against alternatives from the other sites. The objective of this comparison was to identify a preferred site as the basis for further more detailed analysis. It is anticipated that further refinements will be made to the conceptual layouts recommended for the site during the project's environmental and design phases.

At each site, the goal of the conceptual layout was to provide the following features:

- 12 vehicle parking spaces

- Fuel storage and distribution system
- On-site aircraft maintenance capability
- A drive-down ramp to the SPB floats
- Electricity and potable water
- Float slips for 14 based seaplanes and positions for 3 to 5 transient seaplanes
- Safe access between the parking positions and the water operating area
- Minimize environmental impacts
- Accommodate future growth

6.2.1 Existing Seaplane Base Site

The existing SPB site, A29, is severely constrained by adjacent development, a fact which initially caused CBS to eliminate this site for new development. Due to interest in the site expressed by local pilots, a considerable effort was made to find a conceptual layout in this location that would address the project's purpose and need. Four layout alternatives (Layouts 1A through 1D) were developed and evaluated for this site. However, SSS provided a letter to CBS citing objections to the noise and traffic generated by A29 and any proposed expansion of the facility (Appendix B).

Alternative Layout 1A: This alternative (Figure 7) was an attempt to meet the SPB requirements within the CBS-owned property footprint of A29. CBS property at A29 is limited, consisting of two vehicle parking spaces on Katlian Street and a 10-foot to 12-foot-wide corridor for the walkway leading from the street to the SPB floats. Because of the lack of upland property, the conceptual layout for this alternative does not include additional parking spaces, a fuel storage or distribution system, an on-site maintenance facility, or a drive-down ramp. Electricity and potable water is included. Because of the proximity of adjacent buildings and docks, only enough parking slips and positions for 10 based aircraft and two transients could be accommodated. Access to the slips nearest to the shore is constrained by a taxi lane that is only 68 feet wide nearest to the SSS plant, far below the FAA recommended 225-foot minimum This would reduce wingtip clearances for a taxiing Beaver to about 10 feet. This site is well protected from wind and wave action.

Dredging would be required to provide adequate depth for the floats and for maneuvering the seaplanes. Conflicts with the movement of large boats loading/offloading at the SSS plant would continue. The distance between A29 and the focus of seabird activity at the SSS outfall would be unchanged. This layout could not be easily expanded to accommodate future growth. This alternative is estimated to cost $4.6 million in 2012 dollars. Detailed cost estimates for each alternative can be found in Appendix A.

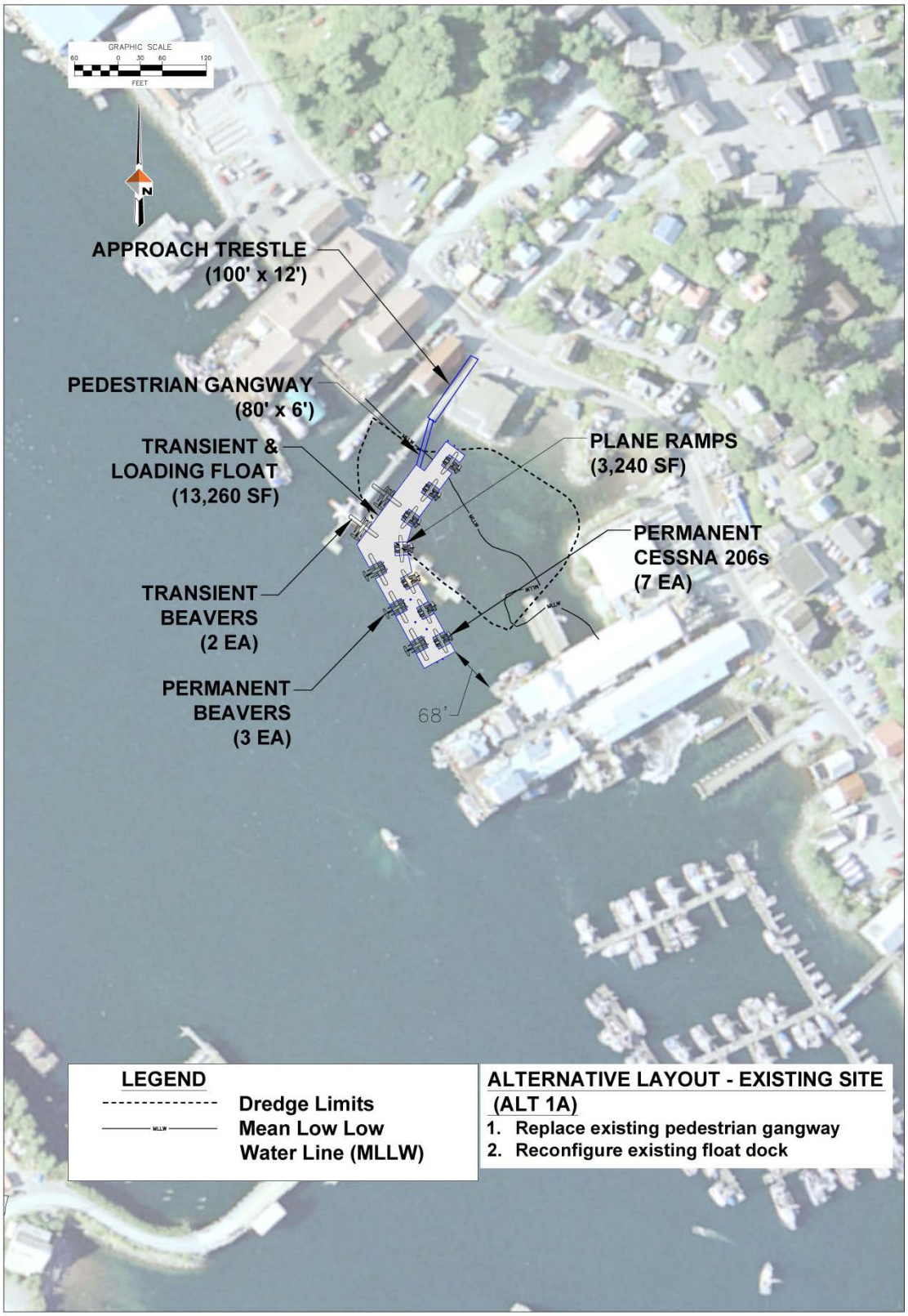

Figure 7: Alternative Layout 1A – Existing Site (A29)

Alternative Layout 1B: This alternative (Figure 8) would require the purchase of additional property at A29. The specific parcels acquired to provide 12 parking spaces, a fuel storage or distribution system, and a drive-down ramp could vary depending upon the SPB's final design and the availability of willing sellers. Figure 8 shows a building immediately north of the approach trestle as acquired to provide parking, fuel storage, and a drive-down ramp. Alternately, lots on the north side of Katlian Street could be acquired for parking and/or a lot on the south side of the Sitka Tribes of Alaska building could be acquired for fuel storage, parking, and a drive-down ramp. Electricity and potable water is included. Because of the proximity of adjacent buildings and docks, only enough parking slips and positions for 10 based aircraft and 2 transients could be accommodated and facilities for on-site aircraft maintenance were not included. Access to the slips nearest to the shore is constrained by a taxi lane that is only 68 feet wide nearest to the SSS plant, far below the FAA recommended 225-foot minimum for safe maneuvering. This would reduce wingtip clearances for a taxiing Beaver to about 10 feet. This site is well protected from wind and wave action. Dredging would be required to provide adequate depth for the floats and for maneuvering the seaplanes. Conflicts with the movement of large boats loading/offloading at the SSS plant would continue. The distance between A29 and the focus of seabird activity at the SSS outfall would be unchanged and this layout could not be easily expanded to accommodate future growth. This alternative is estimated to cost $5.1 million in 2012 dollars.

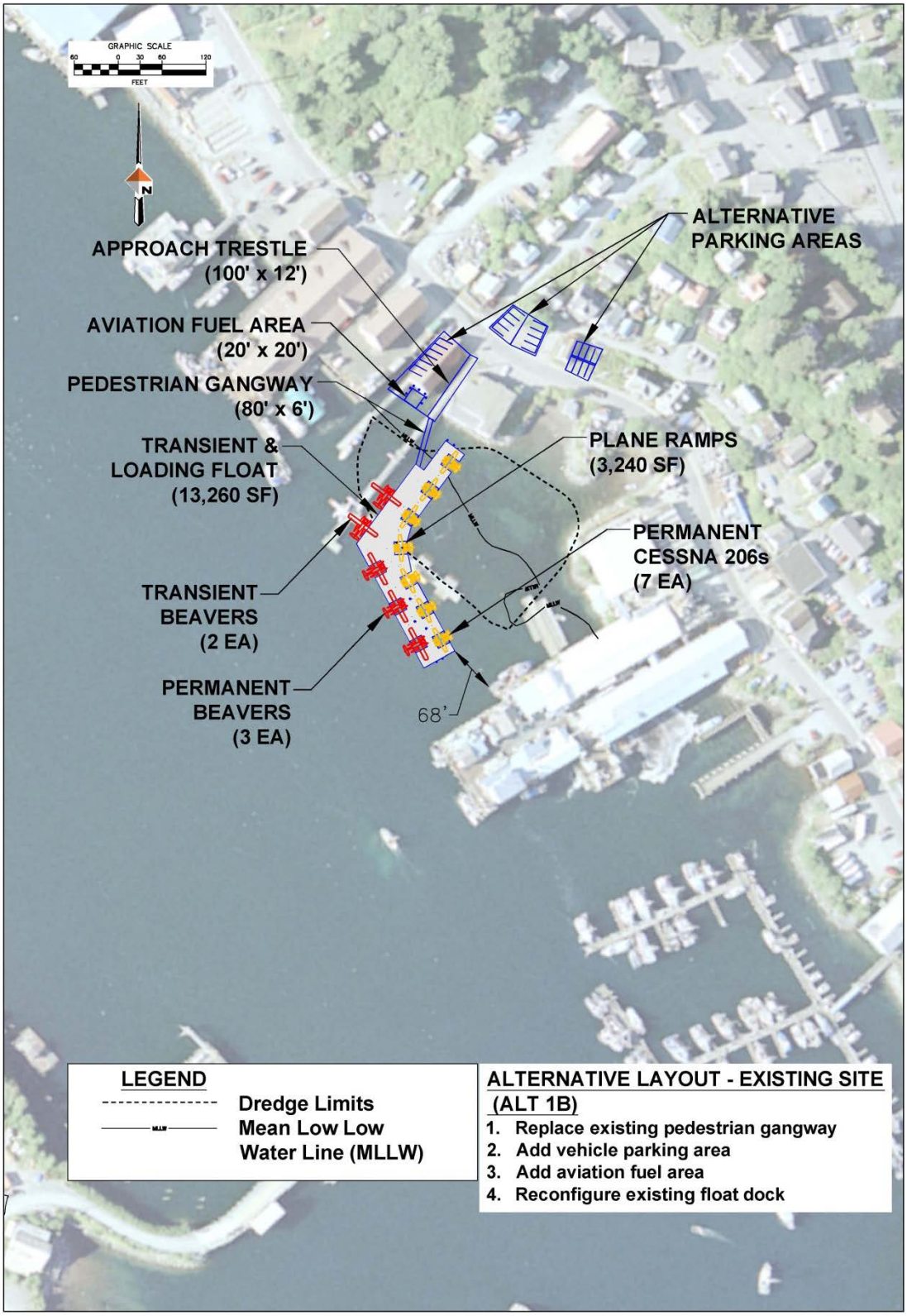

Figure 8: Alternative Layout 1B – Existing Site (A29)

Alternative Layout 1C: This alternative (Figure 9) was developed in response to a request from local pilots who requested the evaluation of an H-shaped float layout. This alternative would require the purchase of additional property at A29. The specific parcels acquired to provide 12 parking spaces, a fuel storage or distribution system, and a drive-down ramp could vary depending upon the SPB's final design and the availability of willing sellers. Figure 9 shows several possible acquisition scenarios. Electricity and potable water is included. Because of the proximity of adjacent buildings and docks, only enough parking slips and positions for 13 based aircraft and two transients could be accommodated and facilities for on-site aircraft maintenance were not included. Access to the slips nearest to SSS is constrained by a taxi lane that is 96 feet to 59 feet wide, far below the FAA recommended 225-foot minimum for safe maneuvering. This would reduce wingtip clearances for a taxiing Beaver to about 5 feet at the narrowest point. Access to the slips on the interior of the facility is via a taxi lane that is 84 feet wide, also far below the FAA recommended minimum. Such a taxi lane would provide a clearance of about 18 feet between the wingtip of a taxiing Beaver and the tails of parked aircraft. This site is well protected from wind and wave action. Dredging would be required to provide adequate depth for the floats and for maneuvering the seaplanes. Conflicts with the movement of large boats loading/offloading at the SSS plant would increase and boat moorage on the north side of SSS may be severely restricted. The distance between A29 and the focus of seabird activity at the SSS outfall would be unchanged. This layout could not easily be expanded to accommodate future growth. Since it is doubtful that access to/from any of the slips could be accomplished in a consistently safe manner, and boat access to the SSS plant is restricted, a cost estimate was not developed for this alternative.

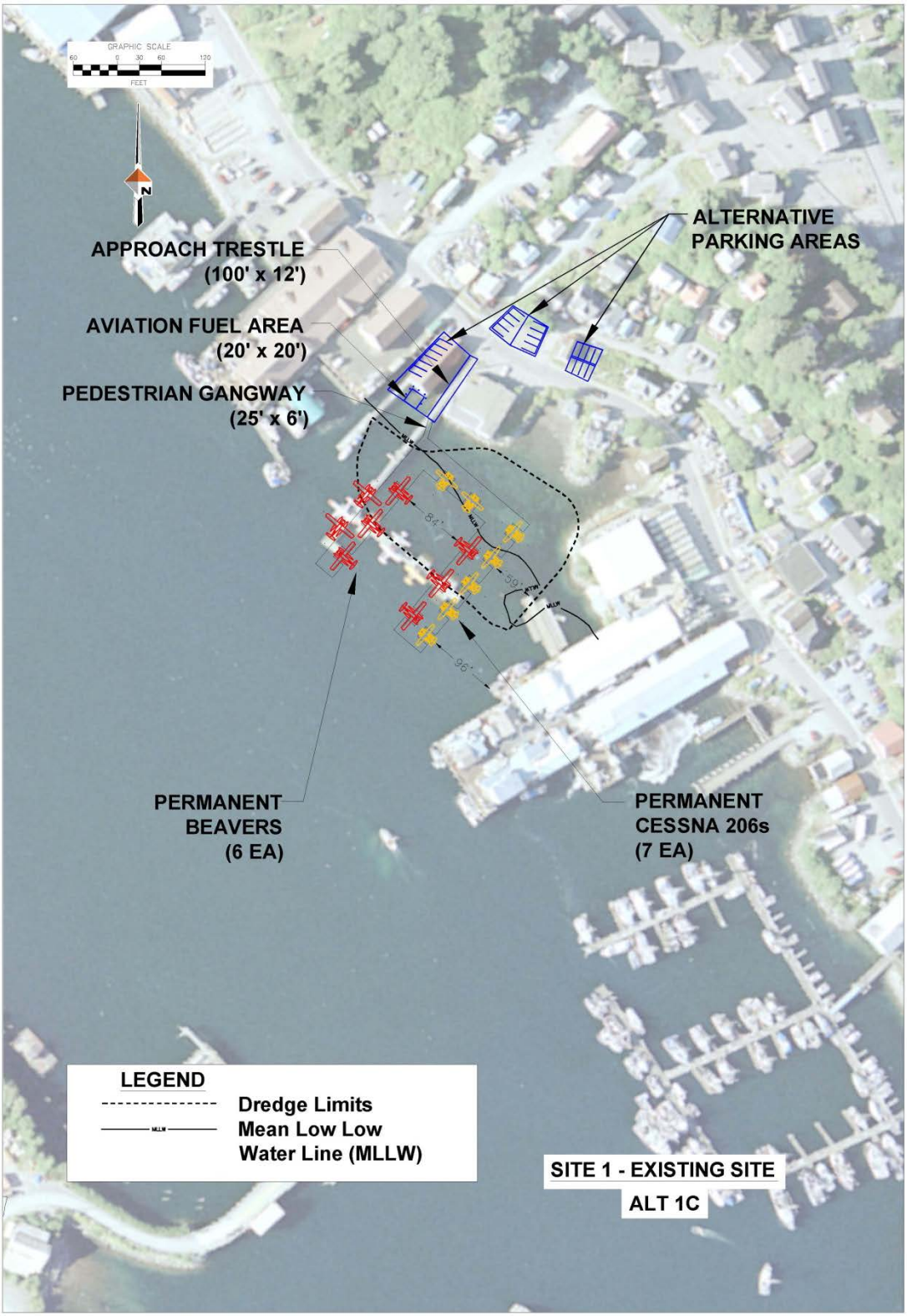

Figure 9: Alternative Layout 1C – Existing Site (A29)

Alternative Layout 1D: This alternative (Figure 10) was also developed in response to a request from local pilots who requested the evaluation of an H-shaped float layout. Alternative Layout 1D is very similar to Alternative 1C. Alternative 1D would require the purchase of additional property at A29. The specific parcels acquired to provide 12 parking spaces, a fuel storage or distribution system, and a drive-down ramp could vary depending upon the SPB's final design and the availability of willing sellers. Figure 10 shows one possible acquisition scenario. Electricity and potable water is included. The interior taxi lane has been expanded to 150 feet to make the slips on the inside of the floats more accessible and increase the total number of slips for based aircraft to 14. Because of space constraints, facilities for on-site aircraft maintenance were not included. Access to the slips nearest to SSS is rendered impossible by a taxi lane that is 31 feet wide at its widest, effectively reducing A29's capacity to 9 based aircraft and two transients. Access to the slips on the interior of the facility is via a taxi lane that is 150 feet wide, still below the FAA recommended minimum but providing wingtip clearances for a Beaver of about 51 feet. This site is well protected from wind and wave action. Dredging would be required to provide adequate depth for the floats and for maneuvering the seaplanes. The distance between A29 and the focus of seabird activity at the SSS outfall would be unchanged. Boat access to the north side of the SSS facility would be eliminated. This layout could not be easily expanded to accommodate future growth. Since this alternative does not meet the project's capacity goal and eliminates boat access to part of the SSS plant, a cost estimate was not developed.

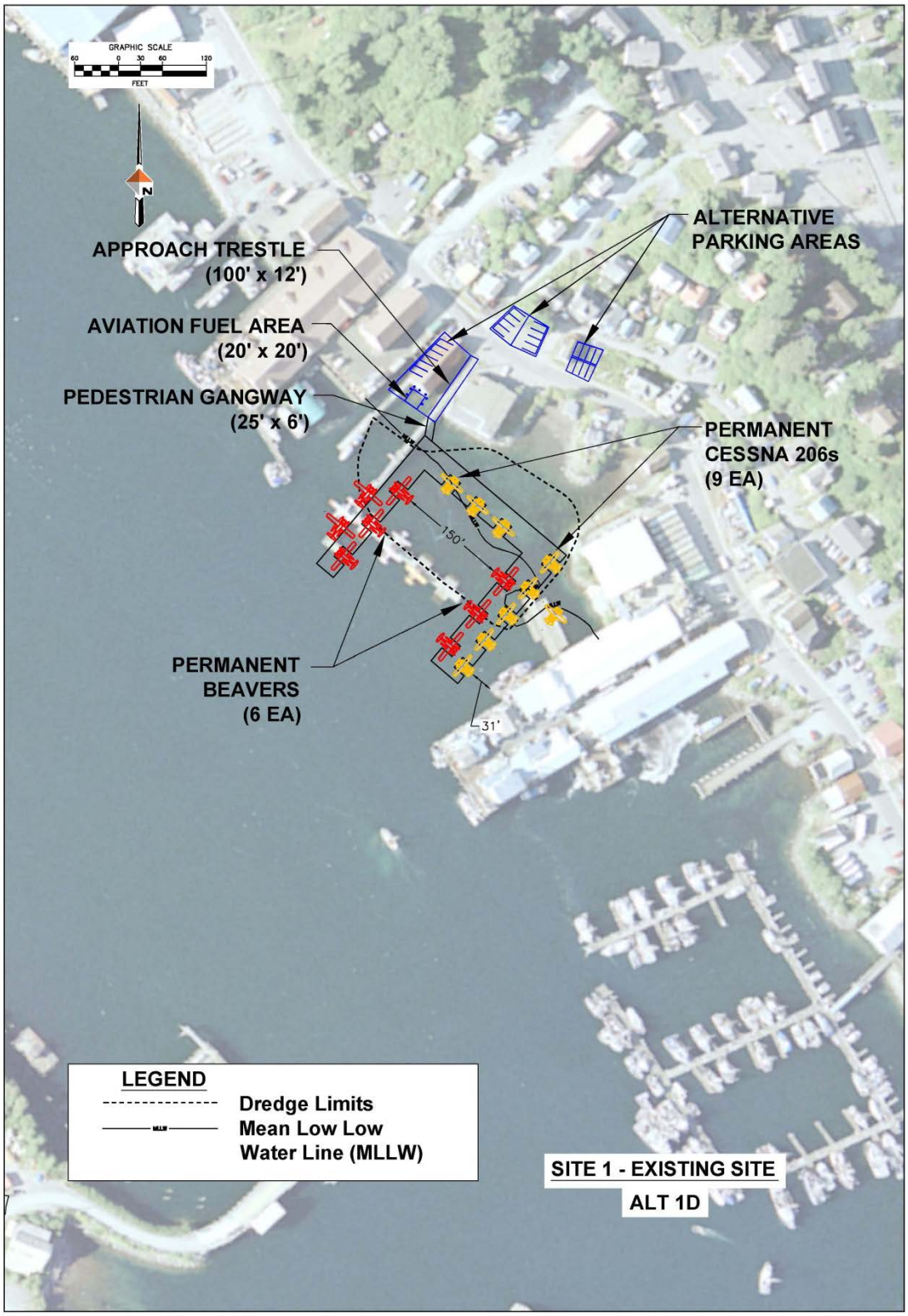

Figure 10: Alternative Layout 1D – Existing Site (A29)

Table 3 compares the four layouts at the A29 site. Although none of the four alternative layouts for A29 met all of the facilities' requirements, Alternative Layout 1B was carried forward to be compared to alternative layouts from the other two potential sites.

Table 6: Comparison of Existing SPB Layout Alternatives

Design Criteria	Alternative 1A	Alternative 1B	Alternative 1C	Alternative 1D
12 parking spaces	No	Yes	Yes	Yes
Fuel storage & distribution system	No	Yes	Yes	Yes
On-site maintenance facility	No	No	No	No
Drive-down ramp	No	Yes	Yes	Yes
Electricity & potable water	Yes	Yes	Yes	Yes
14 based aircraft slips, 3-5 transient positions	No	No	No	No
Safe access/maneuvering to slips	Poor	Poor	Unworkable	Unworkable
Protected from wind and waves	Yes	Yes	Yes	Yes
Allows for future expansion	No	No	No	No
Minimal environmental impacts	No	No	No	No

6.2.2 Eliason Harbor Alternative

This alternative (Figure 12) was an attempt to meet the SPB requirements using CBS-owned property at Eliason Harbor. The conceptual layout for this site includes parking spaces, a fuel storage and distribution system, an on-site maintenance facility (two optional floating hangars), and a drive-down ramp. Electricity, a potable water distribution system, and seaplane parking slips and positions for 14 based aircraft and three transients are included. The floats are arranged in a linear fashion with seaplane parking positions on the east side to separate boat and seaplane traffic. Access to the slips is by a taxi lane that approximates the FAA recommended 225-foot minimum width. Extensive dredging would be required to provide adequate depth for the floats and for maneuvering the seaplanes. Some conflicts with the movement of boats moving to/from the harbor could be expected, but at a reduced level compared to the A29. Water discharging from Turnaround Creek could be expected to freeze and render this site at least partially unusable during some winter months. Protection from easterly winds would be somewhat less than that experienced at the A29 site. The distance between the SPB and the focus of seabird activity at the SSS outfall would be increased to approximately 3,000 feet. Aircraft-generated

noise from this facility may impact nearby structures. This layout is estimated to cost $13.2 million in 2012 dollars without the floating aircraft maintenance hangars and $15.6 million in 2012 dollars with the floating hangars.

Note that the SPB floats shown in Figure 12 generally follow the alignment of the existing pilings that are positioned in the water just beyond the shoreline in Figure 11. Turnaround Creek is just outside the frame to the right.

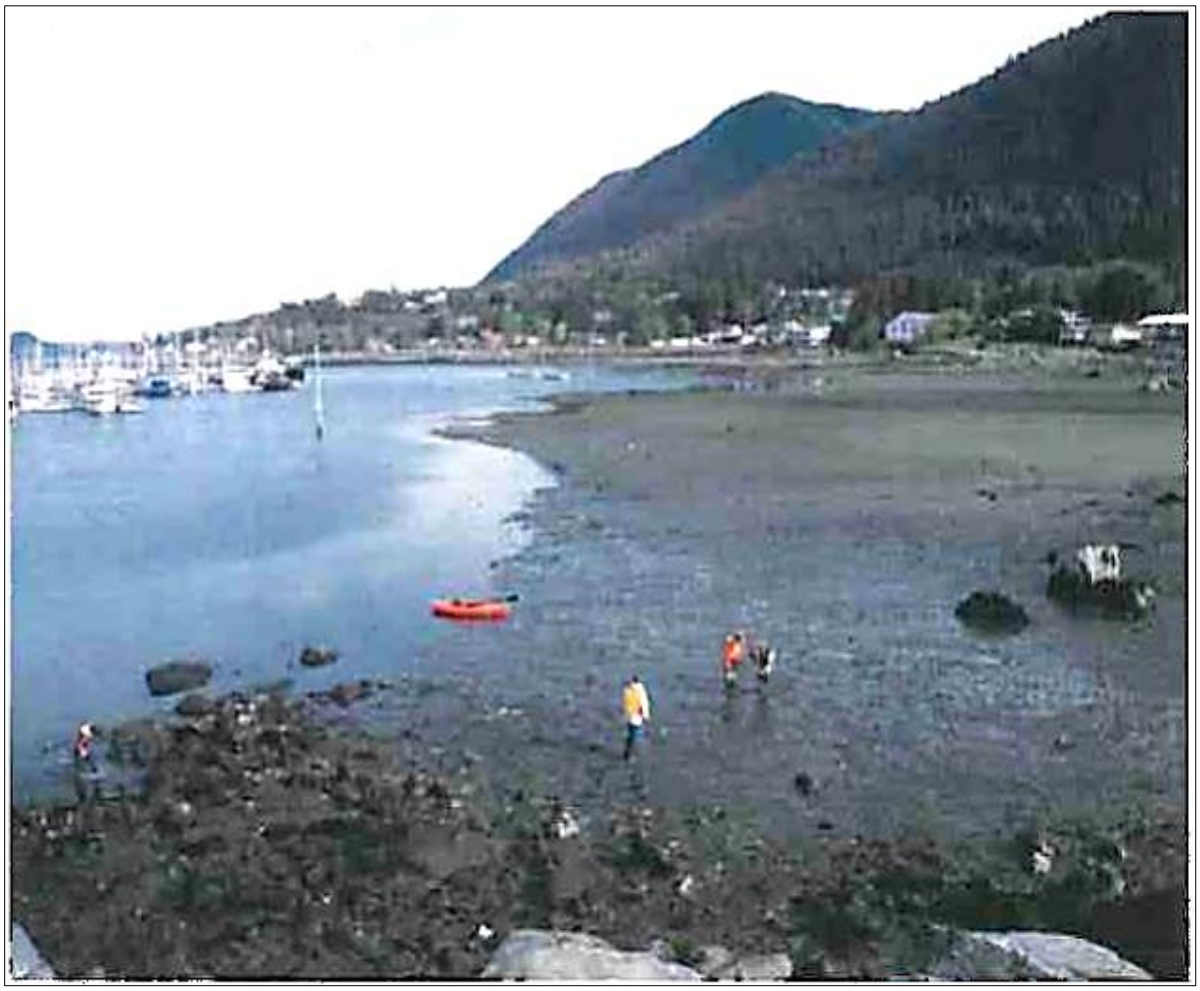

Figure 11: Eliason Harbor Site at Low Tide

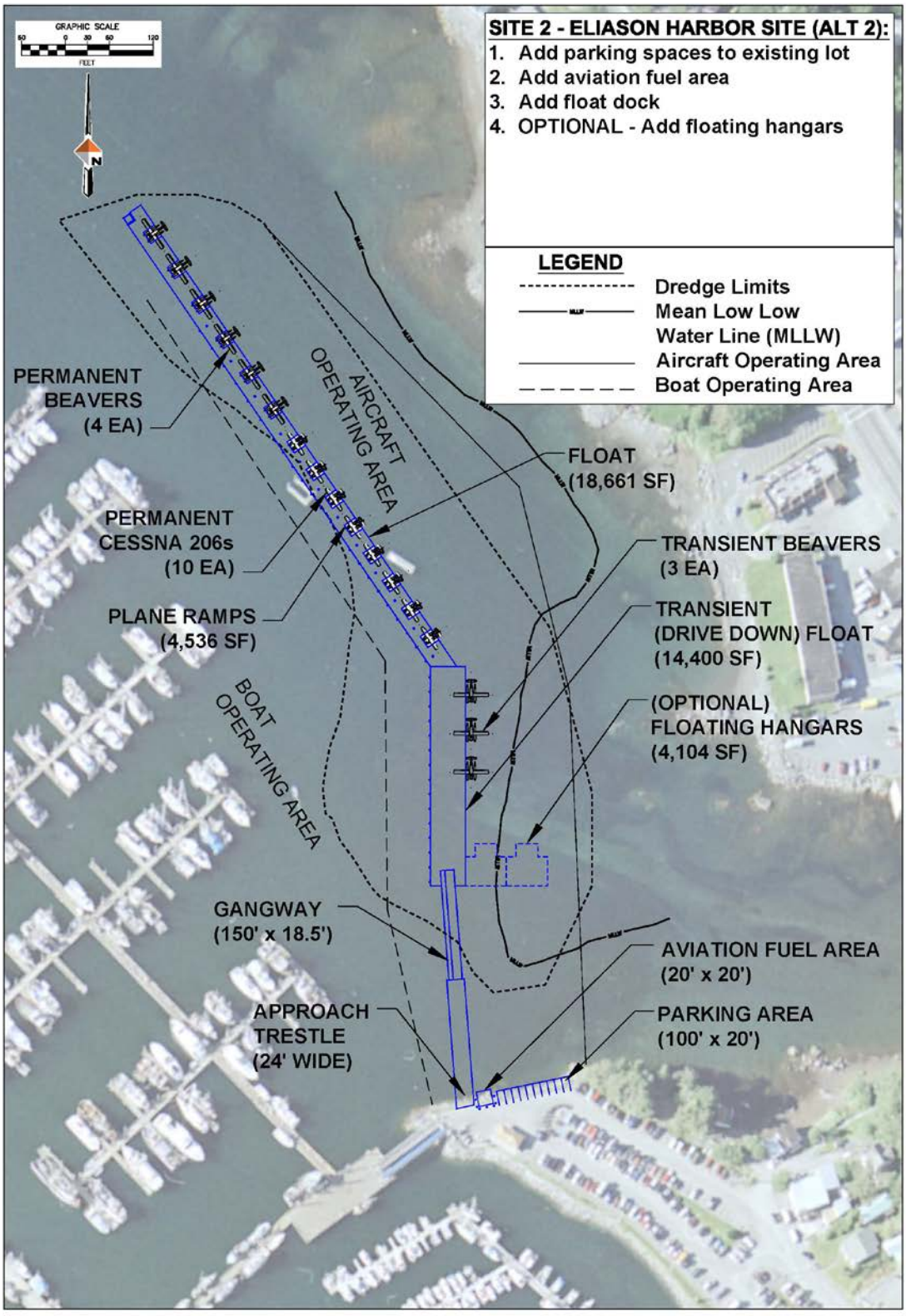

Figure 12: Alternative Layout 2 – Eliason Harbor Site

6.2.3 Japonski Island Alternative

Alternative Layout 3A: This alternative (Figure 13) was an attempt to meet the SPB requirements at a site at the north end of Seward Avenue on Japonski Island. The conceptual layout for this site includes 12 vehicle parking spaces, a fuel storage and distribution system, and a drive-down gangway. Although not shown in Figure 13, an on-site maintenance facility (an on-shore facility or two optional floating hangars) could be accommodated at this site. Electricity, a potable water distribution system, and 14 seaplane parking float slips, 5 transient float parking spots, and positions for 2 shore-based based aircraft are included. Depending on final property acquisition and design, a haul out ramp with lease lots could be provided. The floats are arranged to align all slips with the prevailing wind. This location is removed from areas of concentrated boat traffic and access to the slips is unrestricted. Dredging would not be required to provide adequate depth for the floats and for maneuvering the seaplanes. Protection from easterly winds would be somewhat less than that experienced at the A29 site and long period swells may penetrate the nearby breakwaters to reach the floats. The distance between the SPB and the focus of seabird activity at the SSS outfall would be increased to approximately 4,300 feet. Aircraft-generated noise from this facility may impact nearby structures, although a SPB at this location may also reduce noise in the channel by moving the water operating area further to the north. This layout is estimated to cost $9.3 million in 2012 dollars without the floating aircraft maintenance hangars and $11.7 million in 2012 dollars with floating hangars.

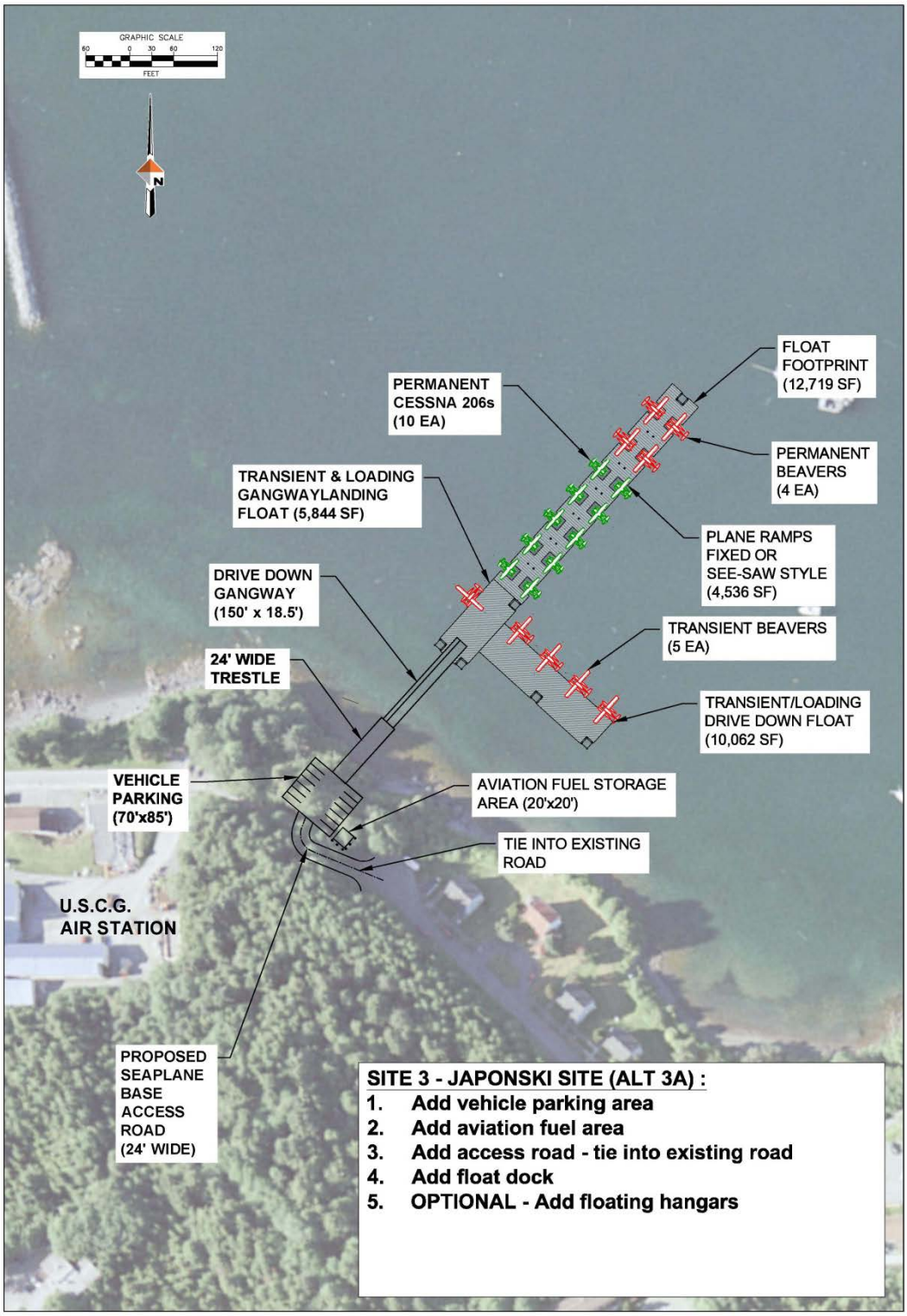

Figure 13: Alternative Layout 3A – Japonski Site

The SPB would be located on state-owned tidelands. Uplands owned by the State of Alaska Department of Education and Early Development would likely be required for the SPB at this location. Mount Edgecumbe High School provided two letters (Appendix B) expressing a lack of support for a SPB at this location, siting the agency's interest in using the property for other unspecified purposes in the future, possible impacts to nearby structures, increased vehicular traffic, and other concerns. That position has softened however, based on more recent discussions.

While this specific location was used for the 2012 siting analysis, it is possible that another location along the adjacent 1000 feet of shoreline on Japonski Island could be more readily available and suitable or a combination of sites along this shoreline could be developed (see Figure 14). This entire 1000 feet of shoreline has similar siting conditions.

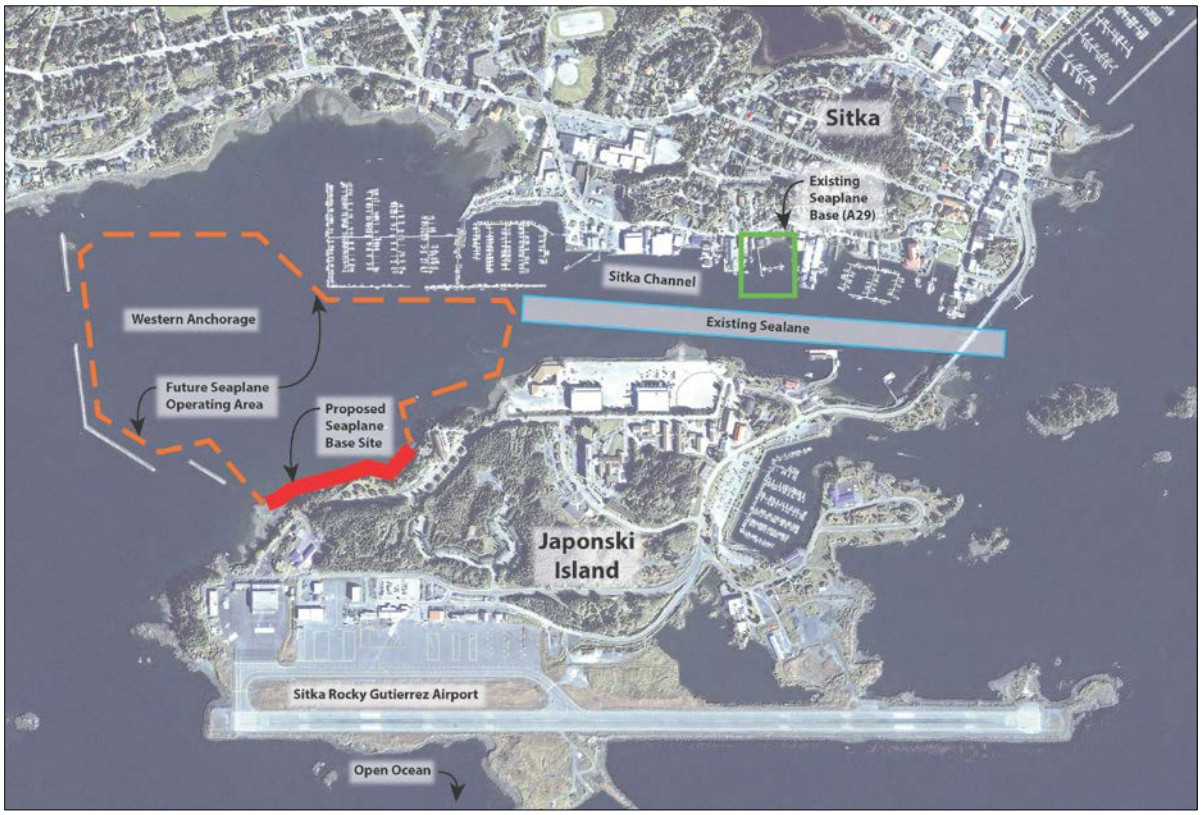

Figure 14: Japonski Island Site and Operating Area

6.2.4 Evaluation of Alternative Layouts

A set of evaluation criteria was developed to assist in the selection of a recommended alternative. The alternatives were given a rating for each criterion and the ratings were summed for an overall score. The summed scores were discussed during workshops with seaplane pilots and several other local residents and, where necessary, adjustments were made to reflect local knowledge and experience.

The ratings or values assigned for each criterion were arrived at through a process of comparing the alternatives--a "beauty contest" so to speak --where the "best" alternative for a given criterion was given the highest rating, and the "worst" alternative the lowest rating. No weightings were used to assign greater importance to any of the criterion.

The criteria used in evaluating alternatives are listed below, grouped by category:

Facility Requirements

- Wind protection: degree to which aircraft and SPB floats will be protected from wind
- Wave protection: degree to which aircraft and SPB floats will be protected from waves
- Icing: degree to which the site is exposed to icing in the winter
- Capacity: degree to which the layout meets the initial capacity goal of 14 based seaplane slips and 3 to 5 transient positions.
- Room for growth: degree to which the site could accommodate future growth in demand
- Aircraft maneuvering room: degree to which aircraft have space to maneuver to/from parking spaces in less than ideal conditions (wind, waves, currents)
- Taxi distance: distance between the SPB facility and designated water lane for takeoffs and landings
- Vehicle parking: provides 12 vehicle parking spaces
- Fueling facilities: provides storage space for fueling system
- Drive-down ramp: provides drive-down ramp to facilitate movement of passengers and equipment to the aircraft parking positions by car, truck, or van