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LIST OF ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADG	Aircraft Design Group
ADNR	Alaska Department of Natural Resources
AHRS	Alaska Heritage Resources Survey
ALP	Airport Layout Plan
APDES	Alaska Pollutant Discharge Elimination System
APE	Area of Potential Effect
ARRC	Alaska Railroad Corporation
ASOS	Automated Surface Observation System
AWC	Anadromous Waters Catalog
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BFE	Base Flood Elevation
BMP	Best Management Practices
CEQ	Council of Environmental Quality
CGP	Construction General Permit
CY	cubic yards
dB	Decibel
DNL	Day-Night Average Sound Level
DOT&PF	Alaska Department of Transportation and Public Facilities
DPOR	[ADNR] Department of Parks and Outdoor Recreation
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FONSI	Finding of No Significant Impact
ft	feet
HAPC	Habitat Areas of Particular Concern
HMCP	Hazardous Material Control Plan
IPaC	Information for Planning and Consultation
KPB	Kenai Peninsula Borough
LOMR	Letter of Map Revision
M&O	Maintenance and Operations
MMPA	Marine Mammal Protection Act
NAVAIDS	Navigational Aids
NEPA	National Environmental Policy Act
NLURA	Northern Land Use Research of Alaska, LLC
NMFS	National Marine Fisheries Service
NPL	National Priorities List
NWI	National Wetland Inventory
OHA	Office of History and Archeology
PAPI	Precision Approach Path Indicator
RCRA	Resource Conservation and Recovery Act
RGL	Regulatory Guidance Letter
RPZ	Runway Protection Zone
RW	Runway
SBCFSA	Seward/Bear Creek Flood Service Area
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SMF	Seward Monofill/Landfill
SMIC	Seward Marine Industrial Center
SWG	Stakeholder Working Group
SWPPP	Storm Water Pollution Prevention Plan
TW	Taxiway
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VASI	Visual Approach Slope Indicator
WAP	Wildlife Action Plan

1 INTRODUCTION

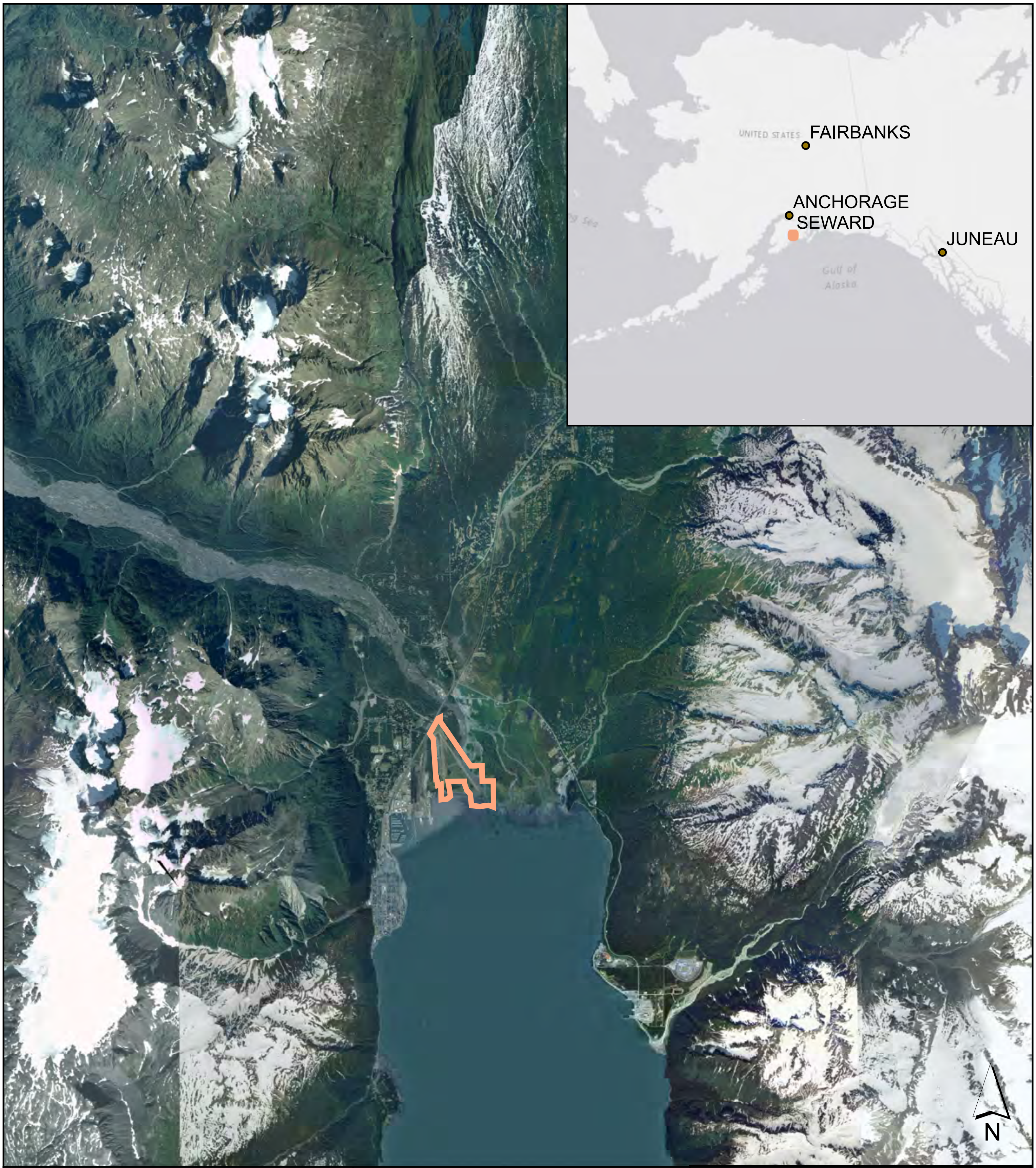
The State of Alaska owns and operates the Seward Airport, which includes a paved main RW (RW 13-31), a paved secondary RW (RW 16-34), multiple TWs (TWs), and two aprons. RW 13-31 is 4,249 ft (ft) x 100 ft and RW 16-34 is 2,289 ft x 75 ft. The Seward Airport primarily serves the City of Seward and residents of the area between Seward and Moose Pass. Local residents use the airport for travel to Anchorage and Prince William Sound. There is no regularly scheduled passenger air service from Seward to Anchorage. Tour operators use the airport as a base for sightseeing tours of Kenai Fjords National Park via airplane and helicopter. The number of operations at the airport is much higher in the summer than in the winter. Although Seward is connected to other communities by rail, road, and the marine highway, the airport provides access during medical emergency or disaster situations when other access (single rail line and single highway) may be unavailable.

Annual operations at the airport typically average 10,500 and are broken down as 4,500 air taxi, 2,000 general aviation (local), 4,000 general aviation (itinerant) and 10 military. Aircraft range from King Air 200 for medevac operations; Cessna 170, 172 and Super Cub PA-18 for private operators; and Beech 1900 and Cessna 208 Caravan for air taxi/charters.

Seward, Alaska, is located on the Kenai Peninsula at the north end of Resurrection Bay, approximately 75 air miles or 125 highway miles southwest of Anchorage (see Figure 1). Most of the Seward Airport is located within the floodplain of the Resurrection River Delta, as shown on Figure 2. The main RW is in the direct path of the river and continues to experience damage by recurrent flooding. The frequency and severity of flooding has accelerated. RW 13-31 has been overtopped 18 times since 2011. Recent testing of the RW embankment shows insufficient bearing capacity to support large aircraft. As a result, the use of RW 13-31 has been restricted to small aircraft with a weight of 12,500 pounds or less. This weakening of the embankment is believed to have been caused by frequent flooding.

The proposed Seward Airport Improvements project has been in the planning stages since 2014. The purpose of the project is to identify improvements that will meet the aviation needs of the community, allow cost-effective maintenance of facilities within the dynamic floodplain environment, and ensure that the airport continues to be operational. The Alaska Department of Transportation and Public Facilities (DOT&PF) completed an Environmental Assessment (EA) for improvements recommended in the 2008 Airport Master Plan with a finding of no significant impact (FONSI) for those recommended improvements. The increased number and severity of flood events, as well as damage to RW 13-31, have led to substantial changes, creating the need to reconsider the project since the 2008 recommendations were developed. An updated "needs assessment" that includes initial engineering studies and evaluations is documented in the July 2017 *Seward Airport Scoping Report* (available at the website http://www.dot.alaska.gov/creg/sewardairport/documents.shtml).

To secure the property that will be identified in the future Airport Layout Plan (ALP), this project includes acquiring property needed for a future RW extension to 4,000 ft. This project evaluation does not include the construction of future extension; only the land acquisition is considered in this EA. This land acquisition is needed for airspace protection only and is not needed for construction. Another environmental process would be completed prior to the construction of the future RW extension.



Legend

▭ Seward Airport Boundary

Section: 34, 35; 2, 3
Township: 1N; 1S
Range: 1W
Meridian: Seward
USGS Quad: Seward A-7

0 1 2 Miles

Seward, Alaska

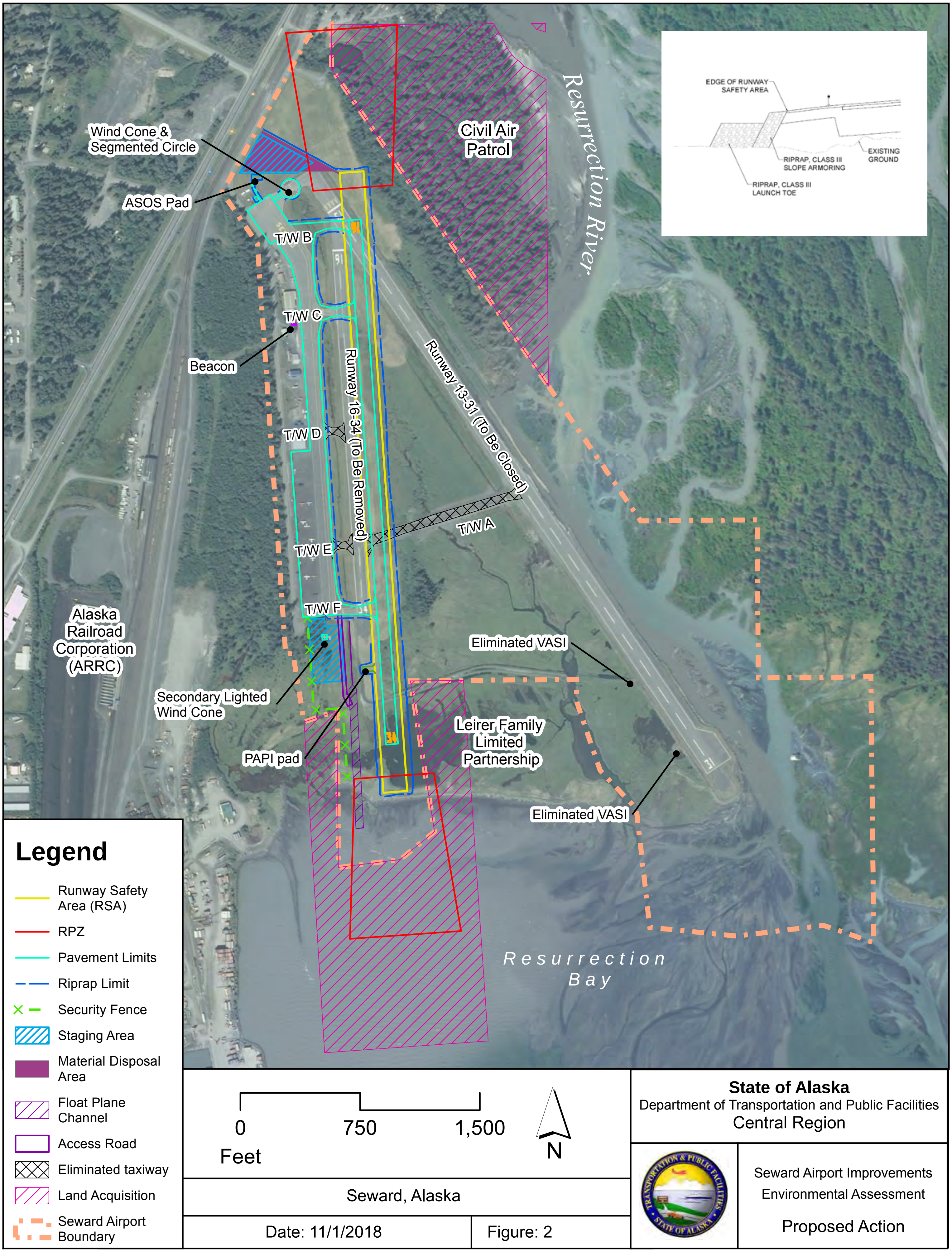
Date: 11/2/2018

Figure: 1

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Location & Vicinity Map



State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Proposed Action

Seward, Alaska

Date: 11/1/2018

Figure: 2

2 PURPOSE AND NEED

The proposed Seward Airport Improvements project has two primary purposes. The first is to develop engineering solutions that will protect airport facilities from further damage caused by recurrent flooding of the Resurrection River in order to provide a reliable working airport. The Seward Airport is located within the floodplain of the Resurrection River, and portions of the airport are within the defined floodway (see Figure 8 on page 44). The main RW (RW 13-31) has been overtopped 18 times since 2011, resulting in damage to all the airport facilities. Erosion from the river and regular flood damage require a continuous maintenance effort by DOT&PF to keep the RW usable.

The second purpose is to correct deficiencies that exist based on the state's requirements for a Community Class Airport and current Federal Aviation Administration (FAA) design standards for an Aircraft Design Group II (ADG II) facility. These improvements should meet the near-term aviation demands as well as plan for future demand. Specifically, the airport owner (DOT&PF) needs to:

- Maintain a minimum RW length of 3,300 ft to accommodate current and near-term aircraft in use, including medevac operations.
- Meet the RW width and TW dimensional standards of ADG II.
- Construct flood protection to prevent erosion damage from the 100-year flood.
- Provide a minimum of 95% wind coverage for the ADG II aircraft; cross-winds.
- Include construction of a RW with sufficient bearing capacity to allow for occasional operations by larger aircraft such as Beech 1900, Dash 8, and small charter type business jets.
- Provide reliable airport lighting for night operations.
- Mitigate approach obstructions and incompatible Runway Protection Zone (RPZ) uses to the extent practicable.
- Accommodate the need for aircraft owners to change out from floats to wheels.
- Ensure the airport has sufficient service roads.
- Resurface apron pavement to support airport operations. Portions of the current apron pavement condition warrants rehabilitation.

The facility requirements for the existing airport are further described in the July 2017 *Seward Airport Scoping Report* (available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml).

3 PROPOSED ACTION

DOT&PF, in cooperation with the FAA Alaskan Airports Division, proposes to upgrade facilities at the Seward Airport as well as protect the airport from further damage caused by recurrent flooding. The project area lies within United States Geological Survey (USGS) Seward A-7 Quad Map (see Figure 1).

The Proposed Action, Alternative 2.2 (see Figure 2), consists of closing and discontinuing maintenance of RW 13-31. RW 16-34 would be upgraded from an A-I facility to a B-II facility. This would require the RW to be shifted to the east to provide the required separation between RW and TWs. The new RW 16-34 would be raised above the 100-year flood level with 2 ft of freeboard. Armor will be installed to protect RW 16-34, since RW 13-31 is expected to be overtopped and breached by future flood events, allowing floodwater to reach the embankment of RW 16-34. TW B will be relocated, and TW F will be reconstructed to match RW 16-34 location and grade changes. TWs A, D, and E will be eliminated because they do not meet new FAA guidance that disallows TWs entering in the middle one-third of the RW. Navigational Aids (NAVAIDS) and weather reporting system will be relocated to an area protected from flooding and to support RW 16-34. Property will be purchased for airspace protection to the north and south. The parcel to the north will be acquired in full as the remainder of the parcel is within the Resurrection River floodway and of lower value to the owner, the parcel will allow direct access to the river in the future should additional flood mitigation be needed, and the purchase will ensure that trees are not cut down thereby adding to the prevention of streambank erosion near the airport. A small number of float plane operators occasionally utilize a service road running from the south end of the apron, across the bottom of RW 16-34 to the unnamed stream between the two RWs. This access will be lost with the shifting of RW 16-34. A new float plane access will be developed if feasible. The proposed location is shown on Figure 2.

3.1 Identification of Federal Action Requested

DOT&PF requests that the FAA Alaskan Airports Division approve the airport improvements and land acquisition and participate in funding the Seward Airport Improvements project.

3.2 Alternatives Dropped from Further Consideration

DOT&PF previously studied alternatives and developed additional alternatives that were evaluated, and presented in a Scoping Report, which is available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml. DOT&PF presented two alternatives to public agencies during an agency scoping meeting on March 2, 2017. The eliminated alternative, 1.1, is described below and not analyzed further in this document.

3.2.1 Dropped Alternative 1.1

Alternative 1.1 would have reconstructed and raised RW 13-31 above the 100-year flood level with 2 ft of freeboard. The existing RW would have remained at its current length of 4,249 ft but would have been narrowed from 100 ft to 75 ft. Riprap would have been installed within the Resurrection River to protect RW 13-31. RW 16-34 would have been raised on the north end to match the new profile for RW 13-31. TWs B and C would have been reconstructed to match the new RW 13-31 profile, and entrance TWs A, D, and E would have been reconfigured or eliminated in accordance with new FAA guidance that disallows TWs entering in the middle one-third of the RW. Several factors resulted in this alternative not being carried forward into the EA:

- Providing 2 ft of freeboard above the 100-year flood level resulted in a 4-foot increase in the base flood elevation over portions of the upstream floodplain. The RW embankment would be raised over 6 ft in some areas, with an overall average rise of 4.4 ft. This additional fill would result in a backing up of floodwaters onto an additional 159 acres of private, State, and Native allotment property along the Resurrection River as compared to the No-Build option. Higher floodwater velocities could result in increased erosion and scour. A modification to the effective Flood Insurance Rate Map (FIRM) and Floodway Map would be required. The associated Letter of Map Revision (LOMR) would require extensive hydraulic analysis, would need to satisfy additional regulatory requirements, and would require public approval.

- To build up and reinforce RW 13-31 would require placing riprap below the ordinary high water mark of the Resurrection River. This has implications for fish habitat within the river as well as navigability concerns for the braided river channel. These potential impacts would require further analysis.

Based on the above concerns, DOT&PF considered the floodplain impacts associated with Alternative 1.1 to be a significant floodplain encroachment as defined in Section 14.2.1.1 of the FAA 1050.1F Desk Reference (FAA Office of Environment and Energy 2015). This guidance further states that an alternative with a significant floodplain encroachment should not be selected if a practicable alternative exists, such as Alternative 2.2. Alternative 2.2 does not qualify as a significant floodplain encroachment. In fact, it would also allow for the eventual breaching of RW 13-31, thereby restoring part of the original floodplain.

The RW length provided under Alternative 1.1 exceeds the need of current and forecast aircraft, although the longer RW would make the airport available for infrequent use by larger aircraft. By discontinuing the use and maintenance of RW 13-31, Alternative 2.2 would reduce the overall lane miles at the airport by 25%, which should lower the annual Maintenance and Operations (M&O) costs. State budget cuts continue to decrease available maintenance funding. Further explanation for the elimination of Alternative 1.1 can be found in Appendix B.

3.3 Proposed Action – Alternative 2.2

Alternative 2.2 (shown on Figure 2) will reconstruct RW 16-34 to B-II standards and then close and discontinue maintenance of RW 13-31. Closing RW 13-31 would include removing pavement, lighting, and NAVAIDS. Alternative 2.2 would shift RW 16-34 to the east (to meet B-II offset requirements) and raise it above the 100-year flood level with 2 ft of freeboard as well as extend the length from the existing 2,289 ft to 3,300 ft. Shifting the RW also minimizes changes to the apron and adjoining lease area/buildings. Armor would be installed to protect RW 16-34. Since RW 13-31 will likely be overtopped and could subsequently be breached, flood water will reach this embankment. TW B would be relocated, and TW F would be reconstructed to match RW 16-34 location and grade changes. TWs A, D, and E would be eliminated in accordance with new FAA guidance. Other components of the Proposed Action include:

- Repave other airport surfaces as needed
- Install new airfield lighting and an electrical enclosure building
- Relocate, repair, or replace navigational aids, and markings
- Install security fencing
- Property acquisitions
- Construct a float plane channel and access road to accommodate float plane floats to wheel change-outs
- Decommission and remove existing Visual Approach Slope Indicator (VASI) on RW 13-31 and provide equivalent Precision Approach Path Indicator (PAPI) service for the south end of the new runway.
- Relocate the Automated Surface Observation System (ASOS) and the airport beacon to meet siting requirements for the new runway.
- Dispose of material within airport boundaries
- Selectively clear and grub vegetation

3.3.1 Permits or Approvals

- Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit for stormwater discharge
- Alaska Department of Fish & Game (ADF&G) Fish Habitat Permit
- Alaska Department of Natural Resources (ADNR) Land Use Permit
- U.S. Army Corps of Engineers (USACE) Section 404 Permit/Alaska Department of Environmental Conservation (ADEC) 401 Water Quality Permit
- Kenai Peninsula Borough (KPB) Multiagency Permit
- City of Seward Floodplain Development Permit

3.4 No Action – No-Build Alternative

Taking no action at the Seward Airport would result in the continued weight restrictions on RW 13-31 and likely continued degradation from flood events. The longevity of RW 13-31 without any significant intervention has not been estimated for this project. At the very least, flood events pose an interruption to air service utilizing RW 13-31. TWs A, D, and E would remain out of compliance with new FAA guidance.

3.4.1 Permits or Approvals

No permits would be needed if no action is chosen. The no-action alternative would not meet the purpose and need and would not bring the airport up to current FAA standards.

3.5 Alternatives Summary

The alternatives (Proposed Action and no action) are summarized in Table 1 below. A detailed description of the potential impacts associated with each alternative can be found in Section 5.

Table 1 – Comparison of Alternatives

	Proposed Action	No Action
Purpose and Need		
Protect airport from further flood damage	The Proposed Action will meet this aspect of the purpose and need.	The no action alternative would not meet this aspect of the purpose and need.
Compliance with FAA standards	The Proposed Action will meet this aspect of the purpose and need.	The no action alternative would not meet this aspect of the purpose and need.
Environmental Impacts		
Air Quality	Non-issue	Non-issue
Biological Resources	The proposed project could impact habitat of 30 Birds of Conservation Concern (BCC); however, habitat is not limited at the head of Resurrection Bay and it is expected that birds could move to other nearby locations. Non-adverse impacts to Essential Fish Habitat (EFH) are expected where instream work occurs. The proposed project is not anticipated to result in substantial loss of plants or wildlife, and it is not expected to impact Endangered Species Act (ESA)-listed species, their habitats, or wildlife population trends.	No change from current conditions; continued flooding would result in continued airport maintenance activities in adjacent habitats.

	Proposed Action	No Action
Climate	Via the Trump administration's Executive Order titled "Presidential Executive Order on Promoting Energy Independence and Economic Growth" the Trump administration stated: (c) The Council on Environmental Quality shall rescind its final guidance entitled "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," which is referred to in "Notice of Availability," 81 Fed. Reg. 51866 (August 5, 2016).	The No Action alternative does not address the increase in the frequency and severity of flood events at the airport.
Coastal Resources	Non-issue	Non-issue
DOT&PF Section 4(f)	Non-issue	Non-issue
Farmlands	Non-issue	Non-issue
Hazardous Materials, Solid Waste, and Pollution Prevention	The Proposed Action does not involve a property on the National Priorities List (NPL) and hazardous waste generation is not anticipated. Construction generated solid waste is not expected to exceed available landfill capacities.	The No Action Alternative would not result in a change from current conditions.
Historical, Architectural, Archaeological, and Cultural Resources	A finding of "no historic properties affected" was submitted to the State Historic Preservation Officer (SHPO) on June 5, 2018. Concurrence was received on June 14, 2018.	No effect
Land Use	The Proposed Action is consistent with local zoning codes. Noise impacts on adjacent land uses are not expected to change from current conditions. Separation distances from the nearest sewage lagoon will continue to meet the 10,000-foot separation guidelines. The local landfill will remain approximately 7,600 ft northwest of the airport. The new runway length and proposed fencing will increase safety by deterring bird watchers from crossing the active air operations area.	No change from current conditions.
Natural Resources and Energy Supply	No impact to the Seward electric system's supply is anticipated as a result of new airport lighting generating an increase in demand. Fill material in nearby commercial operations is sufficient for the Proposed Action and existing material sites will not require additional permits or have to expand existing boundaries. Fuel demand at the airport is not anticipated to increase.	The No Action Alternative would not result in a change to current energy consumption levels or fill material needs.
Noise and Noise-Compatible Land Use	The Proposed Action would result in short-term increases in noise associated with construction activities. Long-term noise increases are not anticipated, as the Proposed Action will not result in more frequent aircraft operations or a significant change in aircraft type. Noise levels may increase at the bird-watching area at the southern edge of the airport property, but this effect is not anticipated to exceed the threshold of significance.	No change from current conditions.

	Proposed Action	No Action
Socioeconomics	The Proposed Action will not adversely affect socioeconomic considerations, including economic growth, physical arrangement of the community, relocation of residents and businesses, local traffic patterns, and the community tax base.	No effect
Environmental Justice	The Proposed Action will not disproportionately affect environmental justice populations.	No effect
Children's Health and Safety Risks	The Proposed Action will maintain the airport's ability to support medevac operations utilized by the community, including children.	Continued flood impacts at the airport may result in a diminished capacity to support the larger aircraft utilized by medevac operators.
Visual Effects	Non-issue	Non-issue
Wetlands	The Proposed Action would have approximately 25 acres of unavoidable impacts to wetlands. A summary of the proposed wetland impacts are presented in Tables 15 and 16. The Proposed Action would not adversely impact municipal water source protections or substantially reduce the natural systems' ability to retain floodwater or storm water runoff. The project impacts 3.33 acres of wetlands that have a high functional ranking for providing wildlife habitat; no other important wildlife habitats would be impacted, and no secondary activities that increase impacts to airport or surrounding wetlands would occur. The Proposed Action is consistent with the State's wetland strategies.	No change from current conditions; continued flooding would result in continued airport maintenance activities in adjacent wetlands.
Floodplains	The Proposed Action may cause a change to the Base Flood Elevation (BFE) of less than 0.41 feet. No development would occur within the regulatory floodway.	No change from current conditions; flooding of the RW would continue to damage RW 13-31.
Surface Waters	The Proposed Action is not expected to impact water quality or contaminate public drinking water. The natural and beneficial water resource values of the adjacent water bodies may be impacted.	No change from current conditions.
Groundwater	Non-issue	Non-issue
Wild and Scenic Rivers	Non-issue	Non-issue
Cumulative Impacts	The proposed project could cumulatively impact the following resource categories at the head of Resurrection Bay area: • Biological Resources (fish, EFH, bird habitat, invasive species) • Hazardous Materials, Solid Waste, & Pollution Prevention (solid and construction waste) • Land Use (land development) • Natural Resources & Energy Supply (utilities and natural resources) • Water Resources (Waters of the U.S. and the Resurrection River floodplain) The cumulative impact of the direct and indirect effects of the Proposed Action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions are not anticipated to cause significant impacts.	The No Action Alternative would not result in a change from current conditions. Cumulative impacts resulting from past, present, and reasonably foreseeable future actions that include commercial and industrial activities at the head of Resurrection Bay would continue.

4 GENERAL SETTING

4.1 Climate

Seward has a maritime subpolar, or a subarctic, climate, which is characterized by long, cold winters and short, cool to mild summers. Seward experiences moderate temperatures for Alaska and, due to its location along the Gulf of Alaska, high levels of precipitation. Average winter temperatures range from 17° to 38° Fahrenheit (F); summer average temperatures range from 49°F to 63°F. Annual precipitation averages 66 inches of rain and 80 inches of snowfall.

4.2 Topography, Geology, and Soils

Seward is located at the northern end of Resurrection Bay on the southeast coast of the Kenai Peninsula. This bay is an extension of an eroded glacial valley in the Kenai Mountains and is a deep fjord extending north from the Gulf of Alaska. Rising steeply above the bay, the surrounding Kenai Mountains climb to altitudes of nearly 5,000 ft. The waters and shores of the bay are ice-free year-round. The City of Seward is particularly susceptible to earthquakes, tsunamis, and stream flooding, which can be aggravated by heavy rains, melt runoff, heightened tidal action, and severe winds. During winter months, deep snow and avalanches occasionally hamper transportation and emergency response time in the community.

4.3 Hydrology

The Seward Airport was constructed in the Resurrection River floodplain, on the delta at the river's mouth. The river is a wide, glacial-fed, braided river with low banks. Over time the river channel has moved back and forth across the floodplain, consistent with the behavior of a braided river. Wetland areas have developed where surface drainage is restricted, or in areas subject to tidal inundation. With depths of one to two feet, the groundwater table is very shallow in places. The airport has flooded 18 times since 2011. The frequency and severity of flooding has been accelerating, resulting in more frequent and intense flooding events. Both the main RW and TW A have suffered regular damage from these events.

5 IMPACT COMPARISON OF ALTERNATIVES

5.1 Categories of Non-Issue

The following impact categories have been determined to be non-issues:

- Air Quality
- Climate
- Coastal Resources
- DOT&PF Section 4(f)
- Farmlands
- Visual Effects
- Groundwater
- Wild and Scenic Rivers

Justification for the determination of non-issue can be found in Appendix C.

5.2 Biological Resources (Including Fish, Wildlife, and Plants)

5.2.1 Affected Environment

ADF&G's 2015 Alaska Wildlife Action Plan (WAP) describes the Southcentral Alaska biographic region, including Seward, as having diverse wildlife due to its varied habitats and milder climate (ADF&G 2015). About 31% of the airport area is uplands consisting of mixed or needleleaf forest and pavement/fill for airport-related developments (Davis and Pullman 2005). Terrestrial species known to inhabit the Seward area include black and brown bears and moose, which are all occasionally observed on RWs. According to a resident, bears, river otters, and coyotes fish in the airport's ponds and creeks (DiMarzio 2017). In addition, the local Seward ecosystems and wetlands provide feeding and nesting habitat for waterfowl and other migratory birds, rearing and spawning grounds for salmon and other anadromous fish species, and hunting and nesting areas for raptors (DOWL 2008). No marine mammals or fish occur in the project area, which is about 0.25 miles from Resurrection Bay.

5.2.1.1 Essential Fish Habitat

The Anadromous Waters Catalog (AWC) identifies four anadromous fish streams, which are classified as EFH, in and near the project area (ADF&G 2017). These are listed below and shown on Figure 9:

- Unnamed stream (AWC Code 231-30-10075), located between RWs 16-34 and 13-31, contains spawning habitat for pink salmon (*Oncorhynchus gorbuscha*)
- Unnamed stream (AWC Code 231-30-10080-2017), located about 300 ft northeast of RW 13-31, contains sockeye salmon (*O. nerka*) spawning and rearing habitat and Coho salmon (*O. kisutch*) rearing habitat
- Airport Creek (AWC Code 231-30-10080-2003), located adjacent to RW 13-31 to the northeast, contains spawning habitat for chum salmon (*O. keta*)
- Resurrection River (AWC Code 231-30-10080), located about 4,200 ft northeast of RW 13-31, contains chum, pink, and Coho salmon and eulachon spawning habitat, Coho salmon rearing habitat, and sockeye and Chinook salmon (*O. tshawytscha*) present

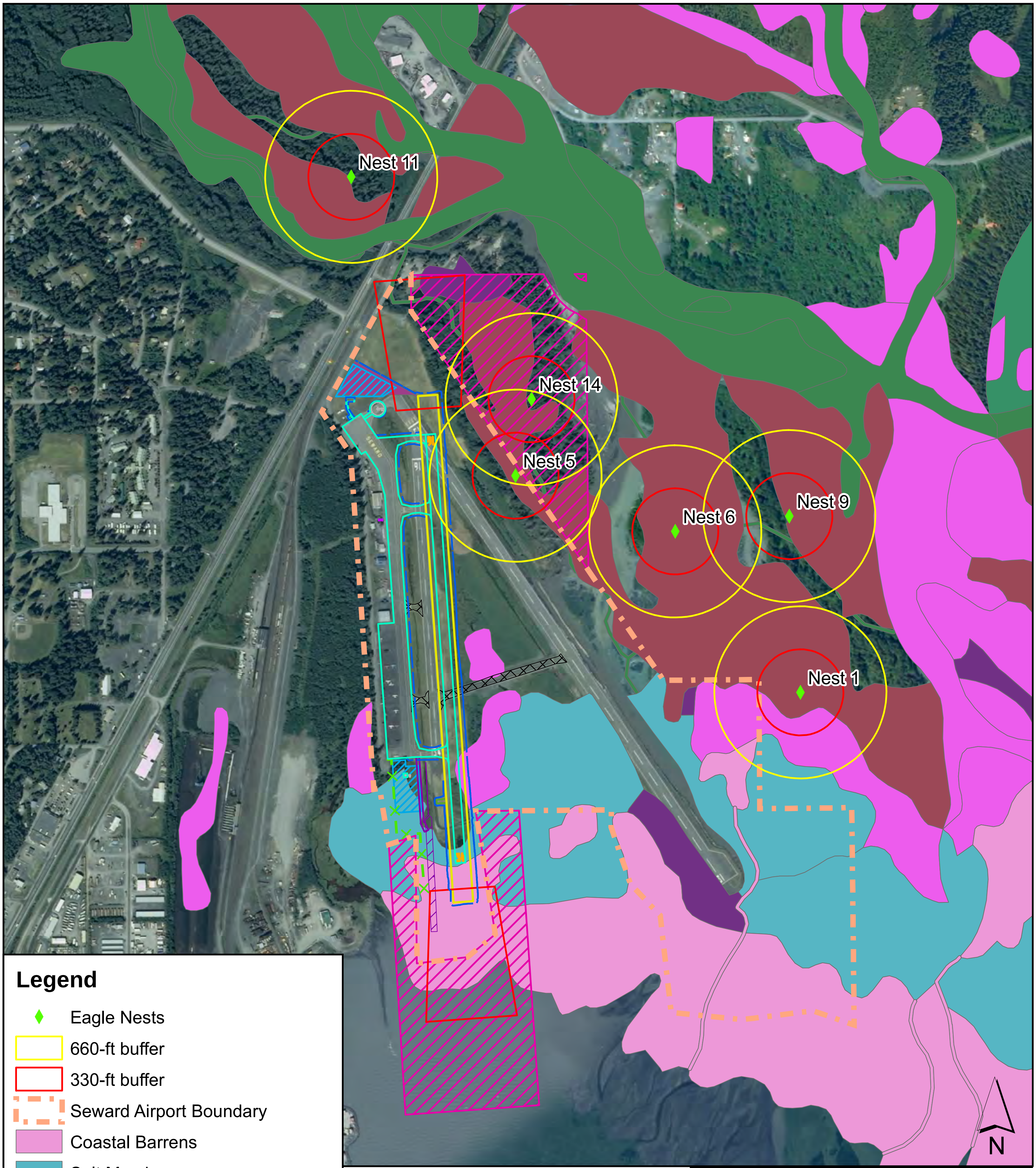
There are no Habitat Areas of Particular Concern (HAPC) or EFH Areas Protected from Fishing identified in the project area. Resurrection Bay is EFH for a number of species, but the bay is outside the project area (NMFS 2017a).

5.2.1.2 Endangered Species and Critical Habitat

According to the U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) resources report and National Marine Fisheries Service (NMFS), Endangered Species Act (ESA), and Marine Mammal Protection Act (MMPA) Species Distribution Mapper, there are no ESA-listed species or Critical Habitat present within the project area (USFWS 2017; NMFS 2017).

5.2.1.3 Migratory Birds and Eagles

According to local observations, diverse and dense numbers of migratory bird species have been observed within the proposed project area (Figure 3) (USFWS 2017; eBird 2017; eBird 2017a; Griswold 2017). eBird, an online community reporting system run through the Cornell Lab of Ornithology and National Audubon Society, documents the presence of 163 different bird species in the proposed project area (eBird 2017). Thirty of these species are Birds of Conservation Concern (BCC) by the USFWS (USFWS 2017; USFWS 2008).



Seward, Alaska

Date: 11/2/2018

Figure: 3

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Biological Resources

The WAP identifies 88 bird species as Species of Conservation Need and 86 species as Species of Greatest Conservation Need because they are at-risk, stewardship (species with a high percentage of their North American or global populations in Alaska), culturally important, economically important, ecologically important, and/or a sentinel species (indicators of environmental change) (ADF&G 2015). Table 2 lists details of BCCs documented in the proposed project area. See Appendix D for a list of all the bird species documented in the proposed project area and their associated conservation levels.

Table 2 – BCCs Documented at the Seward Airport

Bird Species	Source	BCC Listing			Life Stage Present	Habitat Type
		BCR[1]	USFWS Region	Nat'l. BCC		
Rufous Hummingbird (*Selasphorus rufus)*	USFWS; ebird	*None*	Region 7	National	Breeding	Tall Shrub Riverbar, Riverine Tall Scrub, Lowland Tall Scrub
Black Oystercatcher (*Haematopus bachmani*)	USFWS; ebird	*None*	Region 7	National	Breeding	Coastal Barrens
Upland Sandpiper (*Bartramia longicauda)*	Griswold	Region 4	*None*	National	Breeding	Lowland Sedge-Shrub/Land Management Areas
Whimbrel (*Numenius phaeopus*)	Griswold; ebird	Regions 4, 5	Region 7	National	Migrating	Coastal Barrens, Lowland Sedge Meadow
Hudsonian Godwit (*Limosa haemastica)*	Griswold; ebird	4, 5	Region 7	National	Breeding	Pond, Riverine Broadleaf Forest
Bar-tailed Godwit (*Limosa lapponica*)	Griswold	*None*	Region 7	National	Migrating	Coastal Barrens, Salt Marsh, Lowland Sedge Meadow
Marbled Godwit *(Limosa fedoa)*	USFWS	Region 5	Region 7	National	Nesting	Pond, Coastal Barrens, Salt Marsh
Red Knot (*Calidris canutus roselaari*)	eBird	*None*	Region 7	National	Migrating	Coastal Barrens, Salt Marsh
Dunlin (*Calidris alpine*)	Griswold	*None*	Region 7	National	Wintering	Pond, Coastal Barrens, Salt Marsh, Lowland Sedge Meadow
Rock Sandpiper (*Calidris ptilocnemis ptilocnemis*)	USFWS; Griswold	Region 4	Region 7	National	Wintering	Coastal Barrens
Semipalmated Sandpiper (*Calidris pusilla*)	Griswold; ebird	*None*		National	Migrating	Coastal Barrens, Salt Marsh, Lowland Sedge Meadow
Short-billed Dowitcher (*Limnodromus griseus)*	USFWS; ebird; Griswold	Regions 4, 5	Region 7	National	Breeding	Pond, Riverine Broadleaf Forest, Salt Marsh
Solitary Sandpiper (*Tringa solitaria)*	Griswold; ebird	Regions 4, 5	Region 7	National	Breeding, Migration	Pond, River, Stream, Riverine Broadleaf Forest, Salt Marsh
Lesser Yellowlegs (*Tringa flavipes*)	USFWS; ebird; Griswold	*None*	Region 7	National	Breeding	Pond, Coastal Barrens, Salt Marsh
Marbled Murrelet (*Brachyramphus marmoratus*)	USFWS; ebird	*None*	Region 7	National	Year-round, Breeding	Riverine Broadleaf Forest, Riverine Tall Scrub, Salt Marsh, Lowland Tall Scrub
Kittlitz's Murrelet (*Brachyramphus brevirostris*)	USFWS; ebird	*None*	Region 7	National	Breeding	River, Stream, Coastal Barrens
Aleutian Tern (*Onychoprion aleuticus)*	eBird	*None*	Region 7	National	Breeding	Coastal Barrens
Caspian Tern (*Hydroprogne caspia)*	Griswold	Region 5	*None*		Breeding	Pond, River, Stream, Coastal Barrens
Arctic Tern (*Sterna paradisaea)*	Griswold; ebird	Region 5	Region 7	*None*	Breeding, Migrating	Pond, River, Stream, Coastal Barrens
Yellow-billed Loon (*Gavia adamsii*)	eBird	*None*	Region 7	National	Wintering	Coastal Barrens (remains mostly in ocean waters and bays)

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[1] Bird Conservation Region (BCR).

Bird Species	Source	BCC Listing			Life Stage Present	Habitat Type
		BCR[1]	USFWS Region	Nat'l. BCC		
Red-faced Cormorant (*Phalacrocorax urile*)	eBird	*None*	Region 7	*None*	Year-round, Breeding	Coastal Barrens (remains mostly in bays or sounds)
Pelagic Cormorant (*Phalacrocorax pelagicus pelagicus*)	USFWS; ebird	*None*	Region 7	*None*	Year-round, Breeding	Coastal Barrens (remains mostly in open water of bays or sounds)
Bald Eagle (*Haliaeetus leucocephalus*)	USFWS; ebird; Griswold	Region 5	*None*	National	Year-round, Breeding	Pond, River, Stream, Riverine Broadleaf Forest, Salt Marsh
Northern Goshawk *(Accipiter gentilis)*	Griswold	Region 5	Region 7	*None*	Year-round, Breeding	Riverine Broadleaf Forest
Short-eared Owl (*Asio flammeus*)	USFWS; ebird; Griswold	*None*		National	Breeding	Salt Marsh, Lowland Sedge Meadow, Lowland Sedge-Shrub/Land Management Areas
Peregrine Falcon (*Falco peregrinus*)	Griswold	Regions 4, 5	Region 7	National	Year-round, Breeding	Pond, River, Stream, Riverbar, Riverine Broadleaf Forest, Tall Shrub Riverbar, Riverine Tall Scrub, Coastal Barrens, Salt Marsh, Lowland Sedge Meadow, Lowland Tall Scrub, Lowland Sedge-Shrub/ Land Management Areas (generally near cliffs and water)
Olive-sided Flycatcher (*Contopus cooperi*)	USFWS	*None*	Region 7	National	Breeding	Pond, Riverine Broadleaf Forest, Salt Marsh
Smith's Longspur (*Calcarius pictus*)	Griswold	Region 4	Region 7	National	Breeding	Riverine Broadleaf Forest, Lowland Sedge Meadow, Lowland Tall Scrub
McKay's Bunting (*Plectrophenax hyperboreus*)	Griswold; ebird	*None*	Region 7	National	Wintering	Coastal Barrens
Rusty Blackbird (*Euphagus carolinus*)	Griswold; ebird	Region 4	Region 7	National	Year-round, Breeding	Pond, River, Stream, Riverbar, Riverine Broadleaf Forest, Tall Shrub Riverbar, Lowland Sedge Meadow

Wetlands likely attract migratory birds to the proposed project area (ADF&G 2015). One hundred fifty-nine different bird species found in the area utilize wetlands, freshwater, and saltwater ponds and mud flat habitats (eBird 2017), and in 2016, 96 different bird species used the airport ponds (DiMarzio 2016). According to a representative from Alaska SeaLife Center, during migration (from mid-March to the end of May), bird species such as geese, shorebirds, and Sandhill Cranes rest at airport mud flats and ponds (DiMarzio 2016). Table 3 details the project area wetlands and the documented BCCs in the area that may use them.

The Seward Airport area is important habitat for migrating birds including Arctic Terns (DiMarzio 2016; Griswold 2017; Olive 2017). Seward resident birders and USFWS document an Arctic Tern nesting colony about 3,688 ft southeast of RW 13-31 (Griswold 2017; DiMarzio 2016; USFWS 2004). The nesting colony reportedly contains one Arctic Tern breeding colony, comprised of about 100 pairs, approximately 1,056 ft south of RW 16-34 (60.12461, -149.4205) and two sub-colonies, each containing about ten pairs: Sub-colony 1 is located between RWs 16-34 and 13-31 (60.12425, -149.4121), and Sub-colony 2 is approximately 157 ft southeast of RW 13-31 (60.12433, -149.4077) (DiMarzio 2017). This Arctic Tern nesting colony is important because Arctic Terns migrate a distance of "…10,000 miles or more…", and they utilize this area for courtship, incubation, and raising young through fledge (Griswold 2016).

There are other Arctic Tern nesting colonies in Eastern Kenai Peninsula and western Prince William Sound areas. According to the USFWS Beringian Seabird dataset, within the eastern Kenai Peninsula and western Prince William Sound area, there are 22 Arctic Tern nesting colonies, with more mapped within the Kenai Peninsula and Prince William Sound (USFWS 2004). The three nearest nesting colonies are located on Tern Lake, approximately 28 miles north of Seward Airport (60.53, -149.55), and within Harris Bay, two of which are approximately 32 miles southwest of Seward Airport (59.73, -149.89 and 59.77, -150.04) (USFWS 2004).

Table 3 – Project Area Wetlands and Documented BCCs That May Use Them

Wetland Type [1]	Documented Migratory Birds Likely Using the Areas
Pond (PUBH)	Hudsonian Godwit, Marbled Godwit, Dunlin, Short-billed Dowitcher, Solitary Sandpiper, Lesser Yellowlegs, Caspian Tern, Arctic Tern, Bald Eagle, Peregrine Falcon, Olive-sided Flycatcher, Rusty Blackbird
River (R2UBH)	Solitary Sandpiper, Kittlitz's Murrelet, Caspian Tern, Arctic Tern, Bald Eagle, Peregrine Falcon, Rusty Blackbird
Stream (R2UB3H)	Solitary Sandpiper, Kittlitz's Murrelet, Caspian Tern, Arctic Tern, Bald Eagle, Peregrine Falcon, Rusty Blackbird
Riverbar (R2US5A, R2USA)	Peregrine Falcon, Rusty Blackbird
Riverine Broadleaf Forest (PFO1/SS1A)	Hudsonian Godwit, Short-billed Dowitcher, Solitary Sandpiper, Marbled Murrelet, Bald Eagle, Northern Goshawk, Peregrine Falcon, Olive-sided Flycatcher, Smith's Longspur
Tall Shrub Riverbar (PEM1/ SS1A, PSS1/EM1A, PSS1A)	Rufous Hummingbird, Peregrine Falcon, Rusty Blackbird
Riverine Tall Scrub (PSS1C)	Rufous Hummingbird, Marbled Murrelet, Peregrine Falcon
Coastal Barrens (E1UBL, E2US2N, E2US3N, R1SB7R)	Black Oystercatcher, Whimbrel, Bar-tailed Godwit, Marbled Godwit, Red Knot, Dunlin, Rock Sandpiper, Semipalmated Sandpiper, Lesser Yellowlegs, Kittlitz's Murrelet, Aleutian Tern, Caspian Tern, Arctic Tern, Yellow-billed Loon, Red-faced Cormorant, Pelagic Cormorant, Peregrine Falcon, McKay's Bunting
Salt Marsh (E2EM1N, E2EM1P)	Bar-tailed Godwit, Marbled Godwit, Red Knot, Dunlin, Semipalmated Sandpiper, Short-billed Dowitcher, Solitary Sandpiper, Lesser Yellowlegs, Marbled Murrelet, Bald Eagle, Short-eared Owl, Peregrine Falcon, Olive-sided Flycatcher
Lowland Sedge Meadow (PEM1H)	Whimbrel, Bar-tailed Godwit, Dunlin, Semipalmated Sandpiper, Short-eared Owl, Peregrine Falcon, Smith's Longspur, Rusty Blackbird
Lowland Tall Scrub (PSS1B)	Rufous Hummingbird, Marbled Murrelet, Peregrine Falcon, Smith's Longspur
Lowland Sedge-Shrub/Land Management Areas (PEM1/ SS1B, PSS1/EM1B, PEM1B)	Upland Sandpiper, Short-eared Owl, Peregrine Falcon

See Figure 7 for a depiction of these wetland types in the proposed project area.

There are six bald eagle nests near the proposed project area (UAS 2017):

- Nest No. 5/Object ID 1865 is located within the airport property and is about 365 ft northeast of RW 13-31 and 535 ft east of the shifted RW 16-34 (60.1333, -149.4167)
- Nest No. 14/Object ID 1873 is approximately 370 ft east of the airport boundary, about 790 ft northeast of RW 13-31, and approximately 710 ft east of the new RW 16-34 (60.1349, -149.416)
- Nest No. 6/Object ID 1657 is approximately 700 ft northeast of the airport property boundary, about 1,125 ft northeast of RW 13-31 (60.1321, -149.41)
- Nest No. 11/Object ID 1661 is approximately 900 ft north of the airport boundary and about 1,620 ft north of RW 13-31 (60.1396, -149.4234)
- Nest No. 9/Object ID 1869 is approximately 1,500 ft northeast and across the Resurrection River from the airport boundary (60.1324, -149.4052)
- Nest No. 1/Object ID 1863 is approximately 350 ft east and across the Resurrection River from the airport and about 1,200 ft northeast of RW 13-31 (60.1287, -149.4048)

5.2.1.4 Invasive Species

Eight non-native plants have been recorded within or near the proposed project area: splitlip hempnettle (*Galeopsis bifida Boenn.*), fall dandelion (*Leontodon autumnalis L.*), bigleaf lupine (*Lupinus polyphyllus Lindl. ssp. Polyphyllus*), white deadnettle (*Lamium album L.*) bluejoint grass (*Calamagrostis canadensis*), polar grass (*Arctagrostis latifolia*), tufted hair grass (*Deschampsia caespitosa*), and glaucous bluegrass (*Poa glauca*) (UAA 2017; Davis and Pullman 2005).

5.2.2 Environmental Consequences of Alternatives

Significance Thresholds from FAA Order 1050.1F: *The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat. The FAA has not established a significance threshold for non-listed species.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential for:*

- *A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);*
- *Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;*
- *Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or*
- *Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.*

5.2.2.1 Essential Fish Habitat

Removal of TW A will require instream work in an unnamed stream (AWC Code 231-30-10075) between RWs 16-34 and 13-31, potentially impacting EFH-containing spawning habitat for pink salmon. No HAPC or EFH Areas Protected from Fishing have been documented within the proposed project area, and thus none would be impacted.

5.2.2.2 Endangered Species and Critical Habitat

No ESA-listed or Critical Habitat occurs within the project; therefore, no adverse impacts to ESA-listed species and their habitats would occur.

5.2.2.3 Migratory Birds and Eagles

Thirty BCCs may be impacted by the Proposed Action due to impacts to habitat. A wetland functional assessment conducted at the airport in 2005 (Davis and Pullman 2005) and updated in 2016 (DOT&PF 2016) aggregated the 21 National Wetland Inventory (NWI) wetland types into 12 wetland habitats. (See Section 5.9.1 for details regarding these habitats.) Birds using Coastal Barrens, Salt Marsh, and Riverine Broadleaf wetland functional groups, which rank high for providing wildlife habitat, and Lowland Tall Scrub habitat, a wetland functional group which ranks moderate for providing wildlife habitat, would be impacted. The largest geographic area of BCC habitat that would be impacted is Lowland Sedge-Shrub/Land Management Areas, which ranks low for providing wildlife habitat. Impacts to these habitats and associated wildlife are detailed below. See Section 5.9.1.2 for details regarding wetland impact areas.

High-ranking BCC habitats would be impacted:

- BCCs using Coastal Barrens habitat would be impacted by the approximately 2.6 acres of wetland fill associated with the Proposed Action. Birds using the area as a migratory stopover (Whimbrel, Bar-tailed Godwit, Red Knot, Semipalmated Sandpiper, and Arctic Tern) would have a smaller area available for resting before continued travel. Species using the area for breeding (Black Oystercatcher, Lesser Yellowlegs, Kittlitz's Murrelet, Aleutian Tern, Caspian Tern, Red-faced Cormorant, Pelagic Cormorant, and Peregrine Falcon) would have less territory for courtship, pair bonding, and mating. Marbled Godwits would have less nesting habitat, and birds that use the area for wintering (Dunlin, Rock Sandpiper, Rock Sandpiper, and McKay’s Bunting) would have less area available during colder weather. However, because the Proposed Action would result in filling only 0.015% of the approximately 17,900 acres of Coastal Barrens that exist at the head of Resurrection Bay, impacts to birds using this habitat would be minimal. Birds would be expected to move to the ample adjacent Coastal Barrens at the head of the bay.
- BCCs using Salt Marsh habitats would be impacted by approximately 0.7 acres of fill associated with the Proposed Action. Birds using the area for a migratory stopover (Bar-tailed Godwit, Red Knot, Semipalmated Sandpiper, and Solitary Sandpiper), would have less area to rest. Breeding birds (Short-billed Dowitcher, Lesser Yellowlegs, Marbled Murrelet, Bald Eagle, Short-eared Owl, Peregrine Falcon, and Olive-sided Flycatcher) would have less area for courtship activities. Species using the area for nesting and wintering, respectively, (Marbled Godwit and Dunlin) would have less available habitat. However, the impacts to BCCs would be minimal since only approximately 0.4% of the 196 acres would be filled.

Low-ranking BCC habitats would be impacted:

- The Proposed Action would impact approximately 21.5 acres of Lowland Sedge-Shrub/Land Management Area wetlands (a disturbed environment wetland), which rank low for wildlife habitat; therefore, birds using the area for breeding (Upland Sandpipers, Short-eared Owls, and Peregrine Falcons) could be impacted by the project. However, according to the airport wetlands functional analysis (Davis and Pullman 2005), Lowland Sedge-Shrub/Land Management Areas do not provide important wildlife habitat because vegetation is regularly cleared for airport maintenance and because the area is adjacent to active airport operations. The head of Resurrection Bay does not include other Lowland Sedge-Shrub/Land Management Areas because it is a wetland type that occurs as a function of airport maintenance activities. Impacts to birds using Lowland Sedge-Shrub/Land Management Area habitat would be minimal since these birds would be expected to move to other wetland habitats available at the head of the bay.

Small areas (0.133 acres or less) of low-, moderate-, and high-ranking habitats would be impacted:

- Ten species of breeding BCCs, two species of migrating BCCs, and one species of wintering BCCs would be impacted by 0.08 acres of fill in Pond habitat, which ranks low for wildlife habitat; however, about 17 acres of this habitat would remain open to these birds at the head of Resurrection Bay.
- Filling about 0.023 acres of Lowland Tall Scrub, which ranks moderate for wildlife habitat, would impact four species of BCCs using the area to breed. These BCCs would move to other habitats that they use, including Tall Shrub Riverbar and Riverine Broadleaf Forest.

- Nine species of breeding BCCs would be impacted by 0.013 acres of fill in Riverine Broadleaf Forest, which ranks high for wildlife habitat. However, this impact would be small compared to the approximately 385 acres of habitat available at the head of the bay where the birds are expected to move.

The Proposed Action is not expected to impact the Arctic Tern nesting colony located southeast of the airport, because it will follow USFWS construction timing guidelines and avoid work directly in this area. Given the available wetlands habitat that Arctic Terns use for breeding and migrating in this area, including 17 acres of Ponds, 752 acres of Rivers, and 17,904 acres of Coastal Barrens available in the Resurrection Bay area, these birds are expected to continue to use the area.

There are six bald eagle nests near the airport (see Figure 3). Nest #5 is within 660 ft of the RW 16-34 relocation and has the potential to be impacted by construction noise. Nests #14 and #5 are within 660 ft of possible tree clearing needed to ensure that safe approach distances are not obstructed by tall trees. Under the Bald and Golden Eagle Protection Act (Eagle Act), it is illegal to disturb a bald eagle or its nest. DOT&PF will conduct a field investigation prior to construction, and if any active nests are found, DOT&PF will consult with USFWS prior to construction. If work cannot be avoided within the 660-foot buffer area of an active nest during nesting season (February through mid-September) as required by the Eagle Act, an Eagle Nest Take permit may be required (USFWS 2008).

Of the 19,569.02 acres of bird habitats present at the head of Resurrection Bay, the proposed project is expected to impact 0.099% (25 acres) of them. Only about 3.5 acres of fill would occur within areas that provide high-quality wildlife habitat for birds and other wildlife. Given the volume of habitat present in the Seward Airport bay area, the Proposed Action would cause only a minor loss of bird habitat relative to the surrounding habitat available. No adverse impacts to wildlife population trends (reproduction and mortality rates) are expected. Impacts are not expected to occur to biological resources that have not been documented within the proposed project area. Under the No Action Alternative, there would be no change made to the main runway. Continued airport maintenance to repair and protect against flooding would continue in adjacent areas, which may result in continued disturbance to areas that are important to biological resources.

Table 4 – Environmental Consequences: Biological Resources

Impact Category	Proposed Action	No Action
Biological Resources	The proposed project could impact habitat of 30 BCCs; however, habitat is not limited at the head of Resurrection Bay and birds are expected to move to other nearby locations. Minor impacts to EFH are expected where instream work occurs. The proposed project is anticipated to cause only minor loss to plants or wildlife, and it is not expected to impact ESA-listed species, their habitats, or wildlife population trends.	The No Action Alternative would not result in a change from current conditions. Continued flooding would result in continued airport maintenance activities in adjacent habitats.

5.2.3 Minimization and Mitigation

Careful consideration would be taken during design, project construction, and project maintenance to minimize and avoid impacts to the environment and wildlife. The following measures will be taken to minimize impacts to wildlife.

- The proposed project will avoid vegetative clearing, excavation, and placement of fill on or over functional bird habitat, including the Arctic Tern nesting colony, between May 1 and July 15, the USFWS Region 7 recommended time for land disturbance and vegetative clearing avoidance in southcentral Alaska (USFWS 2017a).[2]
- The proposed project will mitigate impacts to EFH through Best Management Practices, including 20-foot vegetated buffers around constructed embankments that reduce sedimentation in streams.

5.2.4 Consultation, Permits, and Other Approvals

The proposed project will comply with the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, ESA, Fish and Wildlife Coordination Act, Magnuson-Stevens Fishery and Conservation Management Act, MMPA, Alaska Fishway Act, and relevant Executive Orders. Consultations were conducted with federal, state, and local agencies with expertise and jurisdiction over biological resources potentially impacted by this project.

During the March 2, 2017, agency scoping meeting, ADF&G emphasized that fish entrapment issues should be considered during project design. ADF&G also stated that the Proposed Action was much more desirable than other alternatives from a fish habitat perspective. USFWS noted the need to identify active eagle nests in the environmental document and emphasized the importance of considering impacts of the project on nests. Meeting notes can be found in Appendix A.

ADF&G and USFWS provided written scoping comments regarding biological resources. ADF&G stated that it did not have wildlife concerns with the proposed project. USFWS commented that the project is following the recommended time period for avoiding land disturbance and vegetative clearing for nesting migratory species and is coordinating with USFWS for bald eagle nests, thus requiring no further comment. Detailed scoping comments for agencies are found in Appendix A.

A USFWS Eagle Nest Take permit may be required for this project. An ADF&G Fish Habitat Permit will be required for work within streams at the airport.

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[2] The USFWS Region 7 recommended time for land disturbance and vegetative clearing avoidance in southcentral Alaska for eagles is March 1 through August 31 (USFWS 2017a); however, no eagle nests would be impacted directly within the project area.

5.3 Hazardous Materials, Solid Waste, and Pollution Prevention

5.3.1 Affected Environment

5.3.1.1 Hazardous Materials

Three sources of information were reviewed to assess the likelihood of encountering hazardous materials during construction of the Proposed Action. These included the Alaska Department of Conservation's Contaminated Sites Database, various Environmental Protection Agency (EPA) listings, and the Phase I Environmental Site Assessment performed previously for the Seward Airport property.

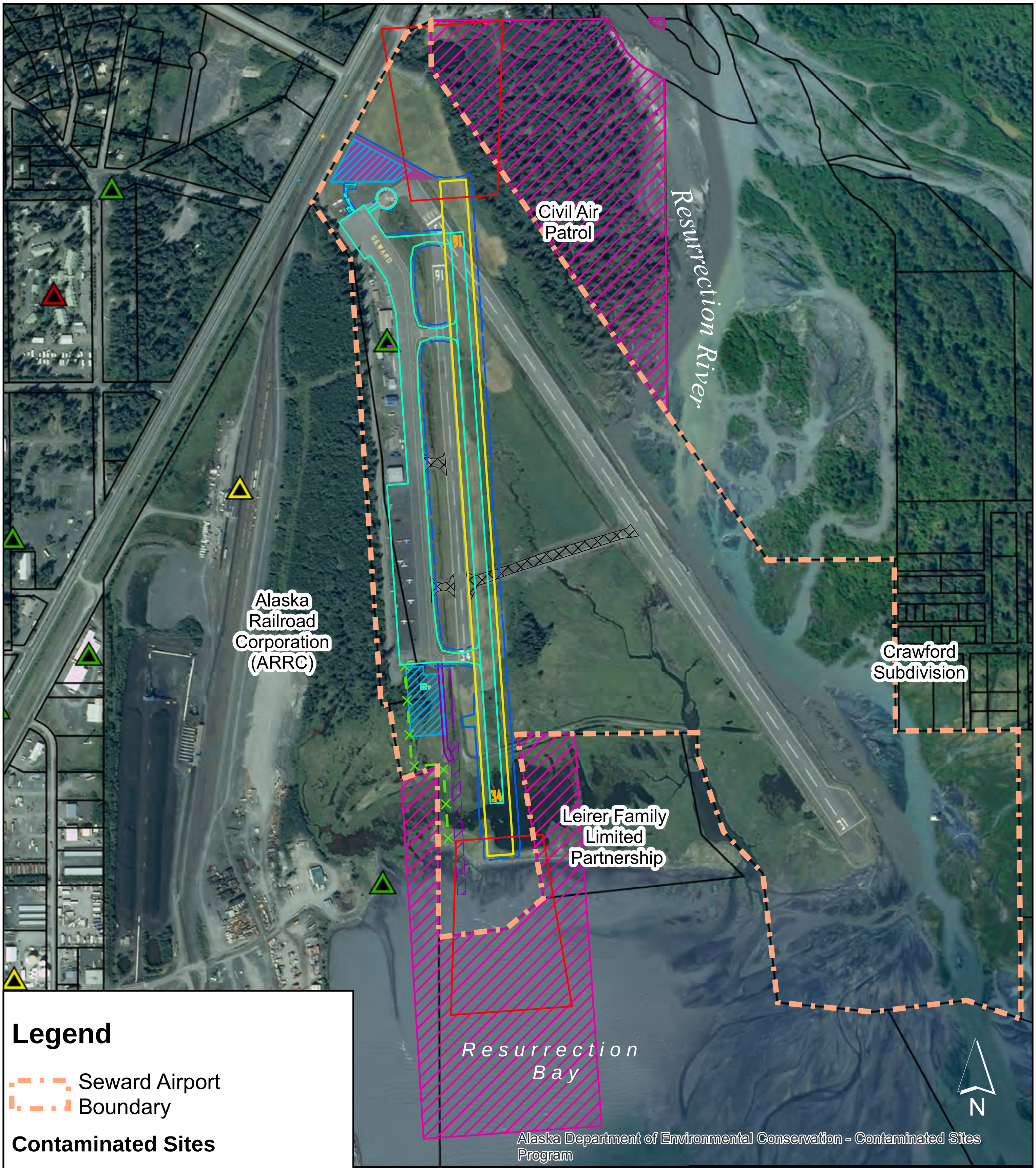
The ADEC Contaminated Sites database, accessed on December 16, 2015, showed 1 Active contaminated site located 1,700 ft west of Airport Road and off of airport property (Figure 4). There are three sites listed as Cleanup Complete near the airport and one listed as Cleanup Complete-Institutional Controls. Table 5 identifies these five sites. Only one of these, the Harbor Air Service site, is located on Airport property. Fifteen cubic yards of soil were removed near the hangar at the Harbor Air Service site in 1994 along with seven leaking fuel storage drums.

A review of the EPA's NPL and Resource Conservation and Recovery Act (RCRA) Corrective Actions Sites shows no sites located within or near the project area.

A Phase I Assessment of the airport property was performed in 2005 as part of the Seward Airport Master Plan EA. The report recommended no further action at the time but did also recommend that no subsurface activities occur around the FS Air building. This is the same site listed by ADEC as the Harbor Air Service site. Excavation near the septic system and abandoned fuel dispenser island has the potential to encounter contamination. No new spills have been documented by ADEC since that assessment.

Table 5 – Contaminated Sites in and Adjacent to the Project Area

Site Name	File Number	Contamination Type	Approximate Location	Activity Status
Seward Military Resort	2102.26.069	Contaminated soil and groundwater at the site from a broken underground storage tank supply line	1,700 ft west of Airport Road	Active
ARRC Seward Rail Yard	2332.38.002	Diesel range organic contamination from leaky heating oil underground storage tank	880 ft west from the airport and 1,166 ft west of RW 16/34	Cleanup Complete - Institutional Controls
ARRC Henderlong Building Seward	2332.38.033	Benzene and toluene were found in soil	600 ft southwest of the airport and 1,265 ft from RW 16/34	Cleanup Complete
Harbor Air Service	2332.38.005	Soil contamination from abandoned 55-gallon drums	270 ft west of RW 16/34	Cleanup Complete
City of Seward - Sewer Lift Station #4	2332.26.014	Diesel range organic contamination from leaky underground storage tank	2,000 ft northwest of Airport Road	Cleanup Complete



Alaska Department of Environmental Conservation - Contaminated Sites Program

Legend

▭ Seward Airport Boundary

Contaminated Sites

- ▲ Active
- ▲ Cleanup Complete
- ▲ Cleanup Complete - Institutional Controls
- ▲ Informational

0 375 750 1,500
Feet Feet

Seward, Alaska

Date: 11/2/2018

Figure: 4

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Contaminated Sites

5.3.1.2 Solid Waste

The Kenai Peninsula Borough operates a landfill in Seward as well as a Transfer Facility at the same location. The Seward Monofill/Landfill (SMF) serves 5,000 year-round residents from Seward to Moose Pass, accepts an estimated 3,100 CY annually and has a projected life of 25 more years. The site accepts municipal solid waste, appliances, scrap metal, junk vehicles, construction and demolition debris and some landscaping and wood. Construction/ demolition debris is limited to 250 CY per job. If larger quantities are anticipated, written notification of the types and quantity of waste should be submitted to the Borough for determination of the disposal location. Disposal may be directed to the Central Peninsula Landfill in Soldotna. The cost for disposing of commercial waste at the SMF is $360 per vehicle for 30-40 CY. The site also accepts recyclable materials including aluminum cans, corrugated cardboard, glass, mixed paper and newspaper.

5.3.1.3 Pollution Prevention

The Seward Airport does not currently use deicing chemicals or other compounds.

5.3.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to:*

- *Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;*
- *Involve a contaminated site (including but not limited to a site listed on the National Priorities List). Contaminated sites may encompass relatively large areas. However, not all of the grounds within the boundaries of a contaminated site are contaminated, which leaves space for siting a facility on non-contaminated land within the boundaries of a contaminated site. An EIS is not necessarily required. Paragraph 6-2.3.a of this Order allows for mitigating impacts below significant levels (e.g., modifying an action to site it on non-contaminated grounds within a contaminated site). Therefore, if appropriately mitigated, actions within the boundaries of a contaminated site would not have significant impacts;*
- *Produce an appreciably different quantity or type of hazardous waste;*
- *Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or*
- *Adversely affect human health and the environment.*

5.3.2.1 Hazardous Materials

The Proposed Action does not involve any property listed in the ADEC Contaminated Sites database or the NPL. Demolition of TWs A, D, and E will be accomplished by excavating down to existing disturbed ground, not below, thereby limiting the potential to encounter any residual contamination from the Harbor Air Service site. The float plane channel will require dredging. This dredging will occur approximately 400 ft east of the ARRC Henderlong Building site. The likelihood of encountering residual contamination from this site is expected to be very low.

5.3.2.2 Solid Waste

The Proposed Action should not result in any burden on the local landfill. Construction is expected to result in minimal waste, being largely limited to packing materials for lighting fixtures. Asphalt excavated from the existing RW 16-34 and TWs will be salvaged and utilized elsewhere on the project or be made available by DOT&PF for other projects.

5.3.2.3 Pollution Prevention

The project is not anticipated to produce potential pollutants. Construction of the proposed project may result in the temporary generation of sediment which can become airborne or be transported via surface water after rain events.

Table 6 – Environmental Consequences: Hazardous Materials, Solid Waste, and Pollution Prevention

Impact Category	Proposed Action	No Action
Hazardous Materials, Solid Waste, and Pollution Prevention	The Proposed Action does not involve a property on the NPL and hazardous waste generation is not anticipated. Construction generated solid waste is not expected to exceed available landfill capacities.	The No Action Alternative would not result in a change from current conditions.

5.3.3 Minimization and Mitigation

5.3.3.1 Hazardous Waste

The contractor will be required to develop a Hazardous Material Control Plan (HMCP) prior to construction which will identify procedures to follow should hazardous material be generated or encountered. If any contaminated materials are encountered, all work in the vicinity will be stopped until ADEC is contacted and a corrective action plan is approved.

5.3.3.2 Pollution Prevention

The contractor is required to develop a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. This plan will identify appropriate stockpile locations that adhere to local, State and Federal regulations as well as appropriate BMP's to ensure that sediment-laden water does not exit the project areas.

5.3.4 Consultation, Permits, and Other Approvals

Coverage under the APDES Construction General Permit for stormwater discharges will be secured before construction begins. Direct consultation with ADEC will be necessary if contamination is encountered during construction. Fees may apply for the disposal of construction debris.

5.4 Historical, Architectural, Archaeological, and Cultural Resources

5.4.1 Affected Environment

Based on a Cultural Resources Survey conducted in 2004 by Northern Land Use Research for the Seward Airport Master Plan effort, and presented in the 2008 Finding of No Significant Impact, the following sites are in the vicinity of the airport property:

- Site No. SEW-00148, associated with the Seward Moose Pass Trail (previously Iditarod National Historic Trail), runs discontinuously adjacent to the railroad; portions of this trail fell into disuse after the completion of the Alaska Railroad in 1923.
- Site No. SEW-00007 is associated with the Russian Trail dating back from the Russian Period; the exact location of this site has not been identified.
- Site No. SEW-00835, the Naval Radio Station, is located on the eastern bank of Resurrection River, east of the project area.

The SHPO determined these resources to be ineligible for the National Register of Historic Places. SHPO concurred with the finding that no historic properties would be affected by the proposed improvements in the Seward Airport Master Plan. This concurrence was received on March 7, 2007.

Figure 5 shows the Area of Potential Effect (APE) for the 2008 master plan as well as the new APE proposed for this project. The new APE includes property acquisitions at the northern and southern edge of the airport property to accommodate the new RPZ for the expanded RW 16-34. The entire Civil Air Patrol parcel to the north is being acquired so as not to leave the Civil Air Patrol with an inaccessible remnant parcel.

5.4.2 Environmental Consequences of the Alternatives

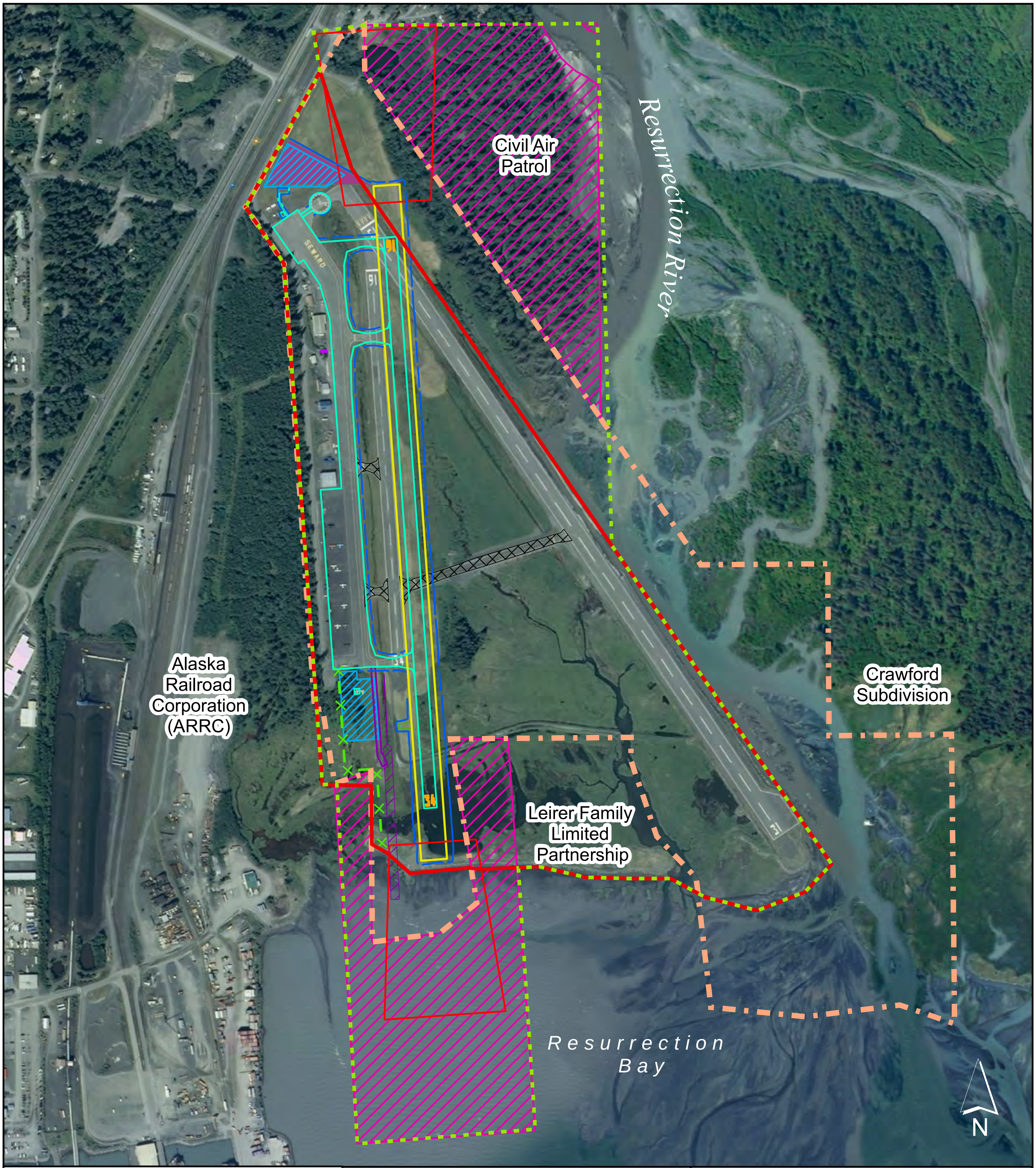
Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Historical, Architectural, Archeological, and Cultural Resources.*

Factors to Consider from FAA Order 1050.1F: *The action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of an EIS (i.e., a significant impact).*

The APE includes the area to be acquired to accommodate the expanded RPZs for RW 16-34. Tree clearing will be required within this area to eliminate airspace obstructions. The project is not expected to impact SEW-00148.

The Alaska Heritage Resources Survey (AHRS) card for Site No. SEW-00007 confirms that cultural resource surveys performed in 2005 and 2013 surveys did not find any trace of the trail where located on the Alaska Department of Natural Resources, Office of History and Archaeology (OHA) map. The 2005 survey performed by Northern Land Use Research of Alaska, LLC (NLURA) determined that it was unlikely the remnants of an old road at the southern end of the property were related to SEW-00007. This survey also looked into the reports that the homestead of one of Seward’s first recorded families was located on airport property. It was confirmed that the homestead had been located on a portion of the airport property but that the 1964 Alaska earthquake and the resulting tidal waves and subsidence had eliminated any physical traces of the homestead.

The remnants of SEW-00835 are located outside the APE and will not be impacted by the proposed project.



Legend

🟩 2018 Preliminary APE

🟥 2008 APE

▭ Seward Airport Boundary

0 375 750 1,500

Feet Feet

Seward, Alaska

Date: 11/2/2018

Figure: 5

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Area of Potential Effect

**Table 7 – Environmental Consequences:
Historical, Architectural, Archaeological, and Cultural Resources**

Impact Category	Proposed Action	No Action
Historical, Architectural, Archaeological, and Cultural Resources	A finding of "no historic properties affected" was submitted to SHPO on June 5, 2018. Concurrence was received June 14, 2018.	No effect

5.4.1 Minimization and Mitigation

If any cultural, archaeological, or paleontological resources are found during construction, the Contractor shall cease operations in the area and SHPO will be notified. No artifacts or specimens shall be disturbed or removed and no further operations performed in the area until directed by DOT&PF.

5.4.2 Consultation, Permits, and Other Approvals

DOT&PF has initiated consultation with the following parties: SHPO, City of Seward, Chugachmiut, Inc., Resurrection Bay Historical Society, and Qutekcak Native Tribe. SHPO provided concurrence with DOT&PF's finding of no historic properties affected on June 14, 2018. No comments have been received from other consulting parties.

5.5 Land Use

5.5.1 Affected Environment

The Seward Airport's existing property is located in the northeast section of the City of Seward within the city limits. DOT&PF owns the Seward Airport property with the exception of a triangular section on the west side of the airport property which is leased from the Alaska Railroad Corporation (ARRC). This property contains tie-down areas and a portion of the lease lots. Properties adjacent to the existing airport boundary consist of industrial, resource management, and mostly undeveloped parcels across Seward Highway. The tideland areas to the south of the airport are owned by the City of Seward. The following chart summarizes land uses adjacent to the Seward Airport.

Table 8 – Seward Airport, Adjacent Land Uses

Direction	Owner	Land Use
West/Southwest	Alaska Railroad Corporation	Industrial: Railport
Northwest/North	Across Seward Highway: • City of Seward • Private, various	• Institutional: undeveloped • Auto Commercial: undeveloped
Northeast/East/Southeast	• Civil Air Patrol (Federal) • Private, various • City of Seward	**All parcels in this area are within the Resurrection River floodplain* • Resource management: undeveloped • Resource management: multiple residential parcels, undeveloped • Industrial: undeveloped
South	• Leirer Family Limited Partnership, private • City of Seward • DNR	• Industrial: undeveloped • Tidelands

In 2014, ARRC developed a master plan for its Seward port facilities. The current Site Plan, last updated in the summer of 2017, proposes the use of a storage pad for the area just west of the Seward Airport boundary. In addition, just south of the Airport boundary, there is a plan to build a new freight dock into Resurrection Bay.

A southern parcel privately owned by Leirer Family Limited Partnership is a popular birding area and considered important habitat for many bird species (see Section 5.2 for more details). This parcel is zoned Industrial, which the Municipal Code defines as:
Established as a district in which the principal use of land is for business, manufacturing, processing, fabricating, repair, assembly, storage, wholesaling and distributing operations, which may create some nuisance and which are not properly associated nor compatible with residential land uses. It is intended to provide environmental safeguards for people employed in or visiting the district. Some visual amenity is expected in this district to make it compatible with adjoining residential or business districts.

This parcel represents a potential wildlife hazard given its proximity to the airport. A search of the FAA Wildlife Strike Database found only one recorded bird strike since 1980. The incident occurred in 1995 and while no damage was reported, the pilot documented striking 2 to 10 birds out of 11 to 100 seen.

The Seward Transfer Facility and Monofill/Landfill are located approximately 7,600 ft northwest of the airport. The Lowell Point Wastewater Treatment Facility, including sewage lagoon, is located over 3.5 miles southwest of the airport. There are no designated refuges, critical habitat areas or sanctuaries within or adjacent to the proposed project area. The Chugach National Forest is about 1 mile from the proposed project area. Kenai Fjords National Park is approximately 4 miles from the proposed project area, and Caines Head State Recreation Area is about 7 miles from the proposed project area. DOT&PF does not anticipate the proposed project would result in any adverse impacts to these parks, forests, or recreational areas.

5.5.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Land Use.*

Factors to Consider from FAA Order 1050.1F: *There are no specific independent factors to consider for Land Use. The determination that significant impacts exist in the Land Use impact category is normally dependent on the significance of other impacts.*

As of the writing of this document, ARRC has drafted a Site Plan for its rail-port facilities, which include development of a new freight dock on an ARRC-owned parcel adjacent to the airport. Through the public involvement process, ARRC voiced concern that development of the Proposed Action would result in airspace restrictions that could affect proposed freight development. At their request, DOT&PF has provided ARRC with contoured airspace maps detailing the height restrictions that would accompany development of the Proposed Action. These restrictions are limited to the placement of structures such as very tall light poles, cranes, etc., which could penetrate the restricted airspace heights.

The Proposed Action would result in the acquisition of property north and south of the airport boundary to accommodate the Transitional Surfaces as well as the RPZ. See Figure 6 for locations. These acquisitions do not conflict with current zoning and future land use as adopted in the 2030 Seward Comprehensive Plan. The southern parcel, privately owned by Leirer Family Limited Partnership, is adequately zoned (i.e., "industrial") for airport facility use. DOT&PF would acquire 6.28 acres in fee (fee simple). The adjacent ARRC property is similarly zoned. DOT&PF would enter into a long-term lease with ARRC for an additional 5.88 acres to account for the new area to the south as well as extend the existing lease for the apron. The northern property is owned by Civil Air Patrol and is zoned for Resource Management which is defined in the Municipal Code as: *Lands which are generally undeveloped and cannot be precisely zoned due to inadequate information on the extension of public services and utilities; the suitability of the land to support commercial, residential, industrial or public uses; and other possible environmental consideration.* DOT&PF would acquire the entire 39-acre parcel in fee (fee simple). The remainder of the parcel is within the Resurrection River floodway and would be of diminished value to the owner now that access to the highway is cutoff. The full parcel acquisition will allow direct access to the river in the future should additional flood mitigation be needed, and the purchase will ensure that trees are not cut down thereby adding to the prevention of streambank erosion near the airport. 10.94 acres of tidelands owned by the City of Seward will also be acquired in fee (fee simple).

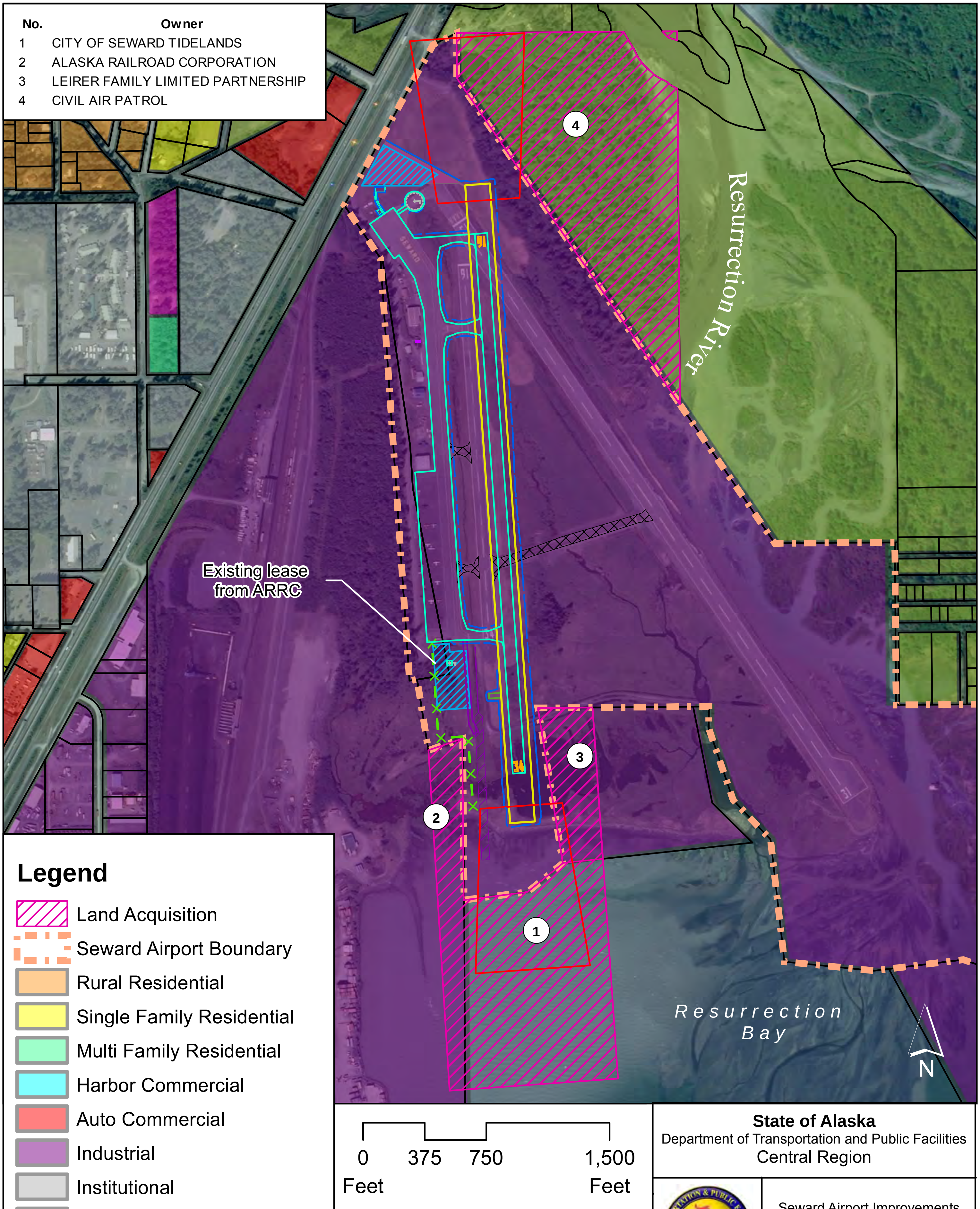
Noise-compatible land uses surround the airport boundary, including Industrial (i.e., rail-port), Resource Management (i.e., Resurrection River), and Auto-Commercial land uses. See Section 5.7 for further discussion of Noise and Noise-Compatible Land use.

Extension of RW 16-34 and the RW Protection Zone into airport-owned land to the south will require asphalt, base material, and riprap fill into wetlands, which may harm existing ground-nesting avian communities in the area. It will also cut off access by local birders to popular bird-watching area located on the parcel owned by the Leirer Family Limited Partnership. The current practice of crossing near the end of RW 16-34 to access this property represents a safety concern as it currently involves crossing an active RW. Fencing to deter this activity will have a potential positive impact on safety but will likely be considered a negative impact to bird watchers looking to access this area. The practice of crossing an active RW also violates FAA Land Use Compliance regulations, jeopardizing future FAA funding for this airport if not corrected. See Section 5.2 for a discussion of impacts to biological resources and Section 5.8 for a discussion of socioeconomic impacts.

The Proposed Action will not decrease the distance from the airport to the municipal landfill to the northwest. The Proposed Action would decrease the distance between the airport and the sewage lagoons to the southeast however the distance remains well beyond the 10,000-foot separation guideline established by FAA.

There is no identified inconsistency with approved state and/or local plans and laws.

No.	Owner
1	CITY OF SEWARD TIDELANDS
2	ALASKA RAILROAD CORPORATION
3	LEIRER FAMILY LIMITED PARTNERSHIP
4	CIVIL AIR PATROL



Legend

- ▨ Land Acquisition
- Seward Airport Boundary
- 🟧 Rural Residential
- 🟨 Single Family Residential
- 🟩 Multi Family Residential
- 🟦 Harbor Commercial
- 🟥 Auto Commercial
- 🟪 Industrial
- ⬜ Institutional
- 🟪 Park
- 🟩 Resource Management

Seward, Alaska

Date: 11/2/2018

Figure: 6

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Land Use Map

Table 9 – Environmental Consequences: Land Use

Impact Category	Proposed Action	No Action
Land Use	The Proposed Action is consistent with local zoning codes. Noise impacts on adjacent land uses are not expected to change from current conditions. Separation distances from the nearest sewage lagoon will continue to meet the 10,000-foot separation guidelines. The local landfill will remain approximately 7,600 ft northwest of the airport. The project will increase safety by deterring bird watchers from crossing the active air operations area.	The No Action Alternative would not result in a change from current conditions.

5.5.3 Minimization and Mitigation

No minimization or mitigation requirements have been identified for the Proposed Action. No major changes in compatible land use are anticipated.

5.5.4 Consultation, Permits, and Other Approvals

A tidelands survey has been completed for the southern portion of the airport including the area to be acquired as part of the project. The determination of the tideland boundary will identify whether a property is needed from the City of Seward. DOT&PF will negotiate with the ARRC, Civil Air Patrol, the Leirer Family Limited Partnership, and the City of Seward for the acquisition of the area needed to secure the new RPZ and airspace protection. All non-aeronautical uses of airport property, including accessing bird watching sites which requires crossing airport property, must be permitted by the department. Otherwise they are considered non-compliant.

5.6 Natural Resources and Energy Supply

5.6.1 Affected Environment

Electricity is provided to Seward Airport by the City of Seward’s electric system. The system purchases power from Chugach Electric and maintains high-capacity generators to provide backup power as needed. Electricity is available to all lease lots at the airport as well as to the electrical equipment building, which houses the regulator and controls for the medium-intensity RW and TW edge lighting system.

The City of Seward operates a public drinking water system and a public sewage system, although neither service is available at the airport. Solid waste is collected at the airport by Seward Disposal Service and transported to the Seward Monofill/Landfill.

The primary fuel supplier in Seward is Shoreside Petroleum, which has six fuel tanks with a capacity of 120,000 gallons each. The City of Seward has an additional 40,000 gallons of fuel capacity, and there are 68,000 gallons of storage capacity available elsewhere in the community. A local fixed-base operator, Seward Air, maintains 5,000 gallons of Jet A and 5,000 gallons of 100LL fuel for purchase at the airport.

Material sources near Seward Airport include a commercial operation run by Metco, Inc., located less than a mile north of the airport on an island in the Resurrection River, and the Seward Rock Quarry, administered by the KPB Land Management Division and located approximately 1.8 miles northwest of the airport and adjacent to the Resurrection River. The

Metco operation extracts gravel from the Resurrection River floodplain. The river recharges the excavated quantities, thereby providing a nearly unlimited supply. The Seward Rock Quarry is a 30-acre parcel owned by the KPB that contains an existing quarry into an exposure of sandstone rock. Testing confirms that rock from the quarry is suitable for (HDL 2009):

- Riprap class I, II, III, and IV
- Ditch lining
- Aggregates
- Shore protection rock products
- Crushed aggregate surface course

5.6.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Natural Resources and Energy Supply.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to cause demand to exceed available or future supplies of these resources.*

The change from the existing 4,500-foot RW and 2,289-foot RW to the single 3,300-foot RW in the Proposed Action will reduce the number of edge lights. Upgrades in lighting technology in the new lights as compared to the existing fixtures will further reduce electricity needs. Therefore, the Proposed Action would not cause an increase in demand to the Seward electric system supply.

The Proposed Action will need approximately 140,000 CY of fill material. Fill material is not in short supply in Seward, and potential material sources are close to the airport. Existing material within the project may be re-used, and any excavated material not utilized as part of the Proposed Action will be made available for future projects.

The Proposed Action will result in closing RW 13-31, which has a longer taxiing distance to reach the apron. An increase in airport traffic is also not expected as a result of the project. As a result of taxi time reduction and the Proposed Action not contributing to an increase in air operations, no increase in fuel consumption is expected and no impact on the availability of fuel supplies at the airport is anticipated.

Table 10 – Environmental Consequences: Natural Resources and Energy Supply

Impact Category	Proposed Action	No Action
Natural Resources and Energy Supply	No impact to the Seward electric system's supply is anticipated as a result of new airport lighting generating an increase in demand. Fill material in nearby commercial operations is sufficient for the project and is not expected to require new operator permits or expand existing material site boundaries. Fuel demand at the airport is not anticipated to increase.	The No Action Alternative would not result in a change to current energy consumption levels or fill material needs.

5.6.3 Minimization and Mitigation

A phasing plan is currently being developed to prioritize utilization of excavated material from portions of the Proposed Action as fill for the relocated RW as much as possible. This will reduce the amount of new material needed.

5.6.4 Consultation, Permits, and Other Approvals

The Contractor will be responsible for all necessary permits and clearances to secure material from the commercially available sources. No other consultations, permits or approvals are anticipated at this time.

5.7 Noise and Noise-Compatible Land Use

5.7.1 Affected Environment

Noise-compatible land uses surround the airport boundary, including Industrial (Alaska Railroad Corporation), Resource Management (Resurrection River floodplain), and Auto Commercial (highway-oriented commercial activities) zoning districts. Residential land uses exist within 1,500 ft of the airport boundary but are not directly adjacent to the airport being separated by one of the zoning districts mentioned above. See Figure 6 for adjacent land uses.

5.7.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The action would increase noise by Day-Night Average Sound Level (DNL) 1.5 decibel (dB) or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.*

Factors to Consider from FAA Order 1050.1F: *Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.*

According to the FAA 1050.1F Desk Reference (FAA Office of Environment and Energy 2015), no noise analysis is required for projects involving Design Group I and II airplanes in Approach Categories A through D operating at airports whose forecast operations in the period covered by the National Environmental Policy Act (NEPA) document do not exceed 90,000 propeller operations or 700 jet operations. Seward Airport is currently classified as a Design Group II facility with Approach Category B. Forecast operations for the airport total 12,856 operations over 15 years. Reports by the airport manager indicate that up to 20 small jet operations occurred annually until 2012, when weight restrictions placed on the main RW reduced that number to zero. Future potential demand does not warrant a longer RW, and thus small jet operations are anticipated to remain at zero. For more details on the forecast, see the Scoping Report (available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml). The projected operations for Seward Airport do not approach the above-stated operational thresholds. The Proposed Action will also not increase the Design Group or Approach Category designation of the airport. Therefore, no noise analysis will be prepared.

The low level of activity at the airport and an absence of noise complaints by residents indicate that noise has not been an issue in the area. A review of state and federal agency protected areas in Alaska and the City of Seward park locations found that the project area and adjacent lands do not include any public parks, recreation areas, or wildlife and waterfowl refuges of national or state significance or land from a historic site of national, state, or local significance. The property owned by the Leirer Family Limited Partnership at the southern edge of the airport property is a popular bird-watching area of local significance. See the Land Use section (5.5) and the Biological Resources section (5.2) for more details about the significance of this area. Given its current proximity to the airport, this bird-watching area has always been subject to airport noise and therefore would be hard to categorize as an area where noise is very low and a quiet setting is recognized as a purpose and attribute. The Proposed Action will move RW 16-34 approximately 800 ft closer to this bird-watching area.

Table 11 – Environmental Consequences: Noise and Noise-Compatible Land Use

Impact Category	Proposed Action	No Action
Noise and Noise-Compatible Land Use	The Proposed Action would result in short-term increases in noise associated with construction activities. Long-term noise increases are not anticipated, as the Proposed Action will not result in more frequent aircraft operations or a significant change in aircraft type. Noise levels may increase at the bird-watching area at the southern edge of the airport property, but this effect is not anticipated to exceed the threshold of significance.	The No Action Alternative would not result in a change from current conditions.

5.7.3 Minimization and Mitigation

The Proposed Action is not anticipated to cause an overall increase in noise limits, and therefore no mitigation or minimization is proposed. Construction will likely result in increased noise levels at the airport, but this is not expected to affect adjacent properties.

5.7.4 Consultation, Permits, and Other Approvals

No further consultation, permits, or approvals associated with noise impacts are expected.

5.8 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

5.8.1 Socioeconomics

5.8.1.1 Affected Environment

Seward is located at the head of Resurrection Bay at the mouth of the Resurrection River. It is located on the east coast of the Kenai Peninsula and lies at the foot of Mount Marathon. Seward is 125 miles south of Anchorage, to which it is connected via the Seward Highway and the ARRC. Seward is also home to a 900-foot-deep port that serves cruise ships, cargo barges and ocean freighters.

The city was founded in 1903 as the port terminus for the railroad that linked the coast to Interior Alaska. The town grew rapidly as a military post during World War II. The population fell substantially after the 1964 Great Alaska Earthquake. Seward saw another influx of residents in the 1970s and 1980s in response to the construction of the Alyeska Trans-Alaska Oil Pipeline. The population in 2015 was estimated at 2,740 people (PDC Engineers 2017). The city's racial composition is similar to Alaska's statewide racial composition. Seward's racial composition is impacted by the presence of the Spring Creek Correctional Center, which opened in 1988 and can house 412 inmates. The median age of Seward's population is 38, with 62% of the population being male. Excluding the all-male inmates at the Spring Creek Correctional Center, the male population is 52.5%, which matches the state's average of 52%.

As a rail and port terminal, Seward connects passengers and cargo with the rest of Alaska. The related trade and transportation services are supported by the Alaska Vocational Technical Center and the Seward Marine Industrial Center. The local scenery and proximity to popular tourist destinations contribute to a growing tourism sector. State and federal lands that serve as tourist destinations employ state and federal employees. The Alaska SeaLife Center and the Institute of Marine Science provide a connection to the University of Alaska and help bring state and federal research funds to the community.

5.8.1.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Socioeconomics.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to:*

- *Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);*
- *Disrupt or divide the physical arrangement of an established community;*
- *Cause extensive relocation when sufficient replacement housing is unavailable;*
- *Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;*
- *Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or*
- *Produce a substantial change in the community tax base.*

The Proposed Action includes property acquisition north and south of the airport boundary, neither of which would affect socioeconomic considerations. The existing main RW (RW 13-31) is under a weight restriction due to flood damage, and RW 16-34, at approximately 2,300 ft, is shorter than the 3,300-foot minimum RW length to accommodate current aircraft needs. The Proposed Action will provide a RW that satisfies the current and forecast future needs of the airport, including medevac operations. This will relieve the current restrictions for use at the Seward Airport.

During the public involvement process, the City of Seward voiced concerns about potential limitations on economic growth, especially to the tourism and industrial sectors, if a 4,500-foot RW was not available for small jet operations. The Proposed Action consists of a 3,300-foot RW, but will also include the necessary property acquisition and planning for a potential future RW extension to 4,000 ft.

During construction, the airport would remain open for public use. Flight schedules and number of aircraft operations are expected to remain the same. Vehicular traffic would not be re-routed. The Proposed Action would keep the airport at the same location it has occupied since at least 1962, when the current RWs were paved.

This project is in alignment with the Airport Master Plan (2008) and the Seward 2030 Comprehensive Plan (2017), both of which had a significant public process consisting of multiple public meetings where comments were gathered. No disruption to the physical arrangement of the community will occur. Neither alternative would displace residents, result in residential or business relocation, or cause loss of employment.

Table 12 – Environmental Consequences: Socioeconomics

Impact Category	Proposed Action	No Action
Socioeconomics	The Proposed Action is not anticipated to adversely affect socioeconomic considerations, including economic growth, physical arrangement of the community, relocation of residents and businesses, local traffic patterns, and the community tax base.	No effect

5.8.1.3 Minimization and Mitigation

No adverse socioeconomic impact is anticipated from the proposed project; therefore, mitigation is not prescribed.

5.8.1.4 Consultation, Permits, and Other Approvals

No consultations, permits, or other approvals are anticipated for the proposed project.

5.8.2 Environmental Justice

5.8.2.1 Affected Environment

As mentioned previously, the city of Seward has a racial composition similar to Alaska's statewide racial composition. A majority of the population (69%) is white, with American Indian/Alaska Native as the second largest racial group (17%), and 8% of the population comprised of two or more races.

Per capita income in 2014 was $30,076; the median household income was $49,432; and median family income was $69,158. The largest percent of household and family incomes are within the $50,000 to $74,999 income. The median household income for Alaska in 2014 was estimated as $68,562, while per capita income was $33,100. An estimated 5.5% of the population in Seward is below the poverty level.

5.8.2.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Environmental Justice.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to:*

- *Significant impacts in other environmental impact categories; or*
- *Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population.*

The Proposed Action would not affect distinct low-income or minority populations. There are not significant numbers of these environmental justice populations in or near the project area. Further, implementation of the Proposed Action does not include any impacts that would affect nearby neighborhoods. Refer to the Land Use Map (Figure 6) for a representation of land uses surrounding the Project Area. Both the proposed and no-action alternatives are consistent with Executive Order 12898, requiring federal actions to address environmental justice in minority and low-income populations.

Table 13 – Environmental Consequences: Environmental Justice

Impact Category	Proposed Action	No Action
Environmental Justice	The Proposed Action will not disproportionately affect environmental justice populations.	No effect

5.8.2.3 Minimization and Mitigation

No adverse impacts to environmental justice populations are anticipated from the proposed project; therefore, mitigation will not be required.

5.8.2.4 Consultation, Permits, and Other Approvals

No consultations, permits, and other approvals are anticipated from the proposed project.

5.8.3 Children's Environmental Health and Safety Risks

5.8.3.1 Affected Environment

Seward schools are part of the Kenai Peninsula Borough School District. The city is home to the Seward Elementary, Middle, and High schools. Slightly less than 10% of Seward's population is comprised of school age children or younger (under 18). The Providence Seward Medical Center is the only hospital in Seward and provides emergency services. The city is also served by the Seward Community Health Center, which provides urgent care, family medicine, and minor office procedures. Air transportation of patients between Seward and Anchorage is fairly common. The local volunteer ambulance service in Seward does not have enough staff to transport patients to Anchorage. Fixed-wing aircraft and helicopters are typically used for medevac transport. However, should the airport not be available for medevac aircraft, an ambulance can be dispatched from Anchorage using the Seward Highway. Not all medevac transport is associated with emergency situations. Many medevacs involve medically-appropriate hospital-to-hospital transports on a scheduled basis (see Scoping Report, available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml).

5.8.3.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The FAA has not established a significance threshold for Children's Environmental Health and Safety Risks.*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to lead to a disproportionate health or safety risk to children.*

The community relies on the airport for medevac operations. Three medevac operators currently provide service to Seward: LifeFlight, LifeMed, and Guardian. LifeMed and Guardian are the most common medevac operators at the Seward Airport, with approximately 300 annual operations. The Proposed Action will provide a RW capable of supporting the King Air 200, which is the aircraft commonly utilized by these medical evacuations.

Table 14 – Environmental Consequences: Children's Health and Safety Risks

Impact Category	Proposed Action	No Action
Children's Health and Safety Risks	The Proposed Action will maintain the airport's ability to support medevac operations utilized by the community, including children.	Continued flood impacts at the airport may result in a diminished capacity to support the larger aircraft utilized by medevac operators.

5.8.3.3 Minimization and Mitigation

No adverse impact to children's health and safety is anticipated from the proposed project; therefore, mitigation will not be required.

5.8.3.4 Consultation, Permits, and Other Approvals

No consultations, permits, or other approvals are anticipated for the proposed project.

5.9 Water Resources

5.9.1 Wetlands

5.9.1.1 Affected Environment

A wetlands delineation and functional assessment conducted at the airport by ABR, Inc. in 2005 and updated in 2016 by DOT&PF (see Appendix E) indicates that 69% (approximately 234 acres) of the 340-acre airport is composed of wetlands (DOT&PF 2016; Davis and Pullman 2005). A total of 21 NWI wetland types are found at the airport, which can be aggregated into 12 wetland habitats based on shared similar vegetation and wetland functions. The most common wetland habitat is Lowland Sedge-Shrub/Land Management Areas (approximately 108 acres), followed by Coastal Barrens (approximately 38 acres) and Salt Marsh (approximately 29 acres). The Resurrection River and river bars make up about 21 acres and 14 acres, respectively. Other wetlands make up the remaining area of wetlands at the airport (about 26 acres).

Lowland Sedge-Shrub/Land Management Areas are areas where the former undisturbed habitat has been cleared or filled for the airport. This habitat class is composed of two shrubby wetland types (PSS1/EM1B and PEM1/SS1B) and one emergent vegetation class (PEM1B). Common emergent vegetation consists of invasive graminoid species and shrubs of low height because of repeated clearing for airport maintenance. Coastal Barrens include sand or gravel beaches (E2US2N), mud tidal flats (E2US3N), subtidal flooded ponds (E1UBL), and salt-killed meadows bordering tidal streams (R1SB7R). These wetland types generally consist of unconsolidated mud, silts, sands, or gravels or occasionally salt-killed emergent vegetation, such as sedges and sea grasses. Salt Marshes occur adjacent to the mud tidal flats. They support emergent vegetation, and the hydrologic regime is both regularly or irregularly flooded (E2EM1N and E2EM1P, respectively) due to tides. The remainder of the habitats include four unvegetated types (Rivers, Streams, Ponds, and Riverbars) and five undisturbed types (Riverine Broadleaf Forest, Riverine Tall Scrub, Tall Shrub Riverbar, Lowland Sedge Meadow, and Lowland Tall Scrub) (Davis and Pullman 2005).

Rivers and streams in the project area have moderate to high value for the aquatic habitat function associated with the Resurrection River Coho and sockeye salmon rearing and spawning habitat and chum and pink salmon use of two small streams within the airport property. Coastal Barrens and Salt Marsh provide high value wildlife habitat for shorebirds, waterfowl, bald eagles, and moose. Riverine wetland habitats also function in groundwater discharge, erosion control/flow regulation, and sediment/toxicant retention (Davis and Pullman 2005). Vegetated wetlands, Riverine Tall Scrub, and Riverine Broadleaf Forest provide high value erosion control due to their ability to absorb flood waters and create functional drag.

5.9.1.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The action would:*

- *Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;*
- *Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;*
- *Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);*
- *Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;*
- *Promote development of secondary activities or services that would cause the circumstances listed above to occur; or*
- *Be inconsistent with applicable state wetland strategies.*

The proposed project would permanently place 138,581 CY of fill (including pavement, base and subbase course, reclaimed asphalt pavement [RAP], riprap, and borrow from unclassified excavation) into approximately 25 acres of wetlands that would be impacted by the Proposed Action (see Figure 7). Most of the wetlands impacted would be Lowland Sedge-Shrub/Land Management Areas (21.51 acres), Coastal Barrens (2.6 acres), and Salt Marsh (0.7 acres). There would be minor impacts to pond areas (0.08 acres), Riverine Broadleaf Forest wetlands (0.03 acres), and Lowland Tall Scrub wetlands (0.02 acres). There would be no permanent impacts to rivers, streams, riverbars, Tall Shrub Riverbar wetlands, Riverine Tall Scrub wetlands, or Lowland Sedge Meadow wetlands. Approximately 42,101 CY of material would be removed from wetlands and waters of the U.S. to develop a new float plane channel and access road and install riprap along the new runway. This material would be reused on project components. A summary of the proposed wetland impacts are presented in Tables 15 and 16. Temporary impacts include a uniform 20-foot buffer around the perimeter of the constructed area was included in the calculations as a stormwater vegetation buffer to account for temporary impacts that may result from sedimentation at the toe of the embankment as well as use by construction equipment.

Table 15 – Wetland Area Impacts by Project Component

Project Component	RW		TW		Float Plane Access		Misc.*		Total	
Wetland Type	**Perm**	**Temp**	**Perm**	**Temp**	**Perm**	**Temp**	**Perm**	**Temp**	**Perm**	**Temp**
Pond	0	0	0.03	0.03	0.05	0	0	0	**0.08**	**0.03**
River	00	0	0	0.02	0	0	0	0	**0**	**0.02**
Riverine Broadleaf Forest	0.03	0.08	0	0	0	0	0	0	**0.03**	**0.08**
Coastal Barrens	2.0	0.3	0	0	0.3	0.4	0.3	0	**2.6**	**0.70**
Salt Marsh	0.5	0.2	0	0	0.2	0.1	0	0	**0.7**	**0.30**
Lowland Tall Scrub	0.02	0.01	0	0	0	0	0	0	**0.02**	**0.01**
Lowland Sedge-Shrub/Land Management Areas	15.2	1.7	1.5	1.7	1.1	0.9	3.7	0.9	**21.5**	**5.2**
Total	**17.75**	**2.29**	**1.53**	**1.75**	**1.65**	**1.4**	**4.0**	**0.9**	**24.93**	**6.34**

*Miscellaneous project components include navigational aids and material disposal areas.

Table 16 - Wetland Fill Quantities by Fill Type

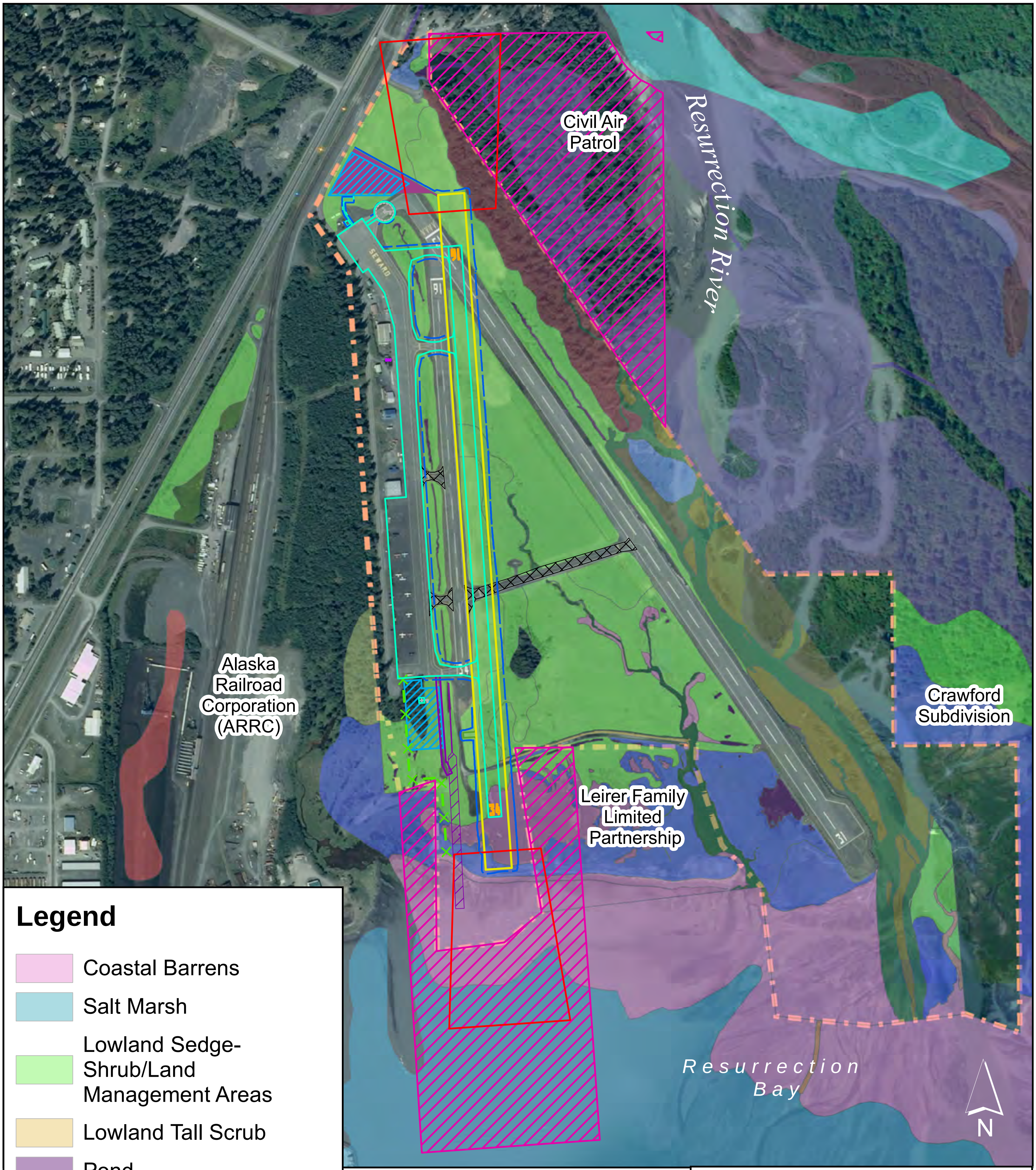
Project Component	RW		TW		Misc.*		Total	
Fill Type	**CY Fill**	**CY Dredge**	**CY Fill**	**CY Dredge**	**CY Fill**	**CY Dredge**	**CY Fill**	**CY Dredge**
Pavement	2,527	0	165	0	0	0	**2,692**	**0**
Base	4,626	0	255	0	0	0	**4,881**	**0**
Subbase	53,842	0	3,079	0	279	0	**57,200**	**0**
RAP	2,596	0	160	0	207	0	**2,963**	**0**
Riprap	20,824	0	0	0	5,384	0	**26,208**	**0**
Borrow	40,690	0	2,597	0	1,350	0	**44,637**	**0**
Unclassified Excavation	0	6,708	0	6,445	0	28,948	**0**	**42,101**
Total	**125,105**	**6,708**	**6,256**	**6,445**	**7,220**	**28,948**	**138,581**	**42,101**

*Miscellaneous project components include float plane channel, navigational aids and material disposal areas.

The Proposed Action, which includes the removal of TW A, may alter wetland hydrology for the unnamed stream between RWs 16-34 and 13-31. The Proposed Action's RW construction and float plane channel would not alter hydrology to wetlands on site. The area would continue to be inundated by flood waters from Resurrection River and Resurrection Bay, and the functions and values for wetlands adjacent to fill areas would be sustained.

The Proposed Action would not substantially reduce the ability to retain floodwater or stormwater runoff, because the three wetlands types that would be most impacted do not rank high for this function. Of the five wetland types that function to control and regulate flow (Pond, Riverine Broadleaf Forest, Tall Shrub Riverbar, Riverine Tall Scrub, and Lowland Sedge Meadow), only 0.08 acres of Pond and 0.03 acres of Riverine Broadleaf Forest would be impacted by the RW fill.

Most of the wetlands (approximately 21.5 acres of the 25 acres impacted) that would be impacted by the Proposed Action would be Lowland Sedge-Shrub/Land Management Areas. These wetlands are continually impacted by airport maintenance activities, including vegetation clearing, and rank low for performing all wetland functions, including wildlife habitat (Davis and Pullman 2005). Further, these wetlands do not provide economically important timber, food, or fiber resources.



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Environmental Assessment

Wetlands Impact

Seward, Alaska

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Figure: 7

Approximately 3.33 acres of wetlands that have a high functional ranking for providing wildlife habitat would be impacted. These Coastal Barrens, Salt Marsh, and Riverine Broadleaf Forest wetlands would be impacted by filling and dredging activities. Due to the abundance of these wetland types adjacent to the airport at the head of Resurrection Bay (18,483.5 total acres), the impact of the loss of these wetlands is expected to be minor. The Proposed Action would not promote secondary activities or services that would add to the footprint within or impacts to airport wetlands. Further, the goals of ADEC's *Alaska Wetland Program Plan's Wetland Assessment* include establishing baseline environmental data for Alaska's wetlands; developing criteria for assessing wetland condition and ranking in Alaska; and developing Alaska wetland monitoring and assessments (ADEC 2015). The Proposed Action is consistent with these strategies since the project has been designed considering a detailed wetland assessment and functional analysis completed at the airport (Davis and Pullman 2005).

Under the No Action Alternative, there would be no change made to the main RW. It would remain in a state of continued degradation from flood events that requires it to be stabilized and secured. Continued airport maintenance activities to protect against and repair flooding damage would continue activity in adjacent wetlands, including placing fill. Stabilizing and securing the RW against flooding may require a USACE individual permit for wetland fill.

Table 17 – Environmental Consequences: Wetlands

Impact Category	Proposed Action	No Action
Wetlands	The Proposed Action would have approximately 25 acres of unavoidable impacts to wetlands. A summary of the proposed wetland impacts are presented in Tables 15 and 16. The Proposed Action would not adversely impact municipal water source protections or substantially reduce the natural systems' ability to retain floodwater or storm water runoff. The project impacts 3.33 acres of wetlands that have a high functional ranking for providing wildlife habitat; no other important wildlife habitats would be impacted, and no secondary activities that increase impacts to airport or surrounding wetlands would occur. The Proposed Action is consistent with the State's wetland strategies.	The No Action Alternative would not result in a change from current conditions. Continued flooding would result in continued airport maintenance activities in adjacent wetlands.

5.9.1.3 Minimization and Mitigation

Avoiding wetlands is not possible for the Proposed Action. Virtually the entire area is made up of wetlands, with the exception of existing infrastructure.

The total area of fill may be minimized by steepening the side slopes; however, this will be evaluated further as the design process proceeds.

Currently all flow north of TW A is diverted through a single culvert at the location of the unnamed stream. Removing TW A could allow the original hydrologic connectivity between wetlands on either side of this barrier to reestablish itself. After TW A is removed, natural wetland functions are expected to return to the approximately 0.9-acre area. Once TW D and E are removed, approximately 0.3 acres will be regraded to provide an connectivity to an infield drainage ditch important for water quality protection and, in the future, which could become jurisdictional wetland areas. Further, an additional 11.2 acres of wetlands north of TW A would be improved through better connectivity and hydrological functions, since the taxiway would no longer impede the flow of water into or out of the area. Removing the taxiway would relieve stress on the adjacent floodplains and enhance water quality and ecologic functions of wetlands at the head of Resurrection Bay.

Avoidance and minimization measures that have been incorporated into the design of this project include:

- Vegetated buffers would remain at least 20 ft outside constructed embankments. While wetlands in the buffer area would not be directly filled, adverse wetland impacts are anticipated from incidental track walking on embankment slopes and installation of other best management practices (BMPs) for temporary erosion and sediment control. Approximately 6.34 acres would be permitted for the 20-foot buffer area, which is included in the total wetlands impacts in Table 16 above.
- Material stockpiles would be located in uplands.
- Construction specifications would include a provision requiring the contractor to re-vegetate or stabilize side slopes during the first growing season after the embankment is placed to protect against erosion.

Compensation for unavoidable impacts to approximately 25 acres of wetlands will be provided in accordance with USACE Regulatory Guidance Letter (RGL) ID No. 09-01, which requires a mitigation plan based on the functions and values of the affected wetlands, and compensatory mitigation for federally-funded projects. A compensatory mitigation plan will be established during the permitting process and may include an in-lieu fee.

5.9.1.4 Consultation, Permits, and Other Approvals

The proposed project will comply with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act and executive and federal orders relevant to wetlands. Consultations were conducted with federal, state, and local agencies with expertise and jurisdiction over wetlands. On January 24, 2017, DOT&PF sent an agency scoping letter to ADEC, City of Seward, KPB, and USACE. The City of Seward, KPB Seward/Bear Creek Flood Service Area (SBCFSA), and USACE provided scoping responses.

An agency scoping meeting that included the KPB and USACE occurred on March 2, 2017. The ADEC Division of Water, Wastewater Discharge Authorization, Stormwater and Wetlands was invited but was unable to attend. Related to wetlands, the USACE commented on the need for a USACE permit and for the project to consider avoidance and minimizing unavoidable wetland impacts. ADF&G was interested in whether riparian habitat would be improved by the project. Meeting notes can be found in Appendix A.

On May 26, 2016, a teleconference was held with the USACE to discuss project impacts specific to wetlands. During the meeting, USACE confirmed its responsibility to permit the least environmentally-damaging practicable alternative and advised DOT&PF to submit a USACE permit application. Correspondence regarding wetlands can be found in Appendix A. A USACE individual permit will be obtained for wetland fill. Concurrent with the Section 404 process, an ADEC Section 401 Water Quality Certification will also be obtained.

5.9.2 Floodplains

5.9.2.1 Affected Environment

The Seward Airport is adjacent to the Resurrection River delta. The river itself is a braided river where multiple channels intertwine as channels aggrade and degrade over time. This process of aggradation and degradation occurs as the large sediment load from the glacial headwaters is deposited in some channels and not others and then high flows pick up sediment in one location only to be deposited elsewhere when flow velocities slow. This is a dynamic process that results in a landscape within the floodplain comprised of old and new channels. When the Seward Airport was built, the main channel of the Resurrection River was much farther to the east. Over time the channel has migrated westward and resulted in the now increasing frequency of flood events at the airport.

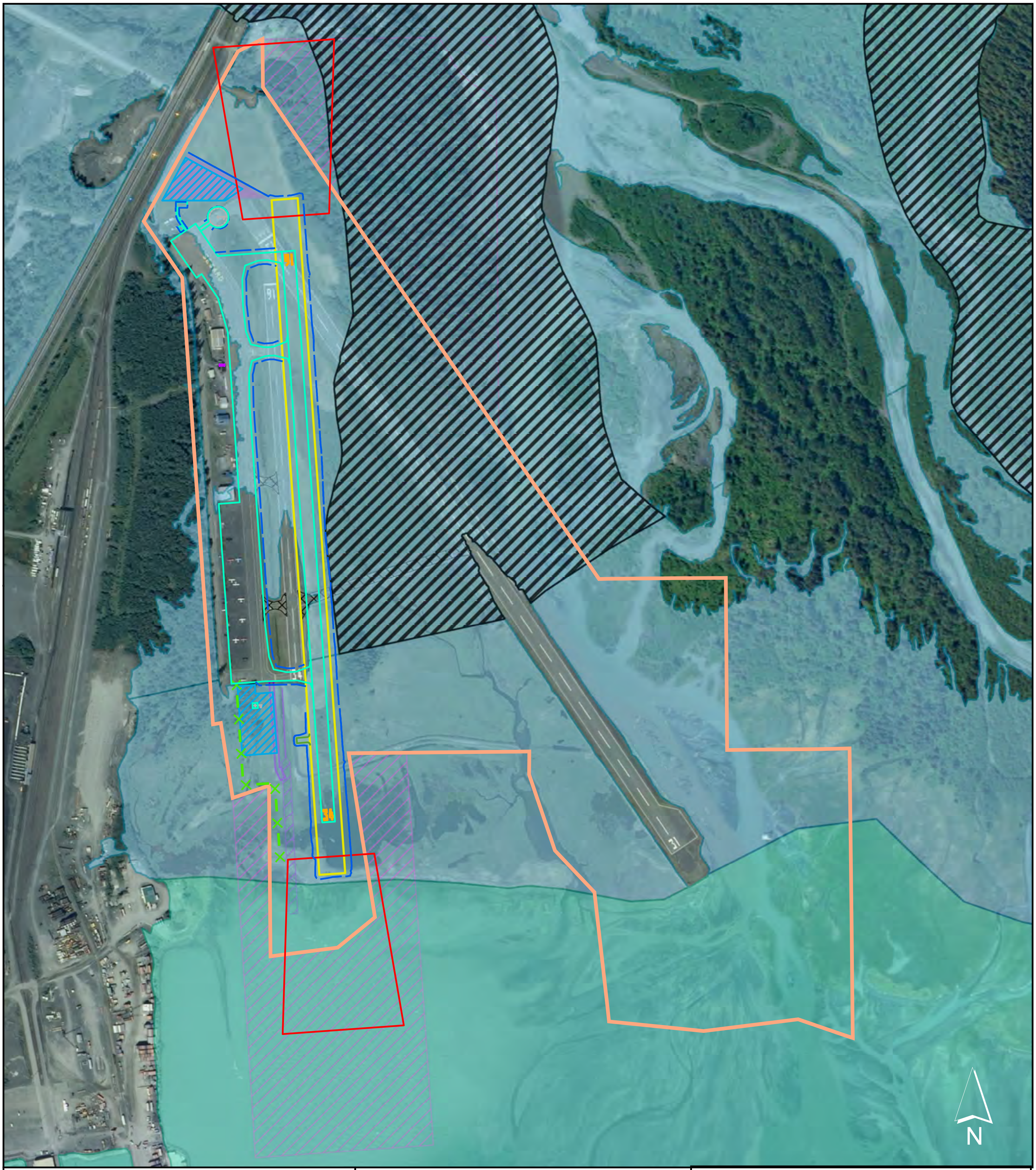
The City of Seward participates in the National Flood Insurance Program and manages its floodplain program. In 2003, the Kenai Peninsula Borough formed the Seward-Bear Creek Flood Service Area to provide flood protection, response, and recovery services to the Seward-Bear Creek community. The Seward Airport is located near the center of this service area. The FIRMs were last updated in 2016 as part of the Kenai Peninsula Borough Risk MAP Study (Preliminary: October 20, 2016). Most of the Seward Airport is located within the floodplain of the Resurrection River while portions of RW 13-31 and TW A are located in the regulatory floodway. This regulatory floodway is defined as: *the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height*.

DOT&PF completed a flood study for the proposed project, which was made available for agency review. This study is available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml.

5.9.2.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.*

Fill for the Proposed Action would fall within the floodplain, but outside the regulatory floodway. The Proposed Action would result in a BFE increase between 0.01 and 0.41 feet with the majority of increase less than 0.10 feet. Therefore, the FIRM and Floodway map would not need to be modified for this action. Figure 8 shows the proposed project components in relation to the Special Flood Hazard Area (SFHA), the land covered by the floodwaters of the base flood, and the regulatory floodway. DOT Order 5650.2, paragraph 4.k, states that the natural and beneficial floodplain values include, but are not limited to: natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, and forestry. The Proposed Action would have only minor impacts to the natural and beneficial floodplain values.



Legend

▨ Regulatory Floodway

2016 Effective FIRM SFHAs

🟦 Zone AE

🟩 Zone VE

0 375 750 1,500

Feet

Seward, Alaska

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Figure: 8

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Floodplain Map

Consideration is also given to whether the Proposed Action would cause flow alterations that would result in unacceptable upstream or downstream flooding. The Proposed Action does not qualify as a significant floodplain encroachment and by allowing RW 13-31 to eventually breach, will restore part of the original floodplain.

Table 18 - Environmental Consequences: Floodplains

Impact Category	Proposed Action	No Action
Floodplains	The Proposed Action would cause a change to the BFE of less than 0.41 feet. No development would occur within the regulatory floodway.	The No Action Alternative would not result in a change from current conditions and flooding of the RW would continue to damage RW 13-31.

5.9.2.3 Minimization and Mitigation

The Proposed Action will allow RW 13-31 to overtop and eventually breached by the river. This will restore part of the original floodplain and possibly reduce flooding to adjacent properties. Recent flood studies indicate that construction of the Proposed Action may result in a rise in the BFE of less than 0.41 feet. At present, the amount of flooding associated with the proposed alternative is considerably lower than the dropped Alternative 1.1 (see Section 3.2.1).

5.9.2.4 Consultation, Permits, and Other Approvals

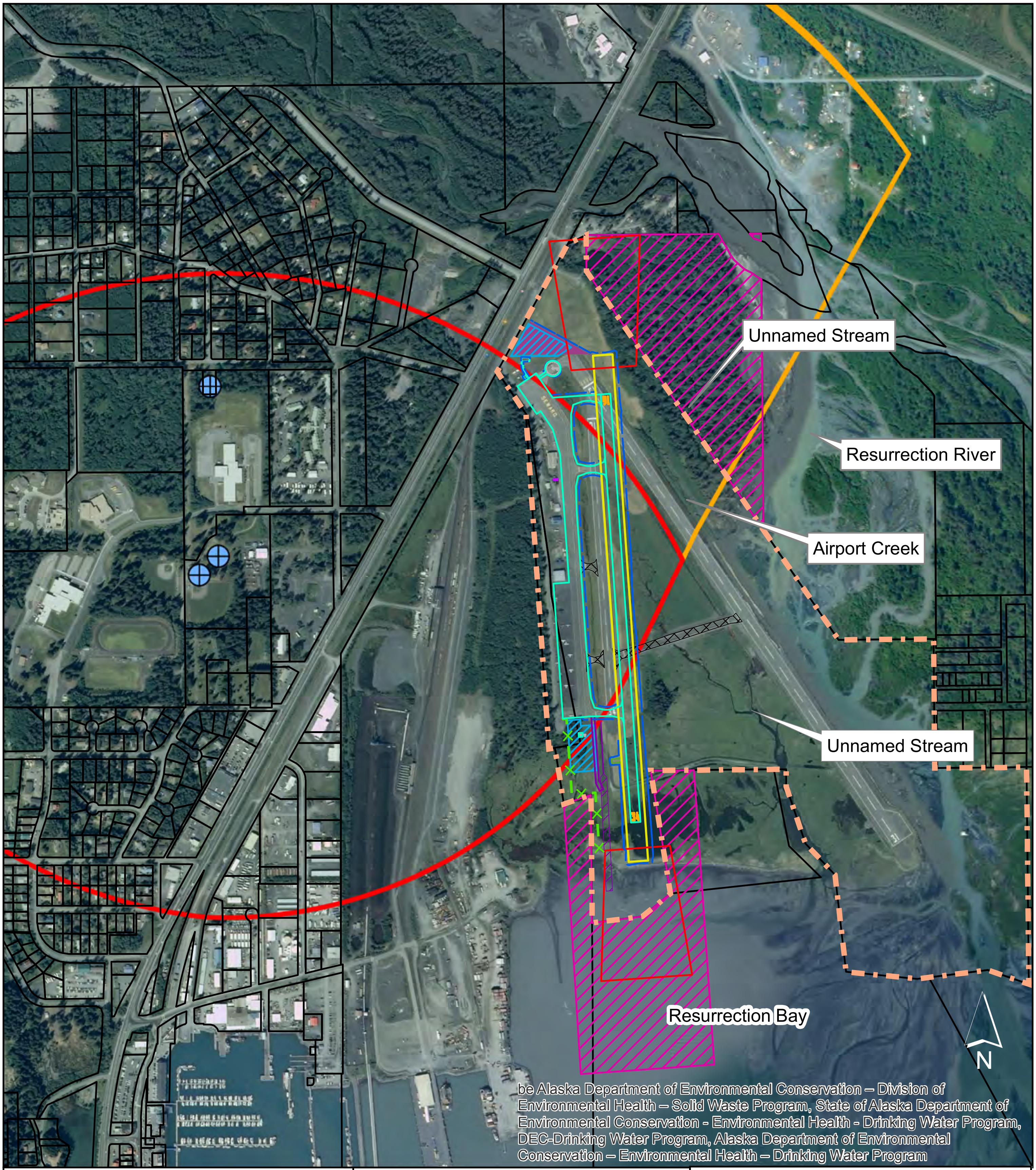
A Floodplain Development Permit will be required from the Kenai Peninsula Borough prior to the start of construction for the Proposed Action. A scoping letter was sent to the Seward-Bear Creek Flood Service Area and the Kenai Peninsula Borough Floodplain Program on January 24, 2017. A scoping meeting was held on March 2, 2017, and was attended by a representative from both groups. A record of the scoping letter responses and meeting notes can be found in Appendix A.

5.9.3 Surface Waters

5.9.3.1 Affected Environment

Drinking water for the City of Seward comes from deep water wells in the Fort Raymond area which are fed from the Japanese Creek aquifer. Portions of the airport are within the several-month and 2-year travel time zones delineated by the Alaska Department of Environmental Conservation (see Figure 9). These zones delineate drinking water protection areas for the City’s drinking water wells.

Potential receiving water bodies for the proposed project include Resurrection Bay, Resurrection River, Airport Creek, and two unnamed anadromous fish streams located on airport property (see Figure 9 for locations). The lands adjacent to these water bodies are predominantly wetlands. The Resurrection River is listed as a navigable water by ADNR but not by the USACE.



be Alaska Department of Environmental Conservation – Division of Environmental Health – Solid Waste Program, State of Alaska Department of Environmental Conservation - Environmental Health - Drinking Water Program, DEC-Drinking Water Program, Alaska Department of Environmental Conservation – Environmental Health – Drinking Water Program

Legend

Active Public Water System Source Locations Layer

- ⊕ Community Water System (C)
- ⊕ Non-Transient Non-Community Water System (NTNC)
- ⊕ Non-Community Water System (NC)

Zone A (GW-Several Months Time of Travel or SW 1000 ft buffer)

- 🟥 Zone A (GW-Several Months Time of Travel or SW 1000 ft buffer)
- 🟧 Zone B (GW-2 Yr Time of Travel or SW-1 mile buffer)

0 500 1,000 2,000
Feet Feet

Seward, Alaska

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Figure: 9

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Surface Water

The Seward Airport does not currently operate under a Multi-Sector General Permit for stormwater discharges. A conversation with the airport manager in December 2017 confirmed that the airport does not have a deicing program due to the lack of facilities for storage and distribution of deicing material and equipment.

5.9.3.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1F: *The action would:*

- *Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or*
- *Contaminate public drinking water supply such that public health may be adversely affected*

Factors to Consider from FAA Order 1050.1F: *The action would have the potential to:*

- *Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;*
- *Adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or*
- *Present difficulties based on water quality impacts when obtaining a permit or authorization.*

Dredging for the float plane channel will result in an impact to 1.65 acres of wetlands adjacent to Resurrection Bay. Dredging for the channel is anticipated to be 8 ft deep and 100 feet wide. The Proposed Action will result in fill in approximately 25 acres of wetlands across the project area. These wetlands drain into Resurrection Bay and the unnamed stream between RWs 13-31 and 16-34. No direct impacts to Resurrection Bay is anticipated. A culvert connecting the unnamed stream below TW A will be removed and the natural channel restored. See Section 5.9.1 for a discussion of the wetland impacts associated with the Proposed Action.

Table 19 – Environmental Consequences: Surface Waters

Impact Category	Proposed Action	No Action
Surface Waters	The Proposed Action is not expected to impact water quality or contaminate public drinking water. The Proposed Action would cause only minor impacts to the natural and beneficial water resource values of the adjacent water bodies.	The No Action Alternative would result in no change from current conditions.

5.9.3.3 Minimization and Mitigation

Although the Proposed Action would impact 25 acres of wetlands, approximately 62 acres of wetlands will remain intact within the airport property. These remaining areas will serve to preserve the beneficial values such as sediment removal and flood reduction which the wetlands provide. The Proposed Action will result in the removal of TW A, which will improve the hydraulic connectivity of the wetlands north of the TW to those to the south, as well as restore the unnamed stream to a more natural state. The Proposed Action will allow RW 13-31 to breach, thereby eliminating a current obstacle and restoring some of the natural floodplain functions of the Resurrection River. See Section 5.9.2 for further discussion of this function. The elimination of RW 13-31 will also remove a RW whose runoff had direct access to the Resurrection River without the benefit of first flowing through a vegetated buffer. The contractor will be required to develop a SWPPP for this project which will detail specific erosion and sediment control BMPs to protect the surrounding water bodies from impacts during construction.

5.9.3.4 Consultation, Permits, and Other Approvals

A DEC 401 Water Quality Certification will be applied for along with the USACE Section 404 wetland permit. Coverage under the APDES Construction General Permit (CGP) for stormwater discharges will be obtained prior to construction of this project. A tidelands survey has been completed, and a DNR land use permit will not be needed for work associated with the float plane channel. A USACE permit will be needed; further design will determine whether the float plane channel will require a Section 10 or a Section 404 permit.

5.10 Cumulative Impacts

This section considers the cumulative impacts of the proposed project. Council of Environmental Quality (CEQ) regulations for implementing NEPA define cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR §1508.7). NEPA requires that cumulative effects be evaluated along with direct and indirect effects of the Alternatives. The level of analysis and scope of cumulative effect assessment are typically commensurate with the potential impacts, resources affected, project scale, and other factors. As with direct and indirect effects, the No Action Alternative serves as the baseline against which to evaluate cumulative effects.

Past, present, and reasonably foreseeable future actions are discussed within this section, and the focus of the cumulative impact analysis will be on those resources that are either directly or indirectly impacted by the proposed project.

5.10.1 Affected Environment

5.10.1.1 Past, Present and Reasonably Foreseeable Future Actions

For purposes of the proposed project, the review of past actions follows the FAA 1050.1F Desk Reference (FAA Office of Environment and Energy 2015), “Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the Proposed Action and alternative(s).” Present actions (i.e., actions that are in progress for which effects have begun) are those that are occurring in the same general time frame as this project that could have cumulative impacts. Reasonably foreseeable future actions include those that are not remote or speculative (generally meaning they are included in planning documents reviewed for this project). The timeframe for the cumulative impact analysis considers 10 years into the past (approximately 2007 through 2017) and 20 years into the future (through approximately 2037). For this project, generally, the geographic scope includes the head of Resurrection Bay area that is characterized primarily by commercial and industrial activities.[3]

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[3] Past, present, and foreseeable future actions were identified with review of the following sources: ARRC 2017, City of Seward 2016, City of Seward 2018, City of Seward 2018a, DOT&PF 2018, DOWL 2008, DCCED 2018, PDC Engineers 2017.

Past actions include the following:

- Seward Airport flooding maintenance and repairs
- Seward Port Avenue Railroad Depot with ARRC passenger train service and parking/staging plan implementation
- ARRC freight dock improvements (concrete foundation, electrical, and water upgrades for fish unloading operations)
- ARRC laydown area Phase I construction
- Seward Marine Industrial Center (SMIC) development, including the new breakwater

Present actions include the following:

- ARRC Seward Cruise Ship Terminal
- City of Seward, Seward Small Boat Harbor and Launch
- Continued SMIC operations (including a private and City-owned boat lift and a new dock system)
- Seward Railroad Depot ARRC passenger facilities (including the Coastal Classic Route service) and freight facilities (including the freight dock and loading facility and laydown area development)

Reasonably foreseeable future actions may include the following:

- Seward Airport airfield, helipad, and access improvements
- SMIC expansion and Seward Uplands Development Plan implementation including waterfront development, boat harbor improvements, leasable lands, and Vigor Industrial area growth
- ARRC capital expansion including rail-port facilities freight dock development
- ARRC laydown area Phase II construction
- Seward Highway improvements including the Seward Highway MP 0-8 Pavement Preservation
- Spring Creek Correctional Center expansion and leasable lands

5.10.1.2 Resources and Actions Considered

In addition to the Categories of Non-Issue, several resource categories would have no impact and therefore would have no potential for cumulative impacts. The Categories of Non-Issue listed in Section 5.1 include:

- Air Quality
- Climate
- Coastal Resources
- DOT Section 4(f)
- Farmlands
- Visual Effects
- Groundwater
- Wild and Scenic Rivers

The categories that are excluded from further discussion in this section are:

- Noise and Noise-Compatible Land Use - Excluded because the Proposed Action would cause only short-term increases in noise associated with construction activities. Long-term noise increases are not anticipated, as the Proposed Action will not result in more frequent aircraft operations or a significant change in aircraft type. Noise levels may increase at the bird-watching area at the southern edge of the airport property, but this effect is not anticipated to exceed the threshold of significance. See Section 5.7 for more detailed analysis.

- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
    - Socioeconomics - Excluded because the Proposed Action is not anticipated to adversely affect socioeconomic considerations, including economic growth, physical arrangement of the community, relocation of residents and businesses, local traffic patterns, and the community tax base. See Section 5.8.1 for more detailed analysis
    - Environmental Justice - Excluded because the proposed project would not affect distinct low-income or minority populations. There are not significant numbers of these environmental justice populations in or near the project area. Further, implementation of the Proposed Action does not include any impacts that would affect nearby neighborhoods. See Section 5.8.2 for more detailed analysis.
    - Children's Environmental Health and Safety Risks – Excluded because the Proposed Action would maintain the airport's ability to support medevac operations utilized by the community, including children. See Section 5.8.3 for more detailed analysis.

Other resource categories are considered in the section below.

5.10.2 Environmental Consequences

The cumulative effects analysis necessarily involves assumptions, uncertainties, and data sets that may be incomplete. When considering the significance of the cumulative effects, the same thresholds of significance used in identifying significant project-related effects are used, and such thresholds of significance are defined in FAA Order 1050.1F. Where FAA Order 1050.1F has not established significance thresholds, determining levels beyond which cumulative effects significantly degrade a resource can be problematic. Local, state, and federal standards for some resources would still apply, and other goals or objectives from land use management plans and other guiding programs may be helpful. The analyses contained in this EA identify any defined thresholds known to exist. Where numerical thresholds are not available or cannot be determined, impacts are typically described in relative terms of magnitude.

5.10.2.1 Biological Resources

Cumulative impacts of the proposed project to EFH and fish streams when added to other past, present, and reasonably foreseeable future actions may be decreased fish populations and fewer species in the Resurrection River and creeks at the head of the bay. Impacts to fish streams and EFH would be minimized and mitigated, since projects would be subject to the regulations outlined in Section 404 of the Clean Water Act and the State's Anadromous Fish and Fishway Acts and would be subject to permits and stipulations from USACE, ADF&G, and other agencies.

If development continues within the head of Resurrection Bay area, habitat that supports migratory birds, including eagles and BCCs, may shrink. These birds may also be dissuaded from nesting or using the head of Resurrection Bay as a "stopover" during migration. However, cumulative impacts are expected to be minor considering the expanse of undevelopable land (due to flooding and lack of easy access) in the area. In addition, impacts to birds and their habitat would be mitigated by following USFWS timing guidelines to limit clearing and vegetative disturbance during nesting season and by continuing to monitor and maintain distance buffers between development and active eagle nests.

Invasive species establishment could continue. Using only certified seed mixes on projects and BMPs for cleaning construction equipment prior to transport to project sites could mitigate establishment of invasive species.

5.10.2.2 Hazardous Materials, Solid Waste, and Pollution Prevention

Solid waste generation is anticipated to continue, and construction waste could be generated and would be disposed of in the Seward Monofill/Landfill or Soldotna Central Peninsula Landfill. The Proposed Action is not anticipated to result in cumulative impacts to existing ADEC Contaminated Sites or create new contaminated sites or pollution, since the contractor will have a SWPPP and any soil or groundwater contamination encountered during construction would be managed under an ADEC-approved Work Plan.

5.10.2.3 Land Use

Land development is expected to continue in a pattern similar to present development. Accordingly, land uses are anticipated to support noise-compatible activities. The City of Seward and its residents will continue land use regulation to maintain established and desired land uses. Cumulative impacts to land use will be minor.

5.10.2.4 Natural Resources and Energy Supply

A continued demand of the City of Seward’s utilities and natural resources (electric system and fuel and rock quarry sources) are expected to be maintained. Natural resources and energy supply are not limited in the area and no cumulative impacts are anticipated.

5.10.2.5 Water Resources

Cumulative impacts of the proposed project and reasonably foreseeable future actions may result in construction and placement of fill within and adjacent to Waters of the U.S. including wetlands. As wetlands are developed, their associated functions and values become more limited. Fill and dredging of wetlands would be required to comply with the Clean Water Act. Therefore, wetlands would need to be avoided, and impacts would be minimized as practicable. Because of the large area of wetlands in the head of the Resurrection Bay area, compensatory mitigation may provide a means to mitigate future impacts when avoidance is not possible.

The Resurrection River’s braided river floodplain is expected to change over time, and flooding in the head of Resurrection Bay area is expected to continue. Consistent with the behavior of braided rivers, the river is expected to move with time, without warning and in a direction that cannot be anticipated. Any development in the floodplain/floodway has the potential to impact the BFE. Flood studies for this project showed that the proposed project may have a minor impact on the floodplain with BFE increases averaging 0.1 feet, or 1.2 inches. This project will be permitted through the City of Seward as required by FEMA and the National Flood Insurance Program as would any other development within the floodplain of the Resurrection River.

Compliance with environmental regulations and adhering to well-planned land use and maintaining development within existing commercial and industrial areas could result in fewer impacts to wetland, floodplain, and surface water resources.

5.10.2.6 Conclusion

Based on the analyses described above, the proposed project would not contribute to impacts that would be cumulatively significant.

Table 20 – Environmental Consequences: Cumulative Impacts

Impact Category	Proposed Action	No Action
Cumulative Impacts	The proposed project could cumulatively impact the following resource categories at the head of Resurrection Bay area: • Biological Resources (fish, EFH, bird habitat, invasive species) • Climate (greenhouse gas emissions) • Hazardous Materials, Solid Waste, & Pollution Prevention (solid and construction waste) • Land Use (land development) • Natural Resources & Energy Supply (utilities and natural resources) • Water Resources (Waters of the U.S. and the Resurrection River floodplain) Cumulative impacts resulting from past, present, and reasonably foreseeable future actions that include commercial and industrial activities and the proposed project at the head of Resurrection Bay are not expected to be cumulatively significant.	The No Action Alternative would not result in a change from current conditions. Cumulative impacts resulting from past, present, and reasonably foreseeable future actions that include commercial and industrial activities at the head of Resurrection Bay would continue.

6 COORDINATION

Agency coordination and public involvement for the Seward Airport Improvements project has been ongoing since 2014. Communications have included public meetings, stakeholder working group meetings and consultations with local, state, and federal agencies. These activities are described in more detail below. Copies of meeting notes, sign-in sheets, public and agency comments, and correspondence related to development of the EA, in accordance with the NEPA, are presented in Appendix A. Meetings held before the initiation of the NEPA process in March 2017 are included in the Scoping Report, which is available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml.

6.1 Public Correspondence

Public involvement for this project has been ongoing since 2014. Prior to the initiation of the formal NEPA process, communications included two public meetings; a meeting with the City of Seward; establishing and holding three stakeholder working group (SWG) meetings; telephone and email correspondence, including project status update emails; online public notices; a project website; and informational mailers via postal mail. Pre-NEPA public involvement activities are summarized in Appendix C of the Scoping Report (available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml).

NEPA public scoping activities conducted for the EA included project status emails sent out to the project’s electronic mailing list on March 1 and October 4, 2017. The purpose of the first email was to announce the initiation of the NEPA process. The second email announced the selection of the Proposed Action. Public comments were received via email following each status update. NEPA public scoping activities are included in Appendix A.

6.1.1 Stakeholder Working Group Meetings

A SWG was established that included aircraft and airport user representatives (ARRC, Alaska Wing Civil Air Patrol, DOT&PF Maintenance, Kenai Peninsula Borough Seward/Bear Creek Flood Service Area, and a general aviation lease holder) and local, borough, and state representatives (City of Seward, DOT&PF, FAA Alaskan Airports Division, and Seward City Council). The fourth SWG meeting occurred on October 2, 2017, via teleconference. The purpose of the meeting was to present alternatives analysis and provide justification for the Proposed Action. SWG Meeting #4 notes are presented in Appendix A. Summaries of SWG meetings 1, 2, and 3 are included in Appendix C of the Scoping Report (http://www.dot.alaska.gov/creg/sewardairport/documents.shtml).

6.2 Agency Correspondence

Agency scoping activities conducted for this EA are described below.

6.2.1 Agency Meeting Correspondence

On January 24, 2017, DOT&PF, in coordination with FAA, sent an agency scoping letter that identified the project's purpose and need, described project alternatives, detailed site conditions, identified preliminary environmental research, and solicited comments on the Proposed Action, Alternative 2.2, and Alternative 1.1. The letter was distributed to ADF&G; ADNR; ADNR, Division of Parks & Outdoor Recreation (DPOR); ARRC; ADEC; Alaska Department of Commerce, Community, & Economic Development; NMFS; USACE; USFWS; Kenai River Center; the City of Seward; and the KPB. An agency scoping meeting was held on March 2, 2017, at the Kenai Peninsula College in Soldotna to initiate the NEPA process and gather comments. ADF&G, Division of Habitat; KPB; and USFWS attended the meeting. Invited agencies that were unable to attend included ADEC; ADNR; DPOR; ADF&G, Division of Wildlife Conservation; and NMFS. The scoping letter, agency meeting materials and notes, and agency comments and responses are attached in Appendix A.

7 LIST OF PREPARERS

The people primarily responsible for development or review of this EA are listed below in Table 3.

Table 21 - Project Team

CONTRACTING AGENCY		
DOT&PF 4111 Aviation Dr. Anchorage, AK 99502		Phone: (907) 269-0617
Barbara Beaton	Project Manager	barbara.beaton@alaska.gov
Joy Vaughn	Consultant Coordinator	joy.vaughn@alaska.gov
Mark Boydston	Environmental Analyst	mark.boydston@alaska.gov
Paul Janke	Hydrologist	paul.janke@alaska.gov

CONSULTANT TEAM		
PDC Inc. Engineers 1028 Aurora Dr. Fairbanks, AK 99709	Prime Consultant Project Management, Engineering, Surveying	Phone: (907) 452-1414 Fax: (907) 456-2707
Royce Conlon	Consultant Project Manager	royceconlon@pdceng.com
Ken Risse	Lead Civil Engineer	
Angela Smith	Civil Engineer	
Erica Betts	Environmental Analyst	
Patrick Cotter	Planner	
Craig Ranson	Surveyor	
Dennis Bogren	Survey Coordinator	
Solstice Alaska Consulting, Inc. 2607 Fairbanks St., Suite B Anchorage, AK 99503	Public Involvement and Environmental Support	Phone: (907) 929-5960
Robin Reich	Public Involvement / Environmental Coordinator	robin@solsticeak.com
Hydraulic Mapping and Modeling 1091 W. Chena Hills Dr. Fairbanks, AK 99709	Hydrology/Hydraulic Analysis	
Ken Karle	Hydrologist/Hydraulic Engineer	
Shannon & Wilson, Inc. 5430 Fairbanks St., Suite 3 Anchorage, AK 99518	Geotechnical Engineering	
Kyle Brennan	Geotechnical Engineer	
Quantum Spatial, Inc. 2014 Merrill Field Dr. Anchorage, AK 99501	Aerial Mapping	

8 REFERENCES

Alaska Department of Commerce, Community, and Economic Development (DCCED). 2018 Community and Regional Affairs, Community: Seward website. Accessed at <www.commerce.alaska.gov/dcra/DCRAExternal/community/Details/326d957a-dc0c-4e28-9406-fc2c89a68cef> on January 11, 2018.

Alaska Department of Fish & Game (ADF&G). 2017. Fish Resource Monitor. Accessed at <www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.interactive> on September 11, 2017.

ADF&G. 2015. *2015 Alaska Wildlife Action Plan.* [Online version available at <www.adfg.alaska.gov/static/species/wildlife_action_plan/2015_alaska_wildlife_action_plan.pdf>.]

ADF&G. 2010. Fish Passage Site 20200945. September 2010. Accessed at <www.adfg.alaska.gov/sf/reports/FishPassage/rptSite.cfm?site=20200945> on December 4, 2017.

Alaska Department of Environmental Conservation (ADEC). 2015. *Alaska Wetland Program Plan*. ADEC Wetlands Program. June 29, 2015. [Online version available at <https://dec.alaska.gov/water/wwdp/pdfs/Alaska_Wetland_Program_Plan_20150629.pdf>.]

Alaska Department of Transportation and Public Facilities (DOT&PF). 2018. Status of Active Statewide Projects website. Accessed at <http://dot.alaska.gov/projects-status> on January 11, 2018.

DOT&PF. 2017. Seward Airport Improvements: Selection of the Design Alternative. Position paper available online at <http://www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf.>

DOT&PF. 2016. Field Trip Report: 2004 Wetlands delineation field check update and report. September 30, 2016.

Alaska Railroad Corporation (ARRC). 2017. Seward Marine Terminal Expansion Planning Master Plan. August 2017. [Online version available at <www.railportseward.com/sites/ default /files/Railport%20Seward%20Files/MASTER_PLAN.pdf >.]

City of Seward. 2018. Seward Marine Industrial Center (SMIC) website. Accessed at <www.cityofseward.us/index.aspx?NID=940> on January 17, 2018.

City of Seward. 2018a. Economic Development website. Accessed at <www.cityofseward.us/index.aspx?NID=704> on January 11, 2018.

City of Seward. 2016. SMIC Strategic Work Session Summary. January 2016. [Online version available at <www.cityofseward.us/DocumentCenter/View/3156>.]

Davis, W. and Pullman. 2005. Preliminary Wetlands Assessment for Proposed Seward Airport Improvements. ABR, Inc. 2005.

DiMarzio, T. 2017. “Re: Re: Seward Airport Improvements project.” Message to Mark Boydston, Alaska Department of Transportation and Public Facilities. October 2017. E-mail.

DiMarzio, T. 2016. “Re: Seward Airport Improvements Project: birds” Message to Carla SlatonBarker, Solstice Alaska Consulting, Inc. June 2016. E-mail.

DOWL, Inc. 2008. Seward Airport Master Plan, State Project No. 56525. Prepared by DOWL Engineers for the State of Alaska Department of Transportation and Public Facilities. July 2008.

eBird. 2017. National Audubon Society and the Cornell Lab of Ornithology. Bird Observations. Seward – Airport Mudflats, Jan-Dec, 1900-2017. Accessed at <http://ebird.org/ebird/barchart?byr=1900&eyr=2017&bmo=1&emo=12&r=L586881> on October 24, 2017.

eBird. 2017a. National Audubon Society and the Cornell Lab of Ornithology. Seward Airport Mudflats High Counts, 1900 – 2017. Accessed at <http://ebird.org/ebird/sightings?listType=high_count&locInfo.regionType=hotspot&locInfo.regionCode=L586881&yr=all&locInfo.parentCode=US-AK&sortBy=taxon_order&o=asc> on October 24, 2017.

Federal Aviation Administration (FAA) Office of Environment and Energy. 2015. 1050.1F Desk Reference. July 2015. [Online version available at <www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref/media/desk-ref.pdf>.]

Federal Emergency Management Agency (FEMA). 2014. Kenai Peninsula Borough, Alaska and Incorporated Areas, Flood Insurance Study Number 02122CV001B. Preliminary: June 13, 2014.

Griswold, C. 2017. “Re: 2017 Seward Airport Bird List V 1.1.” Message to Solstice Alaska Consulting, Inc., May 2017. E-mail.

Griswold, C. 2016. “Re: Seward Airport high tide photos.” Message to Carla SlatonBarker, Solstice Alaska Consulting, Inc. June 2016. E-mail.

HDL. 2009. Seward Quarry, Mine Engineering & Management Plan, Phase I. Seward, Alaska.

Hydraulic Mapping and Modeling. 2016. Final Hydrologic and Hydraulic Report: Seward Airport Improvements Project. July 2016. Available online at <http://www.dot.state.ak.us/creg/sewardairport/documents.shtml>.

National Marine Fisheries Service (NMFS). 2017. Endangered Species Act, Marine Mammal Protection Act Species Distribution Mapper. Accessed at <https://alaskafisheries.noaa.gov/portal/apps/webappviewer/index.html?id=0c4a81f75310491d9010c17b6c081c81> on September 22, 2017.

NMFS. 2017a. Essential Fish Habitat Mapper. Accessed at <www.habitat.noaa.gov/protection/efh/efhmapper/index.html> on September 8, 2017.

Olive, J. 2017. “Re: Seward Airport Improvements feedback.” Message to Solstice Alaska Consulting, Inc. October 2017. E-mail.

PDC Engineers. 2017. City of Seward 2030 Comprehensive Plan Update. Adopted May 30, 2017.

U.S. Fish & Wildlife Service (USFWS). 2017. Information for Planning and Consultation (IPaC) Resources Report. Accessed at <https://ecos.fws.gov/ipac/location/E7QS665UWRBBFHDYKIXL7JFMZA/resources#endangered-species> on September 8, 2017.

USFWS. 2017a. Region 7 Timing Recommendations for Land Disturbance & Vegetation Clearing. June 2017.

USFWS. 2008. Birds of Conservation Concern 2008. United States Department of Interior, USFWS, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <www.fws.gov/migratorybirds/pdf/management/BCC2008.pdf>.]

USFWS. 2004. Ocean Biogeographic Information System Spatial Ecological Analysis of Megavertebrate Populations (OBIS SEAMAP) Mapper, USFWS Division of Migratory Bird Management Beringian Seabird 2004 Dataset. Accessed at <http://seamap.env.duke.edu/dataset/270> on December 4, 2017.

University of Alaska Anchorage (UAA). 2017. Center for Conservation Science. Alaska Natural Heritage Program AKEPIC Data Portal. Accessed at <http://aknhp.uaa.alaska.edu/apps/akepic/> on September 11, 2017.

University of Alaska Southeast (UAS), USFWS, et al. 2017. Wetland Ecosystems Protocol for Southeast Alaska Mapper. Accessed at <http://seakgis.alaska.edu/flex/wetlands/> on December 4, 2017.

APPENDIX A

NEPA SCOPING AND AGENCY COORDINATION

Seward Airport Improvements Project
(Project No. Z548570000)

Public and Agency Scoping Materials
January 2017 through August 2018

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Public Scoping Contents

Public Correspondence

Date	Communication Type	From (Name)
March 1, 2017	Project status email	SolsticeAK on DOT&PF's behalf
March 1, 2017 – May 3, 2017	Public comments	C. Griswold with SolsticeAK on DOT&PF's behalf
September 8, 2017	*Public comment*	*C. Griswold*
October 30, 2017	*Public comment*	*C. Griswold to SolsticeAK*
October 30, 2017	*Public comment*	*C. Griswold to DOT&PF*
November 15, 2017	*DOT&PF response*	*DOT&PF*
March 1, 2017	Public comment	J. Hunt
June 7, 2017	*DOT&PF response*	*SolsticeAK on DOT&PF's behalf*
May 1, 2017	Telephone conversation	R. Linville with SolsticeAK
October 4, 2017	Project status email	SolsticeAK on DOT&PF's behalf
October 4, 2017	Public comment	B. Snowden
October 14, 2017	*Public response*	*B. Snowden*
November 10, 2017	*DOT&PF response*	*SolsticeAK on DOT&PF's behalf*
November 12, 2017	*Public response*	*B. Snowden*
December 7, 2017	*DOT&PF response*	*SolsticeAK on DOT&PF's behalf*
October 5, 2017	Public comment	J. Olive
December 7, 2017	*DOT&PF response*	*SolsticeAK on DOT&PF's behalf*
December 11, 2017	*Public response*	*J. Olive*
February 12, 2018	*DOT&PF response*	*SolsticeAK on DOT&PF's behalf*
October 12, 2017	DOT&PF inquiry	DOT&PF
October 13, 2017	*Public comment*	*T. DiMarzio*

Stakeholder Working Group Meeting #4 Correspondence and Documentation

Date	Communication/ Documentation Type	From (Organization, Name)
September 15 and 29, 2017	Meeting invitation and reminder emails	SolsticeAK on DOT&PF's behalf
October 2, 2017	Meeting notes	Compiled by SolsticeAK
October 3, 2017	Telephone conversation	City of Seward, R. Long with DOT&PF

Agency Correspondence Contents

Agency Scoping Comments and Correspondence

Date	Communication Type	From (Organization, Name)
January 24, 2017	Scoping materials	Alaska Dept. of Transportation & Public Facilities (DOT&PF)
January 25, 2017	Agency comment	Alaska Dept. of Fish and Game, Soldotna Office, J. Selinger
February 3, 2017	Agency comment	U.S. Army Corps of Engineers (USACE), L. Speerstra
February 15, 2017	Agency comment	Kenai Peninsula Borough (KPB), Seward/Bear Creek Flood Service Area (SBCFSA), S. Presley
February 15, 2017 *April 19, 2017*	Agency comment *DOT&PF response*	KPB, SBCFSA, W. Williamson *DOT&PF*
February 17, 2017 *March 1, 2017*	Meeting invitation *Reminder and materials*	Solstice Alaska Consulting (SolsticeAK) on DOT&PF's behalf *SolsticeAK on DOT&PF's behalf*
February 22, 2017 *April 19, 2017*	Agency comment *DOT&PF response*	City of Seward, D. Atwood and D. Glenz (for R. Long) *DOT&PF*
February 23, 2017	Agency comment	Alaska Dept. of Natural Resources, Division of Mining, Land, and Water, C. Kindred
February 23, 2017 *May 26, 2017*	Agency comment *Teleconference*	USACE, J. Hyslop *USACE with DOT&PF, PDC Engineers, SolsticeAK*
February 24, 2017 *April 18, 2017*	Agency comment *DOT&PF response*	Alaska Railroad Corporation, B. Lindamood *DOT&PF*
March 1, 2017	Agency comment	KPB/River Center, B. Harris
March 22, 2017	Scoping materials	DOT&PF to U.S. Fish and Wildlife Service (USFWS)
March 23, 2017	Agency comment	USFWS, Anchorage Field Office, L. Kenney
May 10, 2017	Scoping meeting notes	SolsticeAK on DOT&PF's behalf
July 26, 2018	Federal Emergency Management Agency (FEMA) Scoping email	Hydraulic Mapping and Modeling (HMM), K. Karle on DOT&PF's behalf
July 26, 2018	*Agency comment*	*FEMA, T. Perkins*
July 27, 2018	*Agency comment*	*FEMA, K. Wood-McGuinness*
July 27 & 30, 2018	*Consultant responses*	*HMM, K. Karle for DOT&PF*
August 8, 2018	Scoping email	HMM, K. Karle Re: tele. communication with Dept. of Commerce, Community, & Econ. Development, J. Smith
August 10, 2018	*Consultant response*	*HMM, K. Karle*
August 10, 2018	*Consultant response*	*HMM, K. Karle Re: tele. communication with City of Seward, A. Bacon*
August 23, 2018	Agency comment	FEMA, P. Janke

Section 106 Comments and Correspondence

Date	Communication Type	From (Organization, Name)
January 29, 2018	Consultation initiation	DOT&PF, Wanzenried, M.
February 14, 2018	Agency comment	Alaska State Historic Preservation Office (SHPO), Rollins, M.
June 5, 2018	Findings letter	DOT&PF, Wanzenried, M.
June 14, 2018	Concurrence letter	SHPO, Bittner, J.

Public Correspondence

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From: Solstice AK <solsticeak@solsticeak.com>
To: Solstice AK <solsticeak@solsticeak.com>
Sent: Wednesday, March 1, 2017 12:55 PM
Subject: Seward Airport Improvement Project Update, February 2017

Thank you for your continued interest in the Alaska Department of Transportation and Public Facilities (DOT&PF) Seward Airport Improvement Project. You received this email because you have previously indicated interest in this project.

The project website has been updated and the following materials are now available on the Seward Airport Improvement Project website at www.dot.state.ak.us/creg/sewardairport:

- **Project Frequently Asked Questions (FAQs) and Responses:** See the project FAQs page www.dot.state.ak.us/creg/sewardairport/faq.shtml
- **Resurrection River Dredging Memo.:** See the project Document Library www.dot.state.ak.us/creg/sewardairport/documents.shtml for an analysis of river channel dredging considerations

You will continue to receive updates as new information is available for this project. Meanwhile, feel free to contact Robin Reich, public involvement coordinator, at solsticeak@solsticeak.com with questions.

Thank you.

Solstice Alaska Consulting, Inc
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
www.solsticeak.com

From: rainyday <c_griz@yahoo.com>
Sent: Wednesday, March 1, 2017 3:16 PM
To: Solstice AK
Subject: Re: Seward Airport Improvement Project Update, February 2017
Attachments: Screen Shot 2017-03-01 at 2.55.45 PM.png

Hi Robin,

I noticed the date on the flyer says 2016 in two places, screen shot attached.

As an avid birder, I would be happy to help compile data on the use of the wetlands/tidal flats/estuary areas. These areas are important year-round for birds and other wildlife, not just during migration. Please let me know what data would be significant.

Best,
Carol Griswold
Seward, Alaska

From: Solstice AK <solsticeak@solsticeak.com>
To: rainyday <c_griz@yahoo.com>
Sent: Tuesday, April 4, 2017 12:53 PM
Subject: RE: Seward Airport Improvement Project Update, February 2017

Thank you, Carol. This email is to let you know that your email has been received. Also, any data that you have/would be willing to share would be helpful, thank you. Would it be easier to discuss it over the telephone (907-929-5960) or send it via email?

Please also note that the flyer that says 2016 was for a 2016 meeting; thank you for letting us know that it was misleading! Hopefully, the website is now easier to understand, thanks to your catch.

Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | www.solsticeak.com

From: rainyday [mailto:c_griz@yahoo.com]
Sent: Tuesday, April 4, 2017 2:37 PM
To: Solstice AK <solsticeak@solsticeak.com>
Subject: Re: Seward Airport Improvement Project Update, February 2017

Hi Solstice,

The bird list would be easier by email. Is just a list sufficient? Or do you need year-round, migratory, nesting data?

Carol

From: Solstice AK <solsticeak@solsticeak.com>
To: rainyday <c_griz@yahoo.com>
Sent: Tuesday, April 4, 2017 2:39 PM
Subject: RE: Seward Airport Improvement Project Update, February 2017

Hello Carol,

The bird list would be great. If you have other data that is easily shareable, we would be glad to have it, as well.

Thank you.

From: rainyday [mailto:c_griz@yahoo.com]
Sent: Thursday, April 13, 2017 10:06 PM
To: Solstice AK <solsticeak@solsticeak.com>
Subject: Re: Seward Airport Improvement Project Update, February 2017

Hi Solstice,

I haven't forgotten you!

I made a draft bird list and am waiting for another birder to look it over before I send it. There are over 100 species of birds!

Best,
Carol

From: Solstice AK <solsticeak@solsticeak.com>
To: rainyday <c_griz@yahoo.com>
Sent: Friday, April 14, 2017 9:09 AM
Subject: RE: Seward Airport Improvement Project Update, February 2017

Wonderful. Thank you very much!

From: rainyday [mailto:c_griz@yahoo.com]
Sent: Thursday, April 20, 2017 5:29 PM
To: Solstice AK <solsticeak@solsticeak.com>
Subject: Seward Airport Improvement Project Open House?

Hi Robin,

Is there an open house public meeting scheduled for Seward any time soon? I only see the April 20, 2016 meeting on the website.

Thank you,
Carol Griswold

From: Solstice AK <solsticeak@solsticeak.com>
To: rainyday <c_griz@yahoo.com>
Cc: "Beaton, Barbara J (DOT)" <barbara.beaton@alaska.gov>
Sent: Wednesday, May 3, 2017 9:43 AM
Subject: RE: Seward Airport Improvement Project Open House?

Hello Carol,

There will be another public open house after the draft Environmental Assessment has been released for comment around the end of the year.

Your continued interest and input on the project have been helpful, and we are looking forward to seeing the bird information you are compiling.

Thanks.

Robin Reich
Office: 907.929.5960

Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | solsticeak@solsticeak.com
www.solsticeak.com

From: rainyday <c_griz@yahoo.com>
Sent: Wednesday, May 3, 2017 10:47 AM
To: Solstice AK
Cc: Beaton, Barbara J (DOT)
Subject: Seward Airport bird list v 1.1
Attachments: 2017 Seward Airport Birds compiled by Carol Griswold.docx

Hi Robin,

Attached is version 1.1. The other birder has been very busy traveling and birding, but if she has any suggestions, I will send those along as V 1.2.

Please let me know if I can be of further assistance.

Best,
Carol

Attachment to May 3, 2017 C. Griswold Email

2017 Seward Airport Birds Checklist V 1.1
compiled by Carol Griswold c_griz@yahoo.com
Listed in taxonomic order.

The Seward Airport meadows, estuaries, tidal sloughs, saltwater marsh, wetlands, and mudflats provide a vital habitat for resident birds, northern Alaska nesters, Oceanics, Neotropicals, Canada and Western US birds, and Asiastics. Birds and other wildlife depend on the specialized plants that grow in this habitat. Several streams in this area are habitat for salmon, dolly varden, sculpin, flounders, and other fish. Mitigation of developmental impacts to protect the integrity of this ecosystem also protects the Seward Airport from erosion and flooding.

Note that the area directly south of the existing short runway is an extremely important habitat not only for migrating birds, but is the location of a large Arctic Tern nesting colony. This is one of the few in the Seward area, and one of the largest in the Kenai Peninsula.

Ducks, Geese, Swans
Greater White-fronted Goose
Snow Goose
Ross's Goose
Brant
Cackling Goose
Canada Goose
Trumpeter Swan
Tundra Swan
Gadwall
Eurasian Wigeon
American Wigeon
Mallard
Blue-winged Teal
Cinnamon Teal
Northern Shoveler
Northern Pintail
Green-winged Teal
Canvasback
Ring-necked Duck
Greater Scaup
Lesser Scaup
Bufflehead

Common Goldeneye
Barrow’s Goldeneye
Common Merganser

Herons
Great Blue Heron

Hawks, Eagles
Bald Eagle
Northern Harrier
Sharp-shinned Hawk
Northern Goshawk
Red-tailed Hawk (Harlan’s)
Golden Eagle

Cranes
Sandhill Crane

Lapwings, Plovers
Black-bellied Plover
American Golden-Plover
Pacific Golden-Plover
Semipalmated Plover

Sandpipers, Phalaropes
Spotted Sandpiper
Solitary Sandpiper
Greater Yellowlegs
Lesser Yellowlegs
Upland Sandpiper
Whimbrel
Hudsonian Godwit
Bar-tailed Godwit
Marbled Godwit
Black Turnstone
Sanderling
Semipalmated Sandpiper
Western Sandpiper
Least Sandpiper
Baird’s Sandpiper
Pectoral Sandpiper

Sharp-tailed Sandpiper
Rock Sandpiper
Dunlin
Short-billed Dowitcher
Long-billed Dowitcher
Wilson’s Snipe
Phalarope sp
Gulls, Terns
Black-legged Kittiwake
Bonaparte’s Gull
Mew Gull
Herring Gull
Glaucous-winged Gull
Caspian Tern
Arctic Tern
Pomarine Jaeger

Auks, Murres, Puffins
Common Murre
Crested Auklet

Pigeons, Doves
Rock Pigeon

Owls
Great Horned Owl
Short-eared Owl

Kingfishers
Belted Kingfisher

Woodpeckers
Downy Woodpecker

Falcons
Merlin
Peregrine Falcon

Tyrant Flycatchers
Alder Flycatcher

Shrikes
Northern Shrike

Crows, Jays
Black-billed Magpie
Northwestern Crow
Common Raven
Swallows
Tree Swallow
Violet-green Swallow
Bank Swallow
Cliff Swallow
Barn Swallow

Chickadees
Black-capped Chickadees
Chestnut-backed Chickadees

Nuthatches
Red-breasted Nuthatch

Creepers
Brown Creeper

Wren
Pacific Wren

Dippers
American Dipper

Kinglets
Golden-crowned Kinglet
Ruby-crowned Kinglet

Old World Flycatchers
Northern Wheatear

Thrushes
American Robin
Varied Thrush
Hermit Thrush

Wagtails, Pipits
Red-throated Pipit
American Pipit

Longspurs, Snow Buntings
Lapland Longspur
Smith’s Longspur
Snow Bunting
McKay’s Bunting

Wood-Warblers
Orange-crowned Warbler
Yellow Warbler
Yellow-rumped Warbler
Townsend’s Warbler
Wilson’s Warbler

Emberizids
Savannah Sparrow
Song Sparrow
Lincoln’s Sparrow
Dark-eyed Junco

Blackbirds
Red-winged Blackbird
Rusty Blackbird

Fringilline, Card. Finches
Red Crossbill
White-winged Crossbill
Common Redpoll
Pine Siskin

From: rainyday <c_griz@yahoo.com>
Sent: Friday, September 8, 2017 4:02 PM
To: Solstice AK
Subject: Seward Airport Improvement Project comments
Attachments: 09-07-17 Seward Airport Improvement Plan.docx

Hi Robin,

I noticed in Seward City News that our city manager is lobbying the Governor for an extension of the Crosswind Runway.

I'd like to lobby against it. Comments attached.

Thank you,
Carol

Attachment to September 8, 2017 C. Griswold Email

September 7, 2017

Hi Angelle-Leigh,

Re: Seward Airport Improvement Plan

I have great concern about preferred Alternative 2.2 which would shift the existing, 2,289' x 75' Crosswind Runway (16-34) to the east and extend it by 1, 011 feet to 3,300'x75'. This plan would also abandon the existing 4,249' x 100' Main Runway (13-31) that also serves as a levee to protect the rest of the infrastructure to the west from the Resurrection River.

I. The Seward Airport was built in an alluvial floodplain created by the powerful glacially fed Resurrection River. Like a fire hose, it sprays water laden with tons of silt, gravel, and larger rock across its many braided channels. When the Airport was built, the river channels were far to the east. Now the river, channeled through the three highway bridges, has turned to point directly at the Main Runway. Redirecting the river away from the runway by dredging is not one of the options, as, according to the Seward Airport Improvement Plan, it would require continual maintenance and permitting, a dedicated funding source and staff with no guarantee that the excavated channel would remain stable.

Any solution will require continual funding source and staff with no guarantees of success; dredging and/or gravel extraction should be an option. A very successful gravel extraction operation sits right in between channels of the Resurrection River upstream of the highway bridges. As far as I know, their considerable operation has never flooded. They are permitted to extract gravel from the dry areas as the river allows. Why isn't gravel extraction to control the river's channels an option?

II. Closing and abandoning the Main Runway will allow Resurrection River to continue to undercut the runway. Continuing accelerated melting of Exit Glacier will increase the amount of gravel and power of the river, and result in the failure of the levee. Sooner or later, the river will move west until it is once again threatening to erode and demolish the Crosswind Runway and over a million dollars of infrastructure built next to Airport Road. Only about 1000 feet separate the two runways at the cross taxiway.

Flooding, erosion, and sediment dump will continue, if not controlled, around the end of the Crosswind Runway directly to many more millions of dollars of infrastructure at the Alaska Railroad freight dock, cruise ship dock, and port. That is only a matter of time, and could happen quickly.

The long runway must be raised, fortified, and maintained as a levee with the runway on top to protect the rest of the airport and infrastructure to the west. It is risky and shortsighted to abandon it.

III. The Seward Airport is surrounded by meadows, estuaries, tidal sloughs, saltwater marsh, wetlands, and mudflats that provide a vital habitat and specialized plants for wildlife including black and brown bears, moose, coyotes, and river otters. Bird observations compiled over the years list 120 species at the Seward Airport, including resident species, northern Alaska nesters, Oceanics, Neotropicals, Canada and Western US birds, and Asiatics.

The Crosswind Runway points directly at an extremely important habitat for resident and migrating birds, and the location of a large Arctic Tern nesting colony. This is one of the few in the Seward area, and one of the largest in the Kenai Peninsula. Extending the runway will bring all the fixed wing aircraft, including small jets, much closer and lower to the wetlands and ponds upon approach and departure. This will unnecessarily increase the risk of bird-aircraft collisions, and jeopardize the aircraft and wildlife.

Several streams in this area are habitat for salmon, Dolly Varden, sculpin, flounders, and other fish. Not far to the west of the Crosswind Runway is a salmon stream. What is the impact of a raised and lengthened runway on this salmon stream?

Mitigation of all developmental impacts are critical to protect the integrity of this wetlands ecosystem that also protects the Seward Airport and adjacent Alaska Railroad property from erosion, flooding, siltation, and the threats of continuing sea level rise. Extending the Crosswind Runway will negatively impact this delicate ecosystem.

Ironically, every September the Kenai Peninsula Borough issues a Proclamation supporting National Estuaries Week wherein all estuaries are integral to the State of Alaska; estuaries are unique coastal environments that support more life per square inch than any other ecosystem on Earth, providing habitat for countless species of fish, shellfish, birds, and marine mammals; this annual celebration of the vibrant coastal areas where rivers meet the sea presents an opportunity to learn more about these coastal ecosystems and how Alaska's citizens can help to protect them; estuaries provide numerous protection benefits to coastal populations, acting as a first line of defense against storms, rising sea levels, and the effects of a changing climate as well as a natural water filtration system; protecting our local fish habitats and populations will benefit Alaska's commercial fishing industries; the state is committed to protecting coastal ecosystems; protecting and restoring our estuaries is vital to our local and national economy.

Abandoning the main runway and extending the short runway contradicts every point of this National Estuaries Week Proclamation.

IV. The only alternative that best supports small jet traffic is Alternative 1.1: retain the Main Runway. Small jets require at least 4,000 feet. A longer runway is needed for medevac jets, Coast Guard C-130s, State Trooper helicopters, business and private jet traffic.

The Main Runway is 4,249 feet long and 100 feet wide. Extending the Crosswind Runway by 600’ or 1,011’ would not support small jet traffic. The runway would still only be 75 feet wide, which reduces the margin of safety. Extending the Crosswind Runway by 1,711 feet to 4,000 feet requires an additional funding source, which has not been identified or secured. The additional 700 feet does not qualify for federal funding.

V. Alternative 2.2 may be “the most viable alternative in terms of design and engineering considerations, and meet the community’s near-term aviation needs for general aviation and medevac operations” but all the issues impacting the existing Main Runway and worse will soon be those of a longer, Crosswind Runway. This is a short-term, and expensive choice that ignores the looming, real issue of Resurrection River.

The only viable alternative, if dredging the main channel is not an option, is Alternative 1.1, Reconstruct the Existing Main Runway 13-31 above the 100-year flood level, install riprap to protect the embankment from flooding AND bring it up to its previous weight-bearing standards.

Thank you,
Carol Griswold
Seward, Alaska

Solstice AK

From: rainyday <c_griz@yahoo.com>
Sent: Monday, October 30, 2017 11:39 AM
To: Beaton Barbara J (DOT); Mark Boydston
Cc: Solstice AK
Subject: Seward Airport Alternative comments
Attachments: 10-30-17 Seward Airport Improvement Plan.docx

Hello All,

Attached please find my comments about the Seward Airport preferred Alternative 2.2.

Thank you,
Carol Griswold
Seward, AK

Attachment to October 30, 2017 C. Griswold Email

October 30, 2017

Mark Boydston
Environmental Impact Analyst II, ADOT
907-269-0524, FAX 907-243-6927
mark.boydston@alaska.gov

Barbara Beaton, PE Project Manager Dot and PF
barbara.beaton@alaska.gov
907-269-0617

Robin Reich, Public Involvement Coordinator
robin@solsticeak.com
http://www.solsticeak.com/

Re: Seward Airport Improvement Plan

I have great concern about preferred Alternative 2.2 which would shift the existing, 2,289' x 75' Crosswind Runway (16-34) to the east and extend it by 1, 011 feet to 3,300'x75'. This plan would also abandon the existing 4,249' x 100' Main Runway (13-31) that also serves as a levee to protect the rest of the infrastructure to the west from the Resurrection River.

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Any solution will require continual funding source and staff with no guarantees of success; dredging and/or gravel extraction should be an option. A very successful gravel extraction operation sits right in between channels of the Resurrection River upstream of the highway bridges. As far as I know, their considerable operation has never flooded. They are permitted to extract gravel from the dewatered gravel bars as the river allows. Why isn't gravel extraction to control the river's channels an option?

II. Closing and abandoning the Main Runway will allow Resurrection River to continue to undercut the runway. Continuing accelerated melting of Exit Glacier will increase the amount of gravel and power of the river, and result in the failure of the levee. Sooner or later, the river will move west until it is once again threatening to erode and demolish the Crosswind Runway and over a million dollars of infrastructure built next to Airport Road. Only about 1000 feet separate the two runways at the cross taxiway.

Flooding, erosion, and sediment dump will continue around the end of the Crosswind Runway directly to many more millions of dollars of infrastructure at the Alaska Railroad freight dock, cruise ship dock, and port. That is only a matter of time, and could happen quickly.

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The Crosswind Runway points directly at an extremely important habitat for resident and migrating birds, and the location of a large Arctic Tern nesting colony. This is one of the few in the Seward area, and one of the largest in the Kenai Peninsula. Extending the runway will bring all the fixed wing aircraft, including small jets, much closer and lower to the wetlands and ponds upon approach and departure. This will unnecessarily increase the risk of bird-aircraft collisions, and jeopardize the aircraft and wildlife.

Several streams in this area are habitat for salmon, Dolly Varden, sculpin, flounders, and other fish. Not far to the west of the Crosswind Runway is a salmon stream. What is the impact of a raised and lengthened runway on this salmon stream?

Mitigation of all developmental impacts are critical to protect the integrity of this wetlands ecosystem that also protects the Seward Airport and adjacent Alaska Railroad property from erosion, flooding, siltation, and the threats of continuing sea level rise. Extending the Crosswind Runway will negatively impact this delicate ecosystem.

Ironically, every September the Kenai Peninsula Borough issues a Proclamation supporting National Estuaries Week wherein all estuaries are integral to the State of Alaska; estuaries are unique coastal environments that support more life per square inch than any other ecosystem on Earth, providing habitat for countless species of fish, shellfish, birds, and marine mammals; this annual celebration of the vibrant coastal areas where rivers meet the sea presents an opportunity to learn more about these coastal ecosystems and how Alaska's citizens can help to protect them; estuaries provide numerous protection benefits to coastal populations, acting as a first line of defense against storms, rising sea levels, and the effects of a changing climate as well as a natural water filtration system; protecting our local fish habitats and populations will benefit Alaska's commercial fishing industries; the state is committed to protecting coastal ecosystems; protecting and restoring our estuaries is vital to our local and national economy.

Abandoning the main runway and extending the short runway contradicts every point of this National Estuaries Week Proclamation.

IV. The only alternative that best supports small jet traffic is Alternative 1.1: retain the Main Runway. Small jets require at least 4,000 feet. A longer runway is needed for medevac jets, Coast Guard C-130s, State Trooper helicopters, business and private jet traffic.

The Main Runway is 4,249 feet long and 100 feet wide. Extending the Crosswind Runway by 600' or 1,011' would not support small jet traffic. The runway would still only be 75 feet wide, which reduces the margin of safety. Extending the Crosswind Runway by 1,711 feet to 4,000 feet requires an additional funding source, which has not been identified or secured. The additional 700 feet does not qualify for federal funding.

Extending the Crosswind Runway also places it in an area that experiences flooding, extreme high tides, surf and ice impacts, overflow from the adjacent slough and ponds. Impacts and maintenance throughout the year including dramatically different winter conditions must be evaluated.

V. Alternative 2.2 may be "the most viable alternative in terms of design and engineering considerations, and meet the community's near-term aviation needs for general aviation and medevac operations" but all the issues impacting the existing Main Runway and worse will soon be those of a longer, Crosswind Runway. This is a short-term, and expensive choice that ignores the looming, real issue of Resurrection River.

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Thank you,
Carol Griswold
Seward, Alaska

From:	rainyday <c_griz@yahoo.com>
Sent:	Monday, October 30, 2017 11:40 AM
To:	Mark Boydston; Beaton Barbara J (DOT)
Cc:	Solstice AK
Subject:	Fw: Seward Airport high tide photos
Attachments:	P1040167-Seward-airport-at-high-tide.jpg; P1040171-Seward-Airport-at-high-tide.jpg; Screen Shot 2016-04-27 at 7.42.20 PM.png; P1040171-Seward-Airport-at-high-tide-comments.jpg

Hi Mark,

I hope you will find these photos of interest.

Thank you,
Carol Griswold

----- Forwarded Message -----
From: rainyday <c_griz@yahoo.com>
To: "Carla@solsticeak.com" <Carla@solsticeak.com>; "Robin@solsticeak.com" <Robin@solsticeak.com>
Sent: Wednesday, April 27, 2016 9:08 PM
Subject: Seward Airport high tide photos

Hi Carla and Robin,

Attached are some photos of the Seward Airport taken on March 10, 2016 near the high tide of day of 11.9'. As you know, this is not the highest tide, which can reach 13.7'.

I am very concerned that closing main Runway 13-31 will indeed allow floodwater to have better access to the existing floodplain as stated. This is not a reasonable or desirable direction. I fear that without maintaining the main runway as a levee, the floodwater will quickly overrun it and flow into the center portion of the airport. Then the river will start eroding the other runway 16-34 in the same way as it does now. That brings the impact of flood damage very close to the existing infrastructure of hangars, buildings, and Airport Road, resulting in an extremely expensive alternative.

I understand Dieckgraeff Road aka Levee Road, just across the highway from the airport, was designed and constructed in a flood plain. Similarly, raising the elevation, adding armor protection, and reconstructing Runway 13-31as a protective levee/runway is a superior alternative to closing Runway 13-31 and improving Runway 16-34.

This project must also consider the impending sea level rise in which the high tide shown in my photo may become the normal scenario for a moderate to low tide. The protective beach berm, reduced to an island, may be submerged more frequently, resulting in reduced protection from storm erosion.

The next protective barrier is the former road to the Naval Radio Station. It is submerged at high tides now. Close mowing along this former road reduces the ability of plants to maintain their roots, and thus their function to control erosion. The Airport Plan should include restrictions on mowing along this former road.

Note that the Alaska Railroad Master Plan proposes dredging for a boat barge basin between the airport and the AKRR property. This wetlands, with its layers of stable clay and compacted silt is very important for reducing flood impacts by controlling and filtering both flood waters and high tides. Removal of this stable wetlands, which includes a salmon stream complex, will bring the ocean permanently to the airport property line.

Extending Runway 13-31 will bring it extremely close to this property line, proposed boat barge basin, and ocean impacts. Consider the high costs of construction in wetlands, raising the elevation, and adding protective armoring for this alternative. Consider too, the negative impacts to wildlife and the environment.

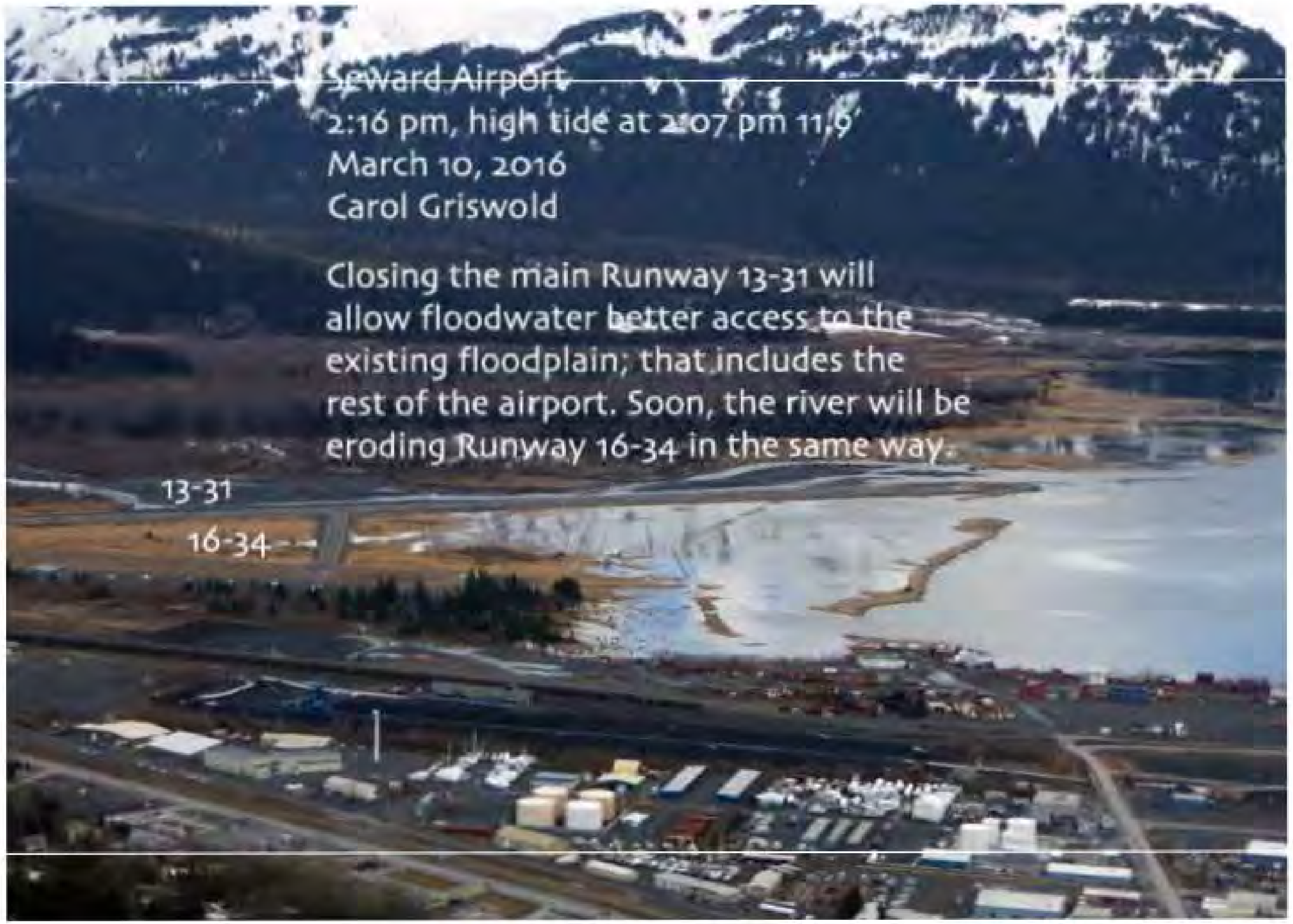
Historic photos show the wild glacial Resurrection River created the entire alluvial fan from one side of the bay to the other. Artificial fill has extended development from the AKRR yard to the boat harbor, highway, and Lagoon. Allowing the river to have "better access to the existing floodplain" means utter destruction of all the infrastructure now in this floodplain.

I believe the most cost-effective and viable alternative is to maintain and improve existing Runway 13-31 as a levee/runway, and maintain the rest of the current infrastructure.

Thank you for your consideration,
Carol Griswold
Seward, Alaska

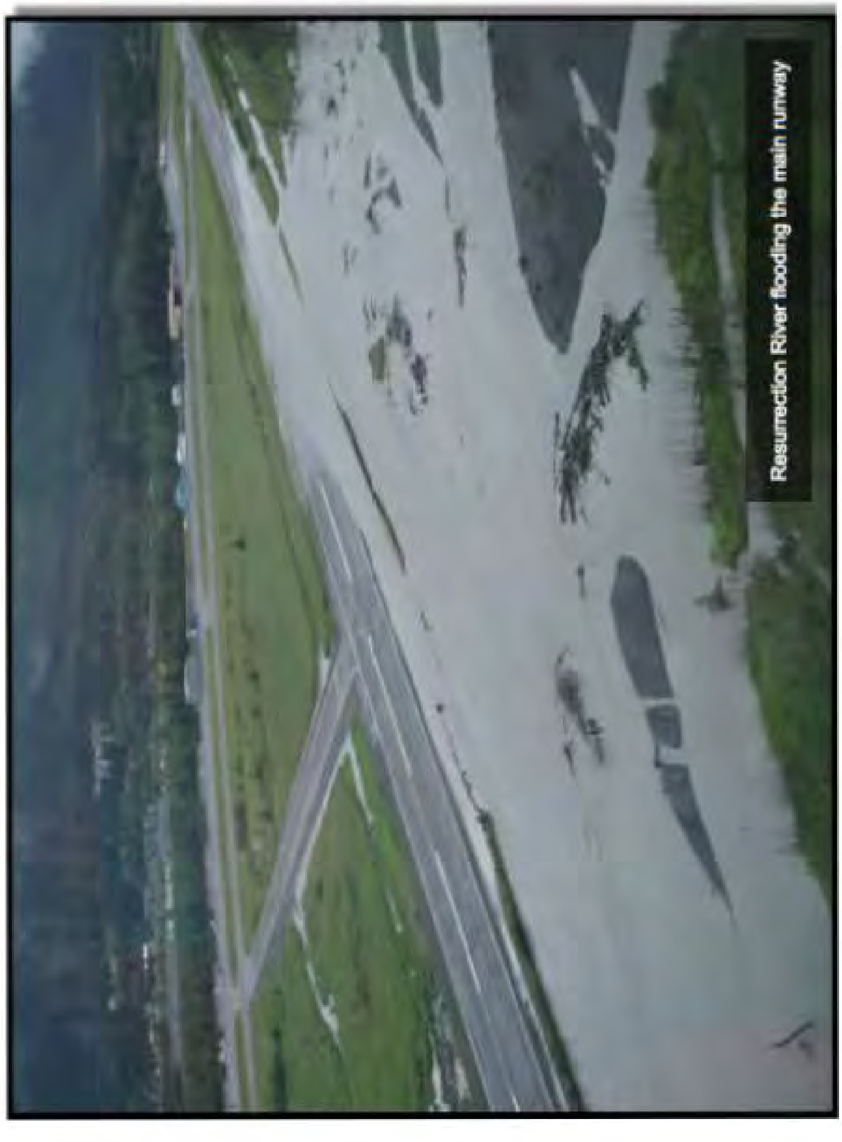
Seward Airport
High tide 11.9' at 2:07 pm
photo taken at 2:15 pm
Carol Griswold

Seward Airport
2:16 pm, high tide at 2:07 pm 11.9′
March 10, 2016
Carol Griswold



Seward Airport
2:16 pm, high tide at 2:07 pm 11.9'
March 10, 2016
Carol Griswold

Closing the main Runway 13-31 will allow floodwater better access to the existing floodplain; that includes the rest of the airport. Soon, the river will be eroding Runway 16-34 in the same way.



Resurrection River flooding the main runway

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and
Public Facilities

DESIGN & ENGINEERING SERVICES
Aviation Design

PO Box 196900
Anchorage, AK 99519-6900
Phone Number: 907 269 0617
Toll Free: 800 770 5263
TDD: 907 269 0473
TTY: 800 770 8973
Fax Number: 907 248 1573
Web Site: dot.state.ak.us

November 15, 2017

Carol Griswold
P.O. Box 1342
Seward, Alaska 99664
Email: c_griz@yahoo.com

Dear Ms. Griswold:

Thank you for your thoughtful correspondence regarding the Seward Airport Improvements Project. We understand that you have concerns regarding our selected alternative (Alternative 2.2 - upgrading Runway 16/34 from an A-I facility to a B-II facility). The Department of Transportation and Public Facilities (DOT&PF) recognizes the gravity of this project, its potential impacts as well as opportunities for improved safety and services in Seward. In acknowledgement of these facts, we chose an alternative that is reasonable and responsibly meets the project needs.

Selecting an alternative that addresses the complexities at the airport (safety issues, the airport's aircraft demand/capacity, and environmental considerations) required considerable analysis. Extensive research was completed, including public input, to develop three alternatives for the project. These alternatives were evaluated based on widespread evaluation criteria such costs (construction, property acquisition, maintenance); ability to serve community needs (medivac, economic development); environmental impacts (wetlands, flooding and associated property impacts); and engineering considerations (airspace, wind, construction ease, reliability, long term risks). This analysis is summarized in an "Alternatives Memorandum", the "Seward Airport Improvements Scoping Report" and a "Position Paper", all available on the project website at

www.dot.state.ak.us/creg/sewardairport/documents.

We sought public, agency, and stakeholder input throughout the alternative selection process. A Stakeholder Working Group (SWG) was established which included the Alaska Railroad Corporation (ARRC); Alaska Wing Civil Air Patrol; City of Seward; Federal Aviation Administration ; Kenai Peninsula Borough (KPB); Seward/Bear Creek Flood Service Area; and local pilots. Agency consultations were conducted with the Alaska Department of Environmental Conservation (ADEC); Alaska Department of Fish and Game (ADF&G); Alaska Department of Natural Resources (ADNR); ARRC; City of Seward; State Historic Preservation Officer; KPB; Kenai River Center; National Marine Fisheries Service (NMFS); U.S. Army Corps of Engineers (USACE); and U.S. Fish and Wildlife Service (USFWS).

Frequent flooding of airport facilities during precipitation events, including the recent flooding on September 6, 2017, continues to make this project a high priority. We appreciate your continual interest in the project. Next, please find responses to the specific points raised in your letter.

1. *You are concerned with losing the levee effect of Runway 13-31 and resulting potential impacts to infrastructure. Further, you recommend that dredging is pursued as an option and ask why gravel extraction is not an option.*

The main runway (Runway 13-31) will be left in place to provide some flood protection for the airport. The smaller runway will be raised two feet above the design flood event (the 100 year event). Armor protection will be installed along this runway to fortify it against flooding, in the event river waters reach this runway. To date, flood waters have reached but have not overtopped the existing small runway.

Your interest in pursuing dredging as an option for this project is consistent with other feedback that has been received for this project. We examined river dredging as an option, discussing this possibility in depth with the two Hydrologists on the project team. After considerable consideration it was concluded that excavations in a braided river, such as the Resurrection River, could exhibit "irregular and unpredictable morphologic development". Also there would be "no guarantee" that the excavations would remain stable or redirect flows. As a result, we decided that dredging was not a viable solution. (Please see the Resurrection River excavation memo for additional information at

www.dot.state.ak.us/creg/sewardairport/documents/Resurrection-River-Excavation-Memo-final.pdf.)

2. *You recommend that the long runway (Runway 13-31) be raised, fortified, and maintained as a levee given continued glacial melt and river erosion, and you feel that it is dangerous if it is abandoned.*

As discussed previously, Runway 13-31 will be closed, but not removed and is expected to continue to function as a levee for some time into the future. The smaller runway (Runway 16-34) will be raised and armored, as noted above, to serve as a levee and barrier against potential future floods of adjacent private property.

A flood model was developed for the project which used the same design parameters for all three alternatives: raising the respective runway two feet (per an Executive Order) above the design flood (100 year flood). The modeling showed that the main runway, due to its location next to the river, produced significantly more flooding impacts to adjacent properties than the other two. Flood waters would increase up to 4 feet in some locations. Flood modeling results are presented in the "...Scoping Report".

3. *You expressed concern that the extension of Runway 16-34 will impact wildlife and habitat. In particular, you expressed concern for impacts to: birds, especially migratory birds and Arctic Tern nesting habitat, and potential bird-aircraft collisions; salmon streams and specifically a stream west of the runway; and erosion from loss of wetlands and impacts to and potential loss of estuary protection.*

The proximity of this project to important habitats and wildlife necessitated consultations with ADEC, ADNR, ADF&G, Kenai River Center, NMFS, and USFWS, who we looked to for wildlife expertise during the alternatives analysis.

- Birds: The USFWS, the federal agency with statutory authority that is responsible for enforcing the Migratory Bird Treaty Act, the Fish and Wildlife Improvement Act, and the Fish and Wildlife Act, did not express concerns about bird impacts with regard to Alternative 2.2. There are risks for bird-aircraft collisions with all the airport alternatives that were analyzed and the safe operation of aircraft is our priority.

- Thank you for providing information on the birds observed in and near the airport area. We are currently using your data along with other bird sighting and habitat information at the airport to determine potential impacts to birds. If the analysis indicates there are significant impacts to bird habitat, as a result of project construction, we will provide mitigation to offset any impacts.

- Fish: ADF&G, the state agency responsible for enforcement of the Alaska Anadromous Fish Act and Fishway Act, stated during a recent agency scoping meeting that ADF&G prefers Alternative 2.2, because it avoids impacts to fish and fish habitat within the Resurrection River.

- Wetlands and estuaries: We are proceeding with the project by avoiding and minimizing impacts to wetlands as much as possible and will obtain a wetland permit from the USACE. The USACE has given us guidance that it selects the alternative with the least environmental impact. Given all the arguments presented in this letter as well as the "Position Paper", we believe that Alternative 2.2 is the alternative that satisfies the project's purpose and need while incurring the least amount of environmental impacts.

4. *You state that Alternative 1.1 is the only alternative that supports small jets and that a longer runway is needed for medivac jets, Coast Guard C-130s, State Trooper helicopters, and business and private jet traffic.*

We completed a detailed Aviation Activity & Facility Requirements Technical Memorandum that studied the existing and forecasted aircraft demand at the Seward Airport. This document shows that Alternative 2.2 will meet the current and future demand at the airport, including the most demanding aircraft (largest wingspan and longest required runway length) in steady use at the airport – the King Air B200, which is used for medical evacuations. Other aircraft that you mention do not use the airport often enough to justify the selection of Alternative 1.1. (Note that the Trooper helicopter does not require a runway to land.) Please refer to the "....Scoping Report" and the "Position Paper" on the website for additional information.

5. *You expressed support for Alternative 1.1 and concern that Alternative 2.2 is a short-term, expensive choice.*

Alternative 1.1 was discarded for numerous reasons including the fact that it significantly increases flooding to adjacent properties. Compensation for properties impacted by flooding would be costly and would outweigh other alternative expenses. In addition, construction activities associated with Alternative 1.1 (requiring placement of fill in the river) would disrupt existing fish habitat as well as impair navigability, a concern expressed by ADNR. Finally the impacts to medivac traffic, during construction, would be an issue for this alternative, as the small runway is not currently long enough to service these aircraft.

Alternative 2.2 was selected to move forward for several reasons. Among these reasons are the fact that the flood impacts are significantly less than Alternative 1.1 and that it avoids impacts to fish habitat in the river. In addition, Runway 16/34 has better wind coverage than Runway 13/31.

Please note that Alternative 3, (close Runway 13-31 and reconstruct Runway 16-34 to 4,000 feet), was developed based upon potential economic activity. Currently the aircraft demand at the airport does not warrant a runway longer than 3,300 feet. However, the new Airport Layout Plan will include this option as an Ultimate condition, and development of Alternative 2.2 will not preclude a future runway extension.

Additionally, the City of Seward is seeking investors to use private funds to extend this runway in the near future.

Again, additional information pertaining to all these answers can be found in the "....Scoping Report" and the "Position Paper" on the project's website. The "Position Paper" goes into more detail of why Alternative 2.2 was selected over Alternative 1.1.

Your continued thoughts and input have been appreciated. While Alternative 2.2 has been selected to move forward at this time, your comments have been documented. At any point in this process, please feel free to contact me directly. I can be reached at (907) 269-0617 or barbara.beaton@alaska.gov.

Sincerely,

Barbara J. Beaton

Barbara J. Beaton, P.E.
Project Manager

cc: Shannon McCarthy, ADOT/PF, Public Involvement Representative

From: Jim Hunt <jhunt@cityofseward.net>
Sent: Wednesday, March 1, 2017 1:43 PM
To: Solstice AK
Subject: RE: Seward Airport Improvement Project Update, February 2017

Hi,

I noticed an incorrect population for Seward on your webpage. The number stated is for Seward only. There are about that number again living just out of the city limits.

Thanks,

Jim

Jim Hunt
City Manager
Seward, Alaska
907.224.4047

From: Solstice AK
Sent: Wednesday, June 7, 2017 3:38 PM
To: 'Jim Hunt'
Cc: Beaton, Barbara J (DOT); 'Royce Conlon'
Subject: RE: Seward Airport Improvement Project Update, February 2017

Hello Jim:

Per your email, we have updated the website language to read, “*The airport serves the residents of Seward (pop. 2,754 [2012]) and nearby communities, including Moose Pass, Bear Creek, and Lowell Point.”*

See the updated website here: www.dot.state.ak.us/creg/sewardairport

Thank you.

Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | solsticeak@solsticeak.com
www.solsticeak.com

From: Robin Reich
Sent: Monday, May 1, 2017 2:43 PM
To: Royce Conlon <RoyceConlon@pdceng.com>; Erica Betts <EricaBetts@pdceng.com>; 'Angela Smith' <AngelaSmith@pdceng.com>
Cc: Olivia Cohn <olivia@solsticeak.com>
Subject: Seward Airport Comment

Bob Linville called today (May 1, 2017) at 2:00 pm. He also left a message on Saturday. Here is a summary of his comments:

- He missed the meeting. I told him that the most recent meeting was over a year ago, and he said that there must be some confusion in Seward because a lot of people thought there was a recent meeting.

- He asked whether the alternatives and the preferred alternatives had changed since the last meeting. I told him that DOT&PF was still thinking that the preferred alternative remains 2.2 (crosswind runway shifting and lengthening) and closing the longer main runway.

- He said that he didn't agree with closing the main runway. He said that pilots need two runways in order have options, especially with the wind conditions and weather in Seward.

- He said that he didn't agree with closing/no improving the main runway just to avoid flooding impacts. He said that there is nothing left to be flooded in the area and that flooding damage was done years ago. He said that letting the river take over additional area didn't make sense.

- He said that he had made these comments previously and doesn't think that anyone is listening. He asked whether the FAA had seen the comments that the public had on the alternatives.

- He said that he has used the airport as a pilot and that his son now uses the airport. He is concerned local resident and lives in the area all year.

- He said that he would like to know when the next meeting would be held and expects to hear about it because he is on the mailing list. (I checked and he is on the list.)

Robin Reich, President
Environmental Planner

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Cell: 907.903.0597

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From: Solstice AK
Sent: Wednesday, October 4, 2017 3:49 PM
To: Solstice AK
Subject: Seward Airport Update: Scoping Complete, Scoping Report Online, Alternative Selected

Thank you for your continued interest in the Seward Airport Improvement Project. You are receiving this email as a project update to inform you that project scoping is complete, the scoping report is now online, and a preferred build alternative has been selected.

The Department of Transportation and Public Facilities (DOT&PF) completed Phase I. Project Scoping. The *Seward Airport Improvements Scoping Report*, summarizing the project background (scope, project history, purpose and need, project team); existing conditions; aviation activity and forecast; facility requirements; project alternatives; and environmental conditions is available on the project website Document Library online at www.dot.state.ak.us/creg/sewardairport/documents.shtml. Alternative 2.2 was selected as the preferred build alternative for this project. A position paper summarizing selection of this alternative is available on the project website at www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf.

DOT&PF has started Phase II. Environmental Documentation. PDC Inc. Engineers, in conjunction with DOT&PF, is preparing the Environmental Assessment for the project. Please check the project website Current Events page at www.dot.state.ak.us/creg/sewardairport/current_events.shtml for updates.

For more information, contact Barbara Beaton, P.E., Project Manager, DOT&PF, at barbara.beaton@alaska.gov or telephone at 907-269-0617 or Robin Reich, Public Involvement, Solstice Alaska Consulting, Inc. at robin@solsticeak.com or 907-929-5960.

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Solstice AK

From: Brad Snowden <brad@seward.net>
Sent: Wednesday, October 4, 2017 4:10 PM
To: Solstice AK
Subject: Sewards Future
Attachments: Airport Runway.jpg

Don Young told me he would help if the City of Seward would simply send him a letter asking for it.
Brad Snowden

From: Brad Snowden [mailto:brad@seward.net]
Sent: Saturday, October 14, 2017 9:20 PM
To: Beaton, Barbara J (DOT)
Cc: 'Brad Snowden'
Subject: Seward Airport and the future!

Hello Barbara,
I used Paint to copy and past this photo here.
PN&D did this overlay for me years ago.I asked them to put a 6,000 foot runway at "our" airport.
Fine tuning is required of course but...

HERE IS SEWARDS FUTURE!!!

CRUISE SHIP PASSANGERS IN THE SUMMER AND ??? WINTER TOURISIM, CONVENTIONS, MEETING and IMAGINATION IN

THE WINTER

If you find interest in my findings and Alaska Airlines. Princess Cruises and Holland America's response to using Seward just ask!

Thank you

Brad S.

PS; Brad Snowden
Hotel Seward
221 5th Avenue, Seward Alaska

Airport Expansion

November 1, 2004
Report to the people of Seward

On Friday, October 29, 2004, at 2:00 pm, a meeting was held at Alaska Airlines Corporate Office, Seattle, WA. In attendance at the meeting were:

Don Garvett, Vice President, Alaska Airlnes
Charlie Ball, President Princess Tours
David E Beagle, Vice President Holland America
Brad Walker, Director Leisure Marketing, Alaska Airlines

Brad Snowden, Owner/Manager Hotel Seward

Telephonic Attendees:

Vanta Shafer, Seward Mayor
Phil Shealy, Seward City Manager
Brad Garland, FAA/Airports
Mark Mayo, Transportation Planner, State Of Alaska
Todd VanHove, Area Planner, DOT, State Of Alaska Airport Design

Subject discussed was the potential of Alaska Airlines flying their jets and landing in Seward, for the purpose of transporting tour ship passangers.

- Don Garvett stated that Alaska Airlines would haul passengers out of Seward if there were an airport that could handle their jets.
- Chralie Ball and Dave Beagle would use that airport to haul their passengers if the cost was comparable to Anchorage or less.
- Brad Garland expressed support.
- Vanta Shafer felt that Seward would support this airport.
- Todd Vanhove stated that there would be some difficulties.
  a) The physical characteristics of the airport.
  b) Establishing the importance of the expansion to rise up on the State's list of airport projects.

In conclusion, I find that if Seward would like to see continued cruise ship dockings in Seward. And numerous possibilities that it would be in Seward's best interest to pursue this further.

Sincerely,

Brad Snowden

From:	Solstice AK
Sent:	Friday, November 10, 2017 9:36 AM
To:	brad@seward.net
Cc:	Beaton, Barbara J (DOT)
Subject:	RE: Seward Airport and the future!

Dear Mr. Snowden:

Thank you for your comments regarding the Department of Transportation and Public Facilities (DOT&PF) Seward Airport Improvement Project on October 4 and October 14. You have been added to the project mailing list, and your comments have been recorded and passed along to the project team.

We understand that you support construction of a longer runway and appreciate your vision looking towards Seward's future. At this time, Alternative 2.2, upgrading Runway 16/34 from an A-I facility to a B-II facility, has been selected to move forward into the environmental document phase of the project. The Position Paper online at www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf summarizes the selection of the design alternative.

With that said, please be aware that extensive research and interviews were conducted during the scoping process for this project, including options to extend the runway. Alternative 3, close Runway 13-31 and Reconstruct Runway 16-34 to a runway length of 4,000 feet, was developed based upon potential economic activity. Commercial airlines were contacted during the initial scoping process for this project, and interviews and research indicated that there is not currently sufficient demand for a longer runway.

Without sufficient demand, the Federal Aviation Administration, the federal agency funding the majority of the Seward Airport Improvements Project, indicated that a "build it, and they will come" scenario would not meet this project's needs. Without funding, this Alternative was dropped from further consideration. However, the new Airport Layout Plan will include this option, and development of Alternative 2.2 will not preclude a future runway extension. See the Seward Airport Improvements Scoping Report online at www.dot.state.ak.us/creg/sewardairport/documents.shtml for additional information about the scoping process and the research, interviews, and consultations that occurred.

While Alternative 2.2 has been selected to move forward at this time, your comments have been documented. Please respond if you would like additional information.

Thank you.

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From: Brad Snowden <brad@seward.net>
Sent: Sunday, November 12, 2017 3:43 AM
To: Solstice AK
Subject: RE: Seward Airport and the future!

Having read the below I find myself remembering an Airport I built on an Island just a short time ago that you folks did that meets non of the criteria you listed. Perhaps you remember it? It was for a village that had a population of what? 89 people. It was built on Akun for Akutan.
Now, with that being said, and with the proper research your office, well funded I might add, would find what I found. In the years I have spent in researching the viability of such an airport for Seward. Some number of years ago, driven by an insatiable appetite to help, in this case, my town and my home. The help I speak of is Seward's economy. I have lived in Seward since 1964. I have seen our town as I have seen a number of towns and cities grow. This growth happens where there is the opportunity for economic development. This opportunity is what provides the jobs that allow us to feed both ourselves and our families. It allows us to provide a roof over our heads. It allows us to put clothes on both, our backs, and also our families. Quite frankly, without those opportunities one would have to ask, "Where would we be?" Imagine, if you will. Where would you and your department be? Where would the money come from? As we know, if it wasn't for those that had foresight to see, given the tremendous size of our state and the meager population, coupled with the high cost associated with the often remoteness of many communities that we Alaskans could not afford the cost of providing those essential ingredients that are needed. Among these ingrediants are a transportation link that is appropriate to facilitate meeting the highest and best use in order to take advantage of the many locations and their possibilities.
Seward has suffered, like so many communities in our state with low employment and high cost in the winter time. Through the years I have often heard and experienced (over 50 years now) these winters.
The possibilities are endless with the building of an Airport of the size I have forwarded to you.
I can and will at a later date, provide some of those possibilities. For now I simply want to respond to your letter with what I took as condescending although I doubt that there was any intent in that direction. My response is motivated more by my love for Seward and knowing the importance of our desperate need for a robust winter.
If one takes a look at the Air transportation needs in Seward it probably can be easily overlooked the incredibly large demand for larger jets to bring passengers that arrive and depart from Seward all Summer long. Because, in it's need to be answered the need does not become as apparent as it truly is.
Early on in it's infancy and remember, I was here, there were many "work around" that were done to help facilitate a "new" business to Alaska! That business was and is Cruise Ship.
While there was need for a dock large enough to dock these ships, the cost and bureaucratic hurdles were more difficult to overcome than to make do with what we could. So...rather than building a new dock, located in a more desirable location for the customer who, let us remember, what that industry is about. The work around solve was to use the freight dock in an industrial area. This is not the best location but it has served itself well. A conversion has been made of The warehouse in order to facilitate the needs of those passengers and services of those ships.
In order to get those passengers both in and out of town, couches were provided to transport these people to the nearest airport, Anchorage. This puts more pressure on an already over burdened highway with the seasonally natural high demand. All the ramifications of what that does is almost worthy of a full page addressing them but simply, it is not safe!
When they were asked in a meeting that was set up over 10 years ago, in Seattle, !. Princess "Would you use an airport that landed Alaska Airlines 737's the answer was yes! " 2. Holland America, "Would you use an Airport that landed Alaska Airlines 737's,? The answer was Yes!". 3. Alaska Airlines, "Would you fly in and carry those passengers if there was an airport large enough to land your planes and the answer was yes!".
Now... When the right answer is so obvious why is it that we need to do the old "political process of Politics as usual?" This is the right thing. In every direction I have looked through the years the answer has come back YES!
Times have changed. That wich we did 20 years ago as a work around has com to "Now is the time to build for today".

As I continue to work on all the avenues that one can think of and build a consensuses of the INFLUENTIAL, can your office please take another look at Seward. You do not have to set up a meeting in Seattle like I did. You can simply pick up the phone and call Alaska Airlines CEO, Princess President, Charlie Ball and The President of Holland America.
Thank you for your courteous response and opening the door to receive this response. I believe that if you give this the thought that I have you will reach the same conclusion I have. There is no other reasonable conclusion based on the criteria that I have provided.
Again, I thank you

Brad Snowden
Alaskan and Seward resident
PO Box 670
Seward, Alaska 99664
brad@seward.net
bradsnowdenalaska@gmail.com
907-310-7610

From: Solstice AK
Sent: Thursday, December 7, 2017 2:10 PM
To: Brad Snowden
Subject: RE: Seward Airport and the future!

Mr. Snowden:

Thank you for your further comments. They have been added to the project record and shared with the project team.

Thank you.

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Email Received from Jerry Olive on October 5, 2017

---------- Forwarded message ----------
From: <jolive@gci.net>

comments2	Jerry Olive
name	Jerry Olive
satisfied	add to list
comments	Please let me know when there will be public hearings on this project.Extending the short airstrip in Seward will permanently demolish one of the most beautiful estuaries in this area. You will displace thousands of migrating birds, including a mating and nesting area for Arctic terns! Please consider putting the $3,000,000 into repair the existing long airstrip in Seward. PleaseI personally invite you to go with me on a trip around the small lakes and beach that this project will effect. I'm serious, I personally invite you to go with me on a guided walk in the area that is proposed to be destroyed. I wait for your acceptance of this invitation.Thank you!Jerry OliveSeward
zipcode	99664
comments1	
email	jolive@gci.net

From: Solstice AK
Sent: Thursday, December 7, 2017 1:30 PM
To: jolive@gci.net
Subject: RE: Seward Airport Improvements feedback

Hello Mr. Olive:

Thank you for your email regarding the Department of Transportation and Public Facilities (DOT&PF) Seward Airport Improvement Project and your invitation to walk the airport site. Your comments have been documented. We understand that you have environmental impact concerns regarding Alternative 2.2, upgrading Runway 16/34 from an A-I facility to a B-II facility, which has been selected to move forward into the environmental document phase of the project.

The DOT&PF recognizes the gravity of this project and its potential impacts and opportunities for improved safety and services in Seward. Recognizing the safety and service needs at hand, DOT&PF chose a Seward Airport Improvement Project alternative that is reasonable and responsibly meets the project needs. A summary of the design alternative selection is on the project website (see www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf), which provides context regarding how Alternative 2.2 was selected. Responses to the specific points raised in your email are below.

The next public meeting will be scheduled once the draft Environmental Assessment is released, which will likely be summer of 2018.

The proximity of this project to important habitats and wildlife has necessitated consultations with regulatory agencies including the U.S. Fish and Wildlife Service (USFWS). DOT&PF believes that Alternative 2.2 is the alternative that satisfies the project's purpose and need while providing the least environmental impact. The USFWS, the federal agency with statutory authority that is responsible for enforcing the Migratory Bird Treaty Act and other environmental laws, did not express concerns about bird impacts with regard to Alternative 2.2. We are currently using bird species sightings, documentation, and habitat information to determine potential impacts to birds. If the analysis indicates there are considerable impacts to bird habitat as a result of project construction, we will provide mitigation to offset any impacts.

The extensive research completed to date has included many airport site visits and onsite field studies. While we appreciate your offer to tour the project area, we must decline at this time.

Thank you.

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From: gci <jolive@gci.net>
Sent: Sunday, December 10, 2017 9:33 AM
To: Solstice AK
Subject: Re: Seward Airport Improvements feedback

I would like to know specifically what the U.S. Fish and Wildlife Service had to say concerning this project. Thank you. Can you also please provide specific names of people from this agency whom I may contact for they stand on this issue. Thanks

From: Solstice AK
Sent: Monday, February 12, 2018 4:21 PM
To: jolive@gci.net
Subject: RE: Seward Airport Improvements feedback

Thank you for the questions.

Following the January 24, 2017 Alaska Department of Transportation and Public Facilities agency scoping letter (that identified the project's purpose and need, described project alternatives, detailed site conditions, identified preliminary environmental research, and requested agency scoping comments), an agency scoping meeting was held on March 2, 2017. At this meeting, USFWS noted the need to identify active eagle nests in the environmental document and emphasized the importance of considering impacts of the project on nests. USFWS provided written scoping comments on March 23, 2017 that commented that the project is following the recommended time period for avoiding land disturbance and vegetative clearing for nesting migratory species and is coordinating with USFWS for bald eagle nests, thus USFWS had no further comment. The USFWS contact who attended the March 2, 2017 meeting and provided comment on March 23, 2017 is Leah Kenney, Biologist, (USFWS, Fisheries and Ecological Services, Anchorage Fish and Wildlife Conservation Office). Note that Doug Cooper, Branch Chief, (USFWS, Fisheries and Ecological Services, Anchorage Fish and Wildlife Conservation Office), was also invited to the meeting, expressed interest in the project, and received project information but was unable to attend the agency scoping meeting. No other comments were provided from USFWS other than those summarized from Ms. Kenney.

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On Thursday, October 12, 2017, 2:56:08 PM AKDT, Boydston, Mark A (DOT) <mark.boydston@alaska.gov> wrote:

Tasha,

I am working on the draft Environmental Assessment for the proposed Seward Airport Improvements project (project # 54857). In your June 2, 2016 email (attached) which you cc'd Robin Reich at Solstice (who forwarded it to me). You mention an Arctic tern nesting colony apparently on airport property. Do you have Lat/long coordinates for the nesting colony?

Do the terns tend to nest in the same area each year or is the nesting location spatially separated over seasons? The eBird has one lat/long for all observations so I cannot tell where the nesting colony might be.

Mark Boydston, Environmental Impact Analyst II

Alaska Dept. of Transportation and Public Facilities

Preliminary Design and Environmental Section
P.O. Box 196900, Anchorage, Alaska 99519-6900

Phone 907.269.0524| Fax 907.243.6927

From: Tasha DiMarzio [mailto:tjbluebird@yahoo.com]
Sent: Friday, October 13, 2017 5:32 PM
To: Boydston, Mark A (DOT) <mark.boydston@alaska.gov>
Cc: Robin Reich <robin@solsticeak.com>
Subject: Re: Seward Airport Improvements project /

Hi Mark,
Thank you for contacting me.

The Arctic Terns that nest on the beach rye dune on the south side of the pond nest in the same area every year. There have been two years that I know of, that there has been major disturbances to the colony and people thought that they may move to another location or re-nest; this colony does not do that.
They are easily disturbed and do not adapt to changes.
GPS coordinates are as follows:
Main Arctic Tern Colony Critical Habitat :
60 728.58 N
149 2513.72W

Sub-Colony 1
60 727.30 N
149 2443.58 W

Sub-Colony 2
60 727.57 N
149 2427.87 W

I have attached a map of the location of the main colony, there are also 2 areas that I am calling "sub-colonies" that small numbers of terns sporadically nest in but their nest are not in ideal habitat and seem to fail each year. The main colony area is very important as it is the only adequate habitat in the greater Seward/ Kenai Peninsula area for Arctic Terns.

I also read the 2008 Environmental Assessment Plan and in section 3.4.4 Wildlife Hazards, this chapter failed to address that this stream and pond area is a Pink and Chum salmon spawning area, Bears and River otters, coyotes fish in the ponds and creeks, and many species of birds nest in this area besides Arctic Terns.

Birds that have or currently nest in the airport pond area are: Northern Pintail, Gadwall, Mallard, American Wigeon, Green-winged Teal, Savanna Sparrow, Lapland Longspur, Semi-palmated Plovers, Least Sandpipers, Common Snipe, Greater Yellowlegs, warblers, Great Horned Owl, and Bald Eagle

Not only is this area and important habitat for wildlife but it is also a very important migration stop over for many species of birds from around the world of which their numbers are in decline.
Banded Dusky Canada Geese have been spotted here along with a Banded/Flagged Bar-Tailed Godwit from New Zealand and Flagged and Banded Western Sandpiper from Chile!

Many species of shorebirds utilize this area along with Sandhill Cranes this past spring there was a fallout (when weather conditions drastically change during migration forcing birds to be grounded) over 1100 Sandhill Cranes, Hudsonian Godwits, Bar-tailed Godwits, Cackling Geese, Greater white-fronted, Whimbrel, Black-bellied plovers, Snow Geese and any species of songbirds were seen at the pond area. If this land was not their these birds most likely would have perished as some of the birds remained grounded for up to seven days.

There is also a large family group of Trumpeter Swans that nest nearby and each year as soon as their cygnets can fly they move them to the airport ponds to feed and continue to grow.

It is also key to know that these birds can be a major hazard to aircraft. If a runway is built in the only suitable habitat in this migration corridor birds will have no where to land to refuel and will become large displace flying hazards.

On top of the wildlife concerns is the hydrology of the area. Winter and summer are very different in this area; flooding, extreme high tides, surf and ice build up push water past the ponds, overflowing the sloughs and southern field each winter. A run way that extends out into and past the pond would be destroyed in a matter of years. A through environmental assessment needs to be conducted in the each of the seasons especially the Spring and Winter.

I am surprised at how few public comments were submitted. I believe people have not been properly informed of this project and its implications. I would speculate that more recreational users visit the airport, ponds and beaches then pilots, and if the hunters, dog walkers, birders, beach combers ect new about this project ("Airport Improvements" vs Habitat loss and recreational area loss) you would have more input.

Its really is a special area to "Sewardites" and other Alaskans, it is the only remaining inter-tidal wetlands in Resurrection Bay.

If there is any other information I can give you I will be happy to help.
Thank you for reading my response and taking the time to research this project.

Tasha

Stakeholder Working Group Meeting #4
Correspondence and Documentation

[This page intentionally left blank.]

From: Robin Reich
Sent: Friday, September 15, 2017 10:23 AM
To: bca.alaska@gmail.com; mike.edelmann@faa.gov; terryc@akrr.com; rlong@cityofseward.net; kubitzj@akrr.com; spresley@kpb.us; sean.montgomery@alaska.gov; BearLakePilot@gmail.com; dennis.perry@alaska.gov; hendricksonc@akrr.com
Cc: Olivia Cohn; barbara.beaton@alaska.gov; RoyceConlon@pdceng.com; joy.vaughn@alaska.gov; kevin.knotek@alaska.gov; Angela Smith; Erica Betts
Subject: October 4, 1:00 PM Seward Airport Improvements Projects Telcon

Good morning-
Thank you for responding to the Seward Airport Improvements Project Stakeholder Working Group (SWG) Doodle poll.

Please save the date for the Seward Airport Improvements Project SWG teleconference meeting that will take place on: Monday, October 2, 2017 at 1:00 p.m.

Conference Call Line: 800-315-6338
Access Code: 58571

The status of the Seward Airport Improvements Project, including alternative selection and future tasks, will be discussed. An agenda and meeting materials are forthcoming.

Thank you.

Robin Reich, President
Environmental Planner

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Cell: 907.903.0597

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From: Olivia Cohn
Sent: Friday, September 29, 2017 10:36 AM
To: bca.alaska@gmail.com; mike.edelmann@faa.gov; terryc@akrr.com; rlong@cityofseward.net; kubitzj@akrr.com; spresley@kpb.us; sean.montgomery@alaska.gov; BearLakePilot@gmail.com; dennis.perry@alaska.gov; hendricksonc@akrr.com
Cc: barbara.beaton@alaska.gov; RoyceConlon@pdceng.com; joy.vaughn@alaska.gov; kevin.knotek@alaska.gov; Angela Smith; Erica Betts; Robin Reich
Subject: Reminder: October 2, 1:00 PM Seward Airport Improvement Project Telcon
Attachments: SWGMtg_4_AgendaforOct2,2017.pdf; SWG Mtg 3_04-20-2016_MtgNotes_07262016.pdf

Good morning:

We look forward to the Seward Airport Improvement Project Stakeholder Working Group (SWG) teleconference meeting on Monday, October 2, 2017 at 1:00 p.m. ***At that time, call 800-315-6338, and use access code 58571.***

Attached, please find a meeting agenda as well as April 2017 SWG meeting #3 notes.

In advance of this call, please take time to review the Seward Airport Improvement Scoping Report, which is now online here: http://www.dot.state.ak.us/creg/sewardairport/documents.shtml.

Prior to the meeting, you will also receive a copy of the Seward Airport Improvement Alternatives Position Paper.

Thank you.

MEMORANDUM

Date: October 2, 2017

To: Barbara Beaton, Project Manager
Department of Transportation and Public Facilities (DOT&PF)

From: Robin Reich and Olivia Cohn (Solstice Alaska Consulting, Inc) with input and review from Angela Smith and Royce Conlon (PDC Engineers, Inc.)

Subject: Summary of 10/02/2017 Stakeholder Working Group Meeting #4 – Seward Airport Improvement Project (#Z548570000)

This document provides a summary of the fourth Seward Airport Improvement Project Stakeholder Working Group (SWG) meeting held on October 2, 2017, which was held via teleconference. The SWG meeting began at 1:00 pm and ended at approximately 2:30 pm.

Materials distributed in advance of the meeting included the meeting agenda (Figure 1); Scoping Report; Alternatives Position Paper; and April 20, 2016 SWG Meeting #3 notes. These items were distributed via email (project website link and attachments) on September 29, 2017. *Note: post-meeting follow-up information is provided in brackets throughout this document.*

Introductions and Purpose

Robin Reich, Solstice Alaska Consulting, Inc (SolsticeAK), began the meeting with a welcome and introductions. Table 1 lists the meeting participants.

Table 1. Meeting Participants (via teleconference)

SWG Membership	Name
Alaska Railroad Corporation (ARRC)	Jim Kubitz, Brian Lindamood, Dwayne Atwood
Alaska Wing Civil Air Patrol	Brandon Anderson
City of Seward	Invited; [*Ron Long provided input through a post-mtg. telephone call (see attached telephone log)*]
Federal Aviation Administration (FAA)	Mike Edelmann
Kenai Peninsula Borough Seward/Bear Creek Flood Service Area, Water Resource Manager	Stephanie Presley
Lease Holder, General Aviation Pilot, Community Member	Dennis Perry
Alaska Department of Transportation and Public Facilities (DOT&PF) Maintenance	Sean Montgomery
DOT&PF Project Management, Central Region Design and Engineering	Barbara Beaton, P.E., Project Manager, Joy Vaughn
DOT&PF, Peninsula District	Kevin Knotek
Consultant: PDC Engineers, Inc.	Royce Conlon, P.E., Consultant Team Project Manager, Angela Smith, P.E., Project Engineer
Consultant: SolsticeAK	Robin Reich, Olivia Cohn

Following introductions, Ms. Reich reminded participants that this was the fourth SWG meeting and articulated the meeting's purpose: to regroup on the process and review alternatives moving forward. Figure 1 presents the agenda, which documents the meeting's format.

Figure 1. SWG Meeting #4 Agenda and Overview

SEWARD AIRPORT IMPROVEMENTS PROJECT (#54857)
Stakeholder Working Group (SWG) Meeting #4
Monday, October 2, 2017 @ 1:00 pm

Meeting Agenda and Overview

- **Introductions and Purpose of the Meeting**
  (Robin Reich, Solstice Alaska Consulting) (1:00 – 1:10 pm)
- **Recap. of the Project**
  (Barbara Beaton, DOT Project Manager) (1:10 – 1:20 pm)
- **Project Alternatives Position Paper**
  (Barbara Beaton) (1:20 – 1:50 pm)
- **Status of Project Activities and Next Steps**
  (Royce Conlon, P.E., PDC Engineers) (1:50 – 2:10 pm)
- **Adjourn**
  (2:15 pm)

Pre-meeting packet: Alternatives Position Paper, SWG meeting #3 notes

Barbara Beaton, DOT&PF, reiterated the meeting welcome saying that she would provide a project recap., introduce the position paper, and that Royce Conlon, PDC Engineers, would summarize the project status and next steps.

Recap. of the Project

Ms. Beaton reviewed progress to date, noting that the planning process included the following.

- Reviewing alternatives from the 2008 *Seward Airport Master Plan and Environmental Assessment* [online at www.dot.state.ak.us/creg/sewardairport/documents.shtml].

- DOT&PF consultations with a hydrologist following continued flooding events.
- An aviation activity and forecast, which included extensive interviews.
- Refinement and carrying forward three alternatives that meet existing and future aircraft operations and were designed to meet Federal Aviation Administration (FAA) guidance.
    - The three alternatives fit within the primary constraints of the geographic locations of the river, bay, railroad, and highway.
    - FAA is providing approximately 94 percent (%) of the project funding, which impacts the need to follow FAA guidelines.
- Extensive research and interviews, that identified that the main runway (RW) was more than sufficient for meeting airport operations' needs.
- A flood forecast, which included determining how to raise the RW to meet design.
    - With a two-foot freeboard, flooding was modeled at three feet to look at impacts to surrounding properties.
- Creation of a Public Involvement Plan.
    - Public and stakeholder insight was gathered through two public meetings and three SWG meetings. The input from these meetings is documented in the scoping report.

The planning process is documented in detail in the Scoping Report, which is now online [<www.dot.state.ak.us/creg/sewardairport/documents.shtml>]. To simplify documentation of the process for selecting the design alternative in a readable format, an alternatives position paper was also written, [which was made available online after the meeting <www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf>]. This document summarizes the project and shows how feedback was acknowledged and considered.

Project Alternatives Position Paper

Ms. Beaton introduced the position paper. She highlighted the following points that are explained further in the position paper.

- The Resurrection River floodway continues to move, and the main channel is now adjacent to the main RW.
- The river continues to flood and overtop the main RW.
- The main RW's safe weight changed, as determined from a thumping test, and it continues to decline in capacity.
- The preferred alternative design would satisfy all general aviation aircraft operations, including the B200 aircraft, which was used as the aircraft for developing design.
- The project could not justify enough demand for a long RW. The City expressed interest in the long RW; however, there are currently not more than 500 operations per year. More than 500 operations per year are needed to show need for the longer RW.
- During interviews, commercial operators said they needed increased demand, which is not likely, and a better approach to the airport to justify regular flights into Seward.
    - A non-circle public approach is not feasible with the existing terrain; a private approach could be possible but would require additional equipment in the airplane and additional equipment training.

- An alternatives analysis detailed the three alternatives: Alternative 1.1, reconstruct RW 13/31 (main RW) and raise it above the 100-year flood level; Alternative 2.2, upgrade RW 16/34 (crosswind RW) from an A-I facility to a B-II facility; and Alternative 3, close RW 13-31 and reconstruct RW 16-34.
    - Per the scoring criteria for this process, it was determined that Alternative 2.2 had more advantages and less disadvantages than the other alternatives.
    - The longer RW was kept as the ultimate condition in the airport master plan.
- Impacts from flooding are a project concern.
    - Alternative 1.1 would require fill in the regulatory floodway that would significantly raise the base flood elevation (BFE) for a 100-year flood event up to four feet in some locations. Raising the BFE would: affect about 160 acres more than Alternative 2.2; require a FIRM (flood insurance rate map) revision; require undergoing the LOMR (letter of map revision) process; and increase flood insurance rates for those who would be impacted.
    - Alternative 2.2 does not have as many flood impacts. It is a better fit than Alternative 1.1 and would impact about 22 acres, much less than the area potentially impacted by Alternative 1.1.
- Environmental impacts are a project concern.
    - Alternative 1.1 has impacts to the River's navigability and fish habitat.
    - Alaska Department of Fish & Game (ADF&G) had stated it prefers Alternative 2.2.
    - U.S. Army Corps of Engineers (USACE) must permit the least environmentally-damaging alternative and had stated preference for Alternative 2.2.
- Last winter, airport maintenance was difficult due to budget cuts.
    - Although most DOT&PF funding is federal; maintenance work is state-funded, and more budget cuts are expected.
    - The main RW by the river could have more flooding than Alternative 2.2, which is not within flooding on the FIRM map. Alternative 2.2 would require less maintenance.
- The project studied wind coverage at the airport.
    - The crosswind RW orientation wind coverage is preferred aside from occasional winter winds when the long RW is preferable.
    - FAA requires 95% wind coverage; Alternative 2.2 has more than sufficient wind coverage.
    - Tour operators were interviewed regarding wind. They primarily operate during summer. Of the two operators that operate during winter, one did not have winter wind issues, and the other sometimes has to wait out winter winds. Medivac providers said that they send an ambulance from Anchorage. Seward's hospital is available for emergencies.
- Runway Protection Zone (RPZ) issues are a safety concern.
    - For Alternative 1.1, the Alaska Railroad and Seward Highway are within the RPZ, creating a safety hazard.
    - For Alternative 2.2, shifting the RW and RPZ removes this danger, and the Seward Highway and Railroad penetrate the far corner of the RPZ and is much safer.

- Under Alternative 2.2, the main RW would be available during construction work on the shorter RW; therefore, medivac service would remain available while the project is implemented.

Ms. Beaton summarized the position paper conclusion [online at www.dot.state.ak.us/creg/sewardairport/documents/Position-Paper.pdf] describing how significant research was completed resulting in the development of three alternatives, and ultimately resulting in the selection of Alternative 2.2 as the preferred alternative. An Environmental Assessment is now being prepared.

Ms. Beaton offered an opportunity for questions and indicated that follow-up questions and comments may be directed to her by telephone [907-269-0617] and email [barbara.beaton@alaska.gov]. Ms. Conlon offered the floor for questions before she summarized next steps.

SWG questions/comments

Glide slope intersection ARRC property: Jim Kubitz, ARRC asked whether the glide slope of Alternative 2.2 intersects ARRC property. Mr. Kubitz further noted that ARRC may complete a project that may utilize ARRC property to keep river sedimentation out of the property.

- Ms. Conlon noted that there should be no public gathering in this area and said that Brian Lindamood was given the airspace alternatives that detail contours. Ms. Beaton noted that these documents are not final but are current and are very close to final.

Long RW potential: Dennis Perry asked if the RW ends up at 4,000 ft, would the railroad projects be within the RPZ, and if so, would that prevent the extension?

- Ms. Beaton said it would not really prevent extension because of the airport contours.

Taxiway length: Mr. Perry further asked if, under Alternative 2.2, the taxiway would extend to the end of the RW, and Ms. Conlon responded that no, it would be in the first one-third of the RW and not at the end.

- Mr. Perry expressed concerned with RW back-taxiing safety; Ms. Conlon noted that this is not a concern because of Seward airport traffic. She commented that a parallel taxiway usually makes sense for airports with more than 20,000 operations.

South/Bear Lake access: Mr. Perry commented that he flies out of Bear Lake in the summer and winters his float plane at his hangar at the Seward Airport. When he has to launch his float plane at the south end of the airport, he must back downward to avoid water. He asked if this area will be impacted and whether float plane access will be maintained.

- Ms. Beaton answered that there will be an access road to tidelands, but there would be a new design. Mr. Perry noted that he is concerned with the length.

Corporate pilot operations: Mr. Perry commented that the project does not see the traffic from corporate pilots because corporate pilots must plan based on the existing approach and access.

He is working on an approach with AOPA and wants a future opportunity to increase the RW length to 4,000 ft.

- Ms. Beaton said that the intention is to maintain an opportunity to increase the RW length to 4,000 ft when demand increases to meet FAA requirements, and it will be shown in the updated airport layout plan.
- Mr. Perry further commented that, based on a previous business example, airplanes can depart with average precision instruments. Getting into Seward requires more precision. When pilots were stationed in Seward and flights originated there, they were able to fly more often in the morning. When pilots were pulled out of Seward, ridership was significant, but when it changed, the utilization and demand decreased. Ms. Beaton clarified that the project must plan by the lack of demand information that is available.

Next Steps

Ms. Conlon noted that the next steps will include the following.

- Alternative 2.2 will be carried forward as the preferred build alternative. An impacts analysis will be conducted for Alternative 2.2 versus a No Build Alternative, which would not meet the project's purpose and need. Natural and environmental impacts, including impacts to wetlands, will be assessed.
- To expedite collecting public input, the environmental document will be released in sections to the SWG. The first chapters will be available in approximately one month. The project team aims to complete the environmental document by August of 2018.
- The project will undergo the permitting process concurrently with design development.
- The project will require a field survey and geotechnical work. The aerial survey was previously completed.
- The project is working through erosion protection.
- The project will undergo a Right-of-Way acquisition and mapping process, which will take approximately eight months and could impact the project schedule.
- The project is estimated to go to bid in April 2019. The property acquisition process could change this schedule. During this process, the project team will work with FAA to redesign the circling approach and move visual approach slope indicators (VASIs) from the second RW to the new RW.
- A public meeting allowing comments from the SWG and public will be conducted once the environmental document draft is available.
- An environmental document is needed before property may be acquired.
- The airport access road to the highway may change as part of the railroad permit effort.

The floor was opened for additional questions and comments, and none were given. It was noted that community members expressed interest in pursuing the long RW, and the process to select the best preferred alternative for the airport has been long and detailed.

Adjourn

The meeting concluded at approximately 2:30 p.m.

TELEPHONE CONVERSATION LOG

Date: October 3, 2017

Project: Seward Airport Improvement Project

Subject: Follow-Up to Stakeholder Working Group October 2, 2017 Meeting Comments/Questions After Not Being Available to Attend Meeting

Call From: Ron Long, City of Seward

Call To: Barbara Beaton, Department of Transportation and Public Facilities (DOT&PF)

Conversation Notes:

DOT&PF spoke with Mr. Long, who wanted to let DOT&PF know that the City of Seward is still interested in the 4,000-foot (ft) runway option.

Mr. Long is looking at generating funding for the option. DOT&PF relayed that the project would need to have this information (regarding availability of funding) very soon. DOT&PF discussed reaching the 4,000-ft option at some point in the future.

Ms. Beaton explained that the project would look at obtaining tidelands interest to accommodate the runway extension in the future and that the new airport layout plan (ALP) would show the 4,000-ft runway as an ultimate condition.

Ms. Beaton also explained that DOT&PF had discussed the issue with the Federal Emergency Management Agency as it would result in a Conditional Letter of Map Revision/Letter of Map Revision action to adjust the location of the VE Zone. Mr. Long confirmed he understood and wanted to verify.

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Agency Scoping
Comments and Correspondence

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From: Boydston, Mark A (DOT)
Sent: Tuesday, January 24, 2017 11:00 AM
To: ak_fisheries@fws.gov; erin_knoll@fws.gov; Moore, Eric A (DNR); DNR, Parks OHA Review Compliance (DNR sponsored); Ashton, William S (DEC); Lidren, Grant M (DEC); Heil, Cynthia L (DEC); Litchfield, Virginia P (DFG); Smith, Jimmy C (CED); Lidren, Grant M (DEC); Davis, Tammy J (DFG); Selinger, Jeff S (DFG); Kubitzj@akrr.com; Brian Lindamood; Hcd.Anchorage@noaa.gov; jeanne.hanson@noaa.gov; dglenz@cityofseward.net; cepoa-rd-kenai@usace.army.mil; MBest@kpb.us; bharris@kpb.us; ncarver@kpb.us; knoyes@kpb.us; tdearlove@kpb.us
Cc: Elliott, Brian A (DOT); Beaton, Barbara J (DOT); ak-airport-env@faa.gov
Subject: Seward Airport Improvements / Agency scoping letter

To All:

The Alaska Department of Transportation and Public Facilities Central Region is requesting comments on the proposed Seward Airport Improvements project. See the attached Agency Scoping letter, Preliminary Environmental Research and Figures 1 through 8. Comments are due no later than February 24, 2017.

Mark Boydston, Environmental Impact Analyst II
Alaska Dept. of Transportation and Public Facilities
Preliminary Design and Environmental Section
P.O. Box 196900, Anchorage, Alaska 99519-6900
Phone 907.269.0524| Fax 907.243.6927

THE STATE
of ALASKA

GOVERNOR BILL WALKER

**Department of Transportation
and Public Facilities**

DESIGN & ENGINEERING SERVICES
PRELIMINARY DESIGN & ENVIRONMENTAL

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473

January 24, 2017

Project: Seward Airport Improvements
Project No.: TBD / Z548570000

Re: Request for scoping comments

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA), is soliciting comments and information on a proposed project which seeks to upgrade airport facilities as well as protect the airport from further damage caused by recurrent flooding. The proposed project is located within Section(s) 34-35, T1N, R1W and Sections 2-3, T1S., R1W, on USGS Quad Map Seward A-7, Seward Meridian; Latitude 60.1307ºN, Longitude -149.4188ºW, in Seward, Alaska (Figure 1).

Purpose and Need

The Seward Airport is located within the floodplain of the Resurrection River; portions of the airport are within the defined Floodway. The main runway (R/W 13/31) is located adjacent to the river and as a result, has been overtopped 18 times in the last 5 years (2011-2016), resulting in damage to all the airport facilities. Erosion from the river and regular flood damage require a continued maintenance effort to keep the airport usable, especially R/W 13/31. The purpose of the Seward Airport Improvements Project is to provide a reliable working airport that satisfies current FAA design standards for an Aircraft Design Group (ADG) II facility and that also conforms to the state's requirements for a Community Class Airport. These improvements should meet the near term aviation demands as well as plan for future demand. Specifically the airport needs to:

- Maintain a minimum R/W length of 3,300 feet, to accommodate current and near term aircraft including medevac operations.
- Meet the R/W width and taxiway (T/W) dimensional standards of ADG II.
- Construct flood protection to prevent erosion damage from the 100-year flood.
- Provide a minimum of 95% wind coverage for the ADG II aircraft; cross-winds.
- Construct a R/W with sufficient bearing capacity to allow for occasional operations by larger aircraft such as Beech 1900, Dash 8, and small charter type Business jets.
- Provide reliable airport lighting for night operations.
- Mitigate approach obstructions and incompatible RPZ uses to the extent practicable. Accommodate the need for aircraft owners to change out from floats to wheels
- Ensure the airport has sufficient service roads.

Alternatives under Evaluation

Airport Construction

Two build alternatives are under consideration. Both Alternative 1.1 and Alternative 2.2 satisfy the purpose and need outlined above.

Alternative 1.1 would include the following (see Figure 2):

- Reconstruct and raise R/W 13/31 above the 100-year flood level (up to 4 feet).
- Install riprap to protect the embankment. Adjust elevations of R/W 16/34 and T/Ws B and C to match the new R/W 13/31 elevation.
- Eliminate or reconfigure T/Ws A, D, and E to comply with new FAA guidance.

Alternative 2.2 would include the following (see Figure 3):

- Close R/W 13/31 and discontinue maintenance.
- Reconstruct and raise R/W 16/34 above the 100-year flood level (less than 1 foot). This includes shifting the R/W east to provide the required R/W and T/W separation.
- Install riprap to protect the embankment from flooding.
- Relocate T/W B and adjust T/W F to match new R/W elevation.
- Eliminate or reconfigure T/Ws A, C, D and E to comply with the new FAA guidance.

Both Alternatives would include the following:

- Repave other airport surfaces as needed.
- Install new airfield lighting and an electrical enclosure building.
- Relocate, repair or replace navigational aids, and markings.
- Construct service roads.
- Install security fencing.
- Property Acquisitions.
- Construct an access road and ramp to accommodate float plane floats to wheel change-outs

Material Site
No material sites are included for evaluation as part of this project. There are commercial material sources available near the project area.

Existing Site Conditions or Facilities

The State of Alaska owns and operates the Seward Airport, which includes a paved main R/W (R/W 13/31), a paved secondary R/W (R/W 16/34), multiple T/Ws, and two aprons. R/W 13/31 is 4,533ft x75ft and R/W 16/34 is 2,289ft x 75ft. The Seward Airport primarily serves the City of Seward and residents in the area between Seward and Moose Pass. Local residents use the airport for travel to Anchorage and Prince William Sound. Tour operators also use the airport as a base for sightseeing tours of Kenai Fjords National Park via airplane and helicopter. There is no scheduled commercial service. The number of operations at the airport is much higher in the summer than in the winter. Although Seward is connected to other communities by rail, road and the marine highway, the airport provides essential access during medical emergency or disaster situations when other access (single rail line and single highway) may be vulnerable.

Most of the Seward Airport is located within the floodplain of the Resurrection River Delta. A significant portion of R/W 13/31 lies within the floodway. The frequency with which R/W 13/31 has been overtopped by the Resurrection River has increased significantly in recent years. These instances were limited initially to the fall, but they are now occurring in the summer as well (June to November). Recent changes in channel morphology have rendered the existing riprap along the eastern side of the R/W inadequate. Without raising this R/W and installing additional erosion protection, overtopping of the R/W will continue and DOT&PF will keep pouring maintenance funds into the airport.

Recent testing of the main R/W embankment shows an insufficient bearing capacity to support large aircraft. Frequent flooding is thought to have contributed to a weakened embankment under the pavement. As a result, use of the R/W has been restricted to small aircraft with a weight of 12,500 lbs or less.

Preliminary Environmental Research

The environmental impacts of the two alternatives are not clearly established at this time so an Environmental Assessment (EA) will be prepared. An EA was completed in 2008 for improvements outlined in the Seward Airport Master Plan. A Finding of No Significant Impacts was issued on July 1, 2008. Since then various factors have delayed long term improvements to the Seward Airport. Due to the lapse of time, increases in the flooding frequency, as well as revisions to environmental regulations and proposed actions, DOT&PF in coordination with the FAA, plan to prepare a new focused EA that will cover changes to the proposed Airport improvements and current environmental conditions in Seward. DOT&PF conducted preliminary research using the most current available data to identify environmental resources within the proposed project vicinity (attached). To ensure that all factors are considered in developing the proposed project, please provide your written comments, recommendations, and the additional requested information to our office no later than February 24, 2017.

If you have any questions on the environmental effects, please contact Mark Boydston, Environmental Impact Analyst, at (907) 269-0524, or via email at mark.boydston@alaska.gov. Questions concerning the engineering aspects of the proposed project can be directed to Barbara Beaton, P.E., Project Manager, at (907) 269-0617 or via email at barbara.beaton@alaska.gov.

Sincerely,

Brian Elliott

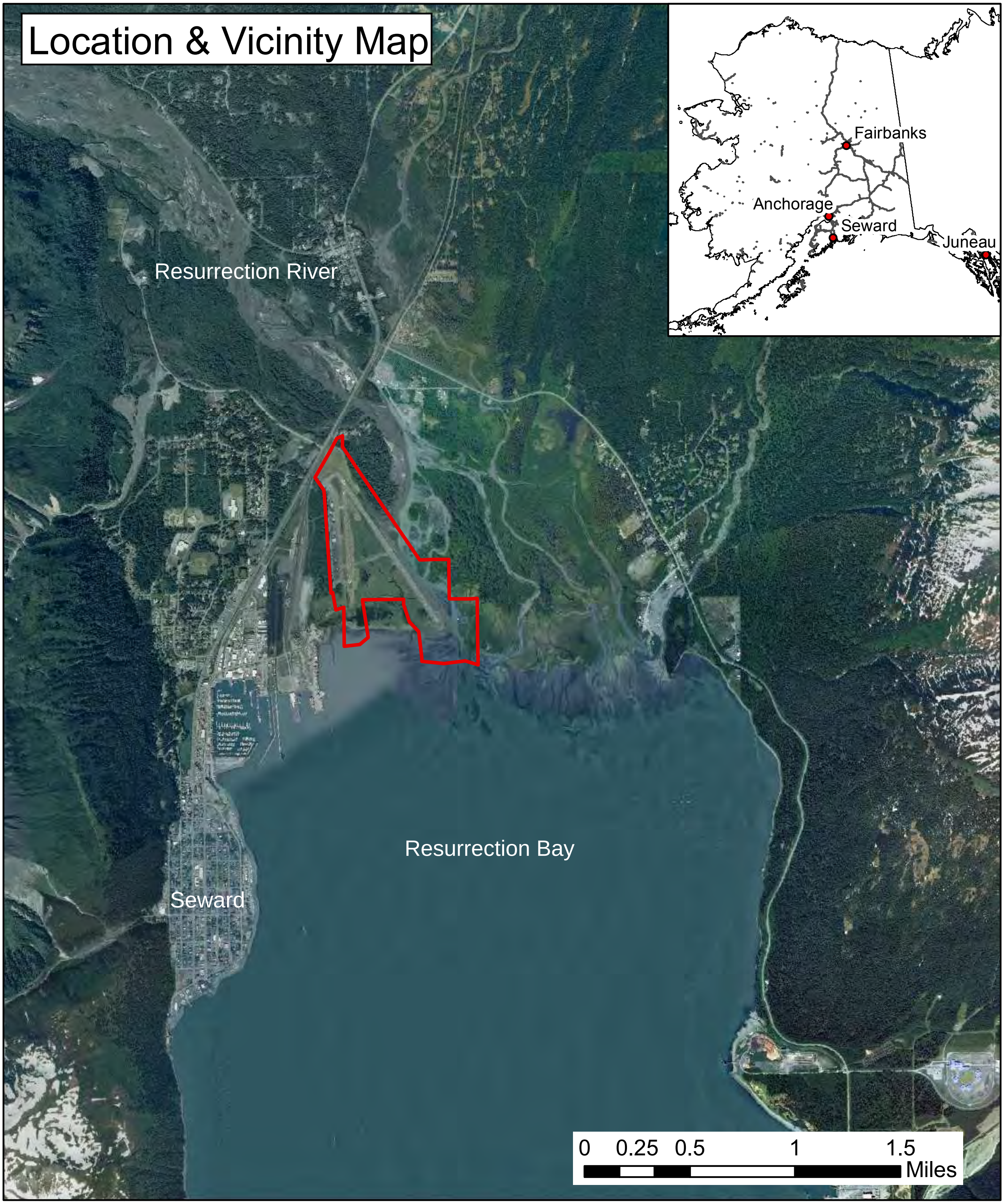
Brian Elliott
Regional Environmental Manager

Attachments:

Figure 1 Location and Vicinity Map
Figure 2 Alternative 1.1 Plan View
Figure 3 Alternative 2.2 Plan View
Figure 4 Existing Conditions -100 year Flood Map
Figure 5 Alternative 1.1 - 100 year Flood Map
Figure 6 Alternative 2.2 - 100 year Flood Map
Figure 7 Alternative 1.1 - 2016 updated wetlands and imagery
Figure 8 Alternative 2.2 - 2016 updated wetlands and imagery
Preliminary Environmental Research

cc: Barbara Beaton, Project Manager, DOT&PF Aviation Design
Leslie Grey, Environmental Program Manager, FAA Alaskan Region, Airports Division

Location & Vicinity Map



Location
Section: 34, 35 - 2, 3
Township: 1N - 1S
Range: 1W
Meridian: Seward
USGS Quad: Seward A-7

Legend

🟥 Seward Airport

State of Alaska
Department of Transportation and Public Facilities
Central Region
Seward Airport Improvements

Date: 12/12/16 Figure: 1

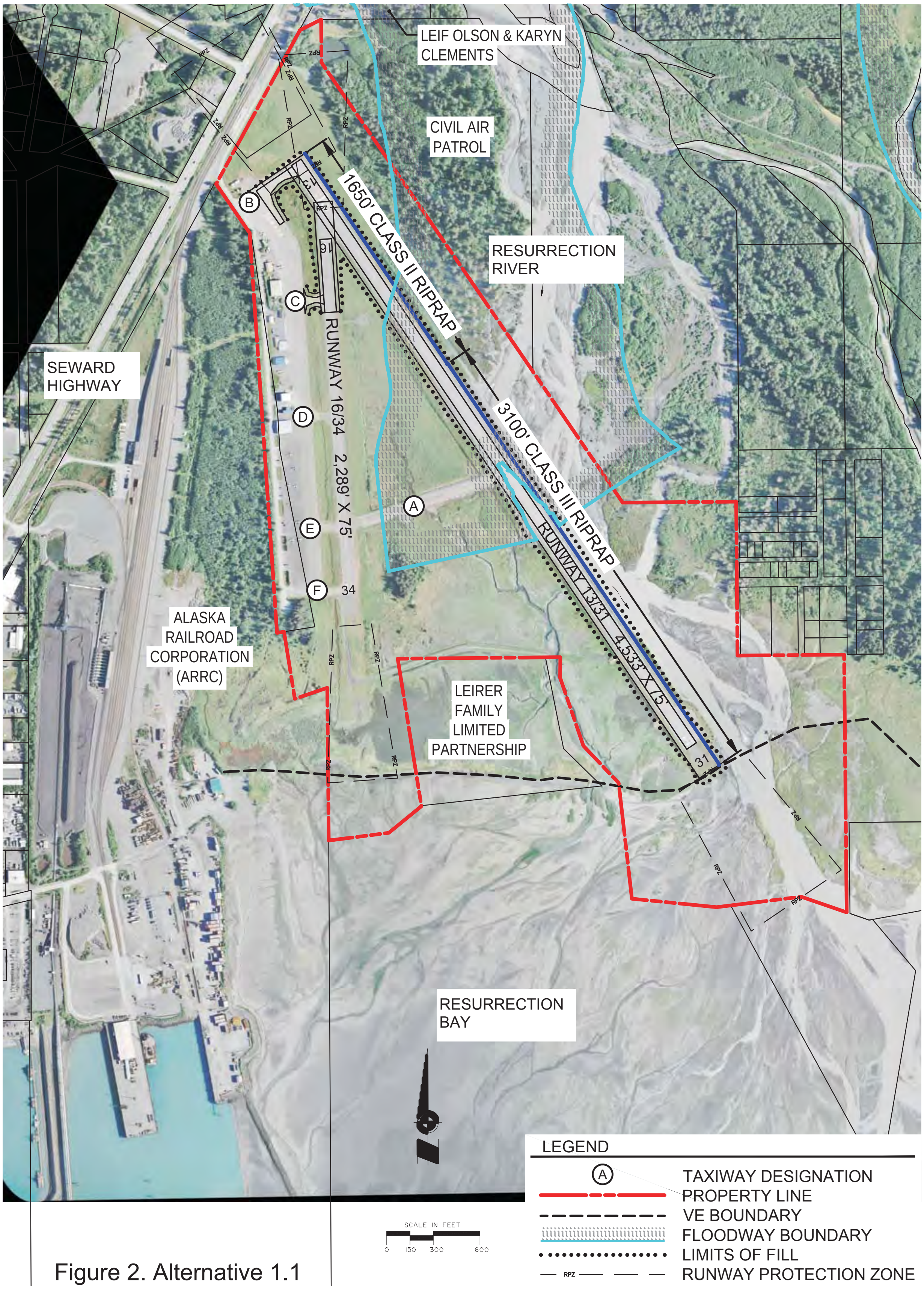


Figure 2. Alternative 1.1

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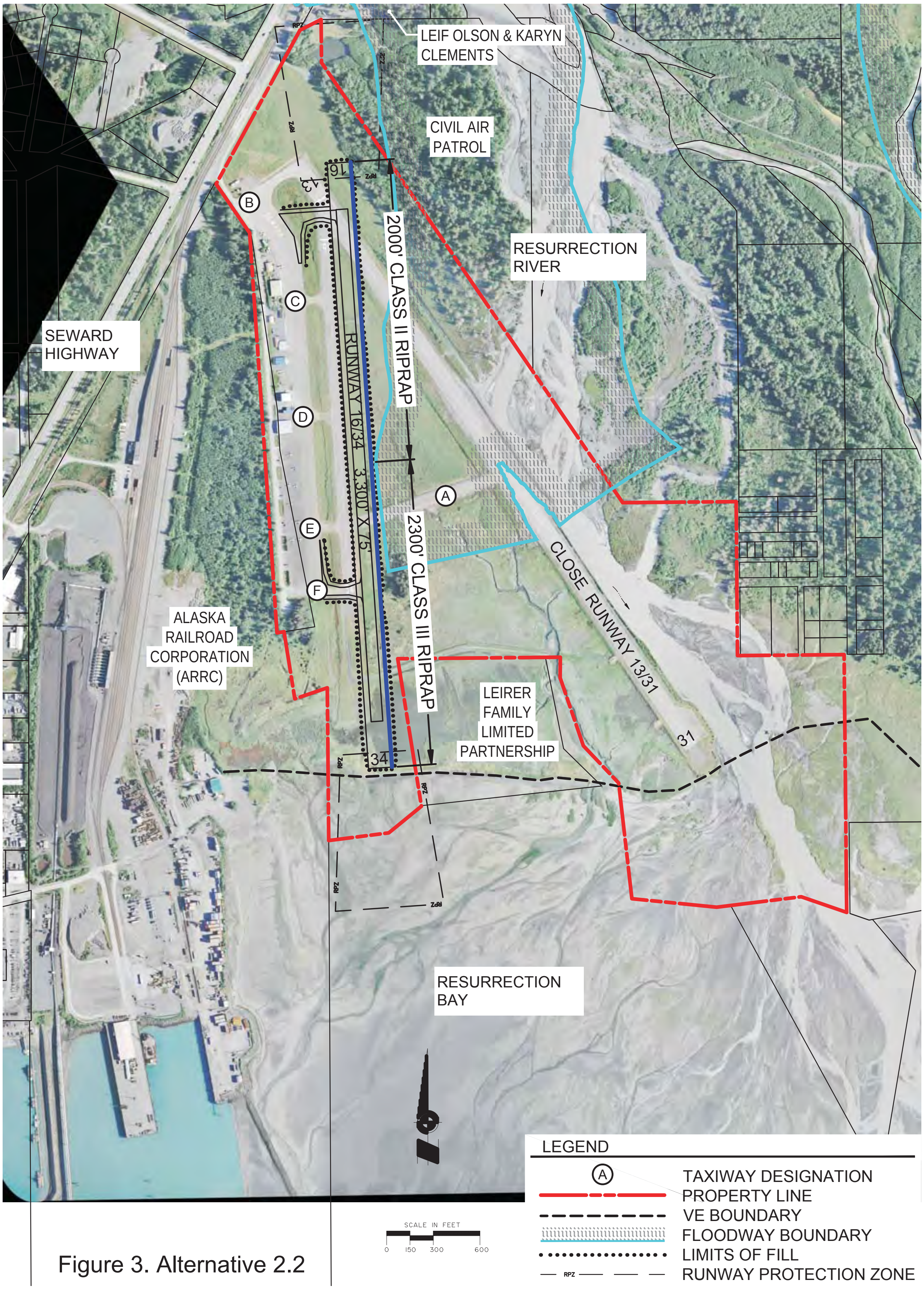

Figure 3. Alternative 2.2

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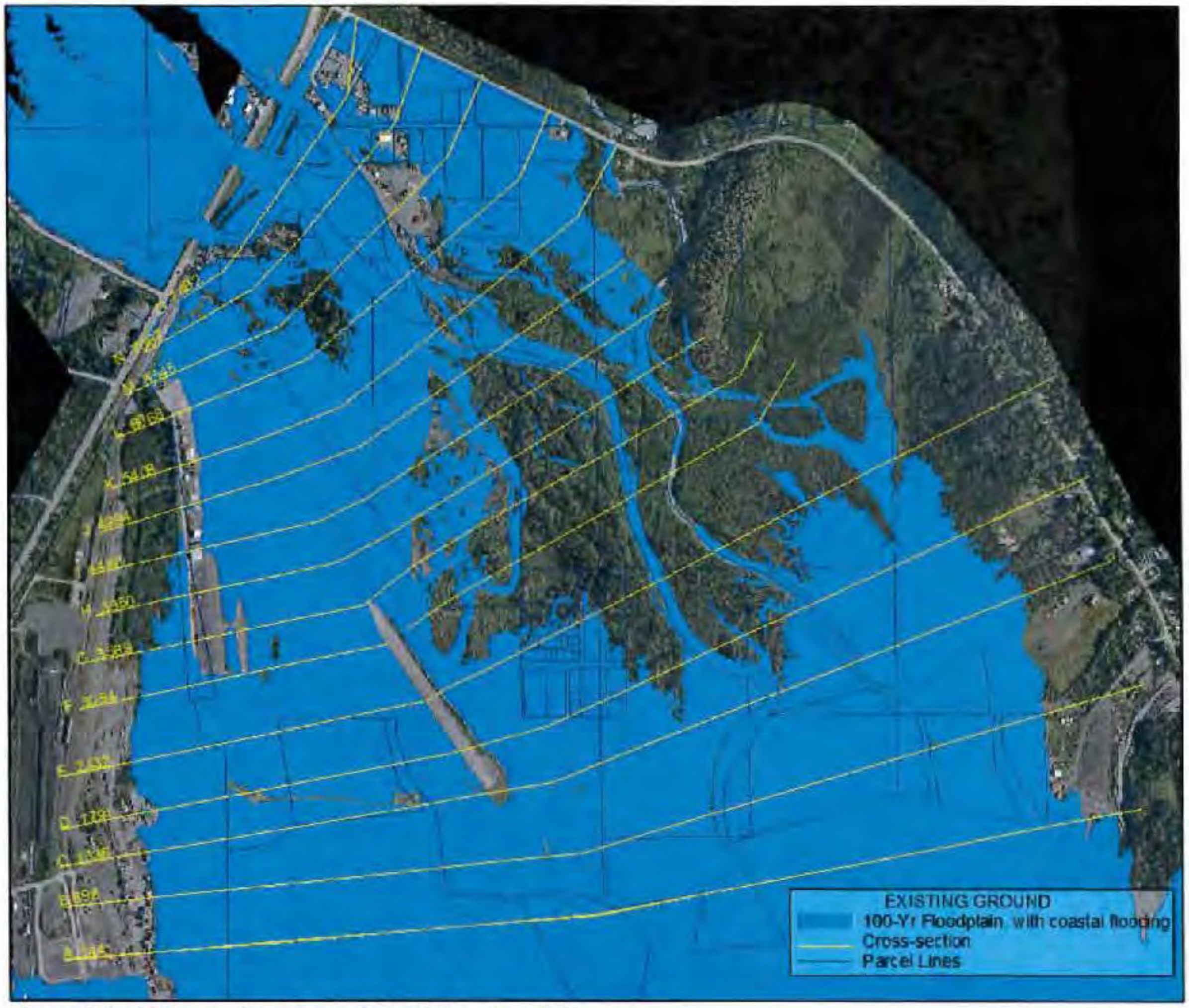

Figure 14. 100-year flood map for Existing Conditions.

EG-Figure 14 shows that the 100-year flood will inundate most of the Seward Airport, including the upper half of Runway 13/31 and most of Runway 16/34. The private parcels in the middle of the Resurrection River floodplain are almost completely inundated as well, but that inundation is primarily due to the effects of coastal flooding from the 1-percent-annual chance tide event, which govern up to Cross-section E on the Resurrection River.

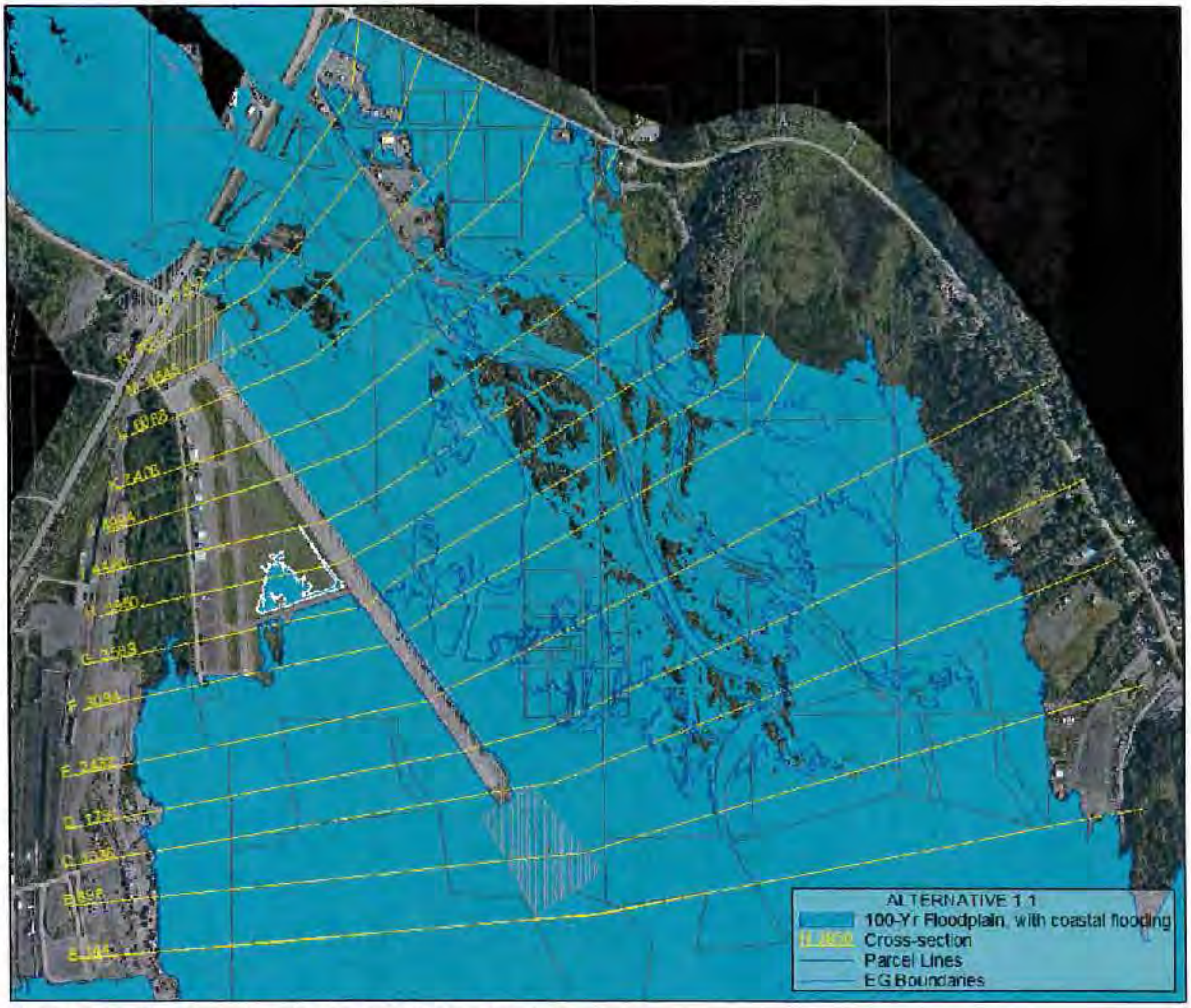

Figure 15. 100-year flood map for Alternative 1.1.

Alt 1.1-This design alternative raises the elevation of Runway 13/31 above the 100-year flood with a 2-ft freeboard. Both runways remain above the base flood elevation. As a result, the water surface elevations across the floodplain east of the runway are significantly higher than those of the existing conditions model. Water surface elevation increases of greater than 1 foot occur from Cross-section D to Cross-section J. The maximum water surface elevation increase is 4.04 feet, and occurs at Cross-section F. The private parcels in the middle of the Resurrection River floodplain are completely inundated. At some area of the 100-year floodplain between the Seward Highway and Resurrection Bay, the eastern limit has expanded. Compare the dark blue lines in Figure 15, which represent the 100-year floodplain boundary for the existing conditions model, to the cyan-colored 100-year floodplain of the Alt 1.1 model.

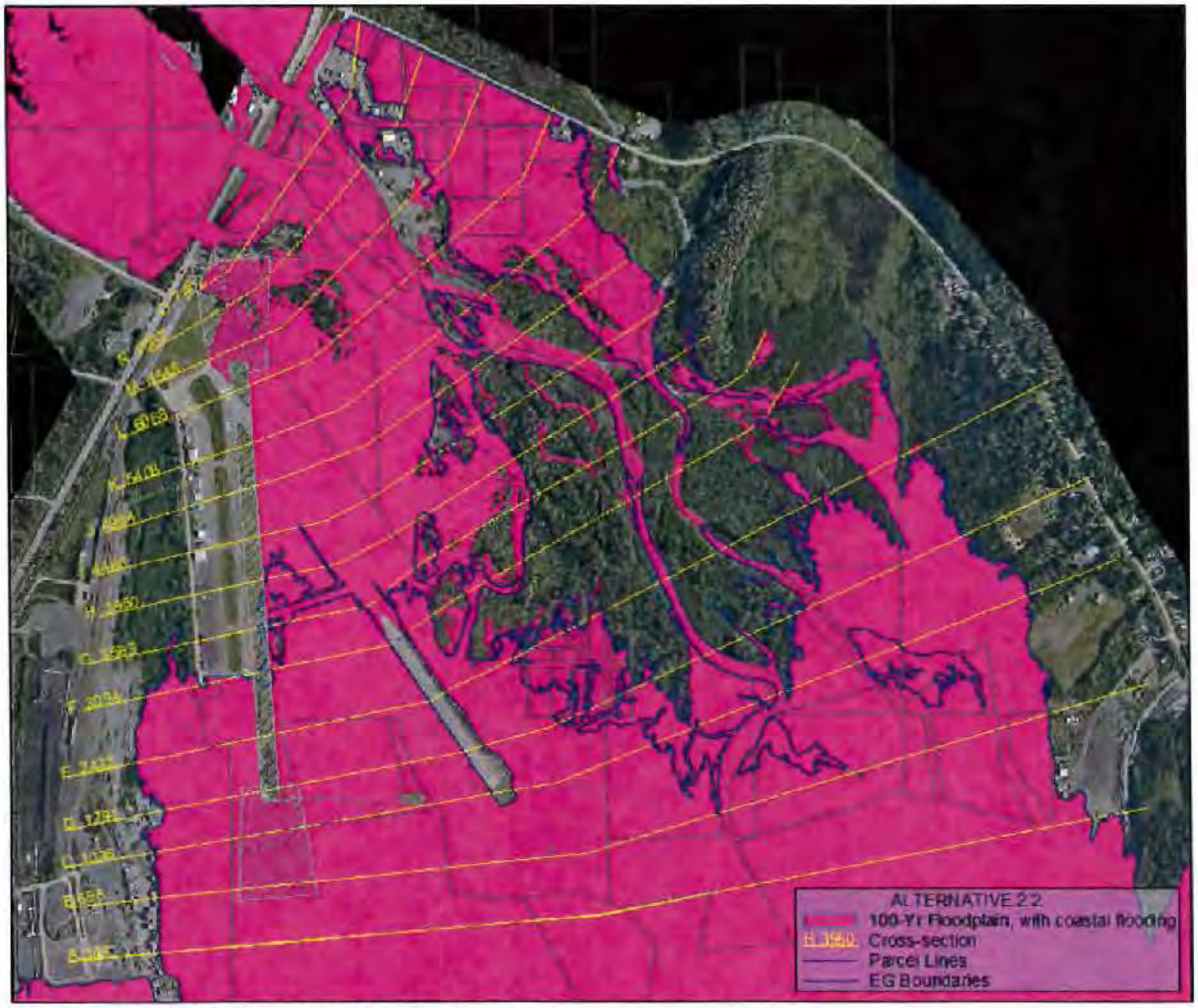

Figure ~~1~~26. 100-year flood map for Alternative 2.2.

Alt 2.2-This design alternative reconstructs Runway 16/34 and raises the elevation with a 2-ft freeboard above the 100-year flood. Though Runway 13/31 is abandoned for active aircraft use, it is armored to prevent embankment erosion and channel migration.

Water surface elevation increases of less than 1 foot occur from Cross-section F to Cross-section M. The maximum water surface elevation increase is 0.78 feet, and occurs at Cross-section F. The private parcels in the middle of the Resurrection River floodplain are partially inundated. At some area of the 100-year floodplain between the Seward Highway and Resurrection Bay, the eastern limit has slightly expanded. Compare the dark blue lines in Figure 16, which represent the 100-year floodplain boundary for the existing conditions model, to the magenta-colored 100-year floodplain of the Alt 2.2 model.

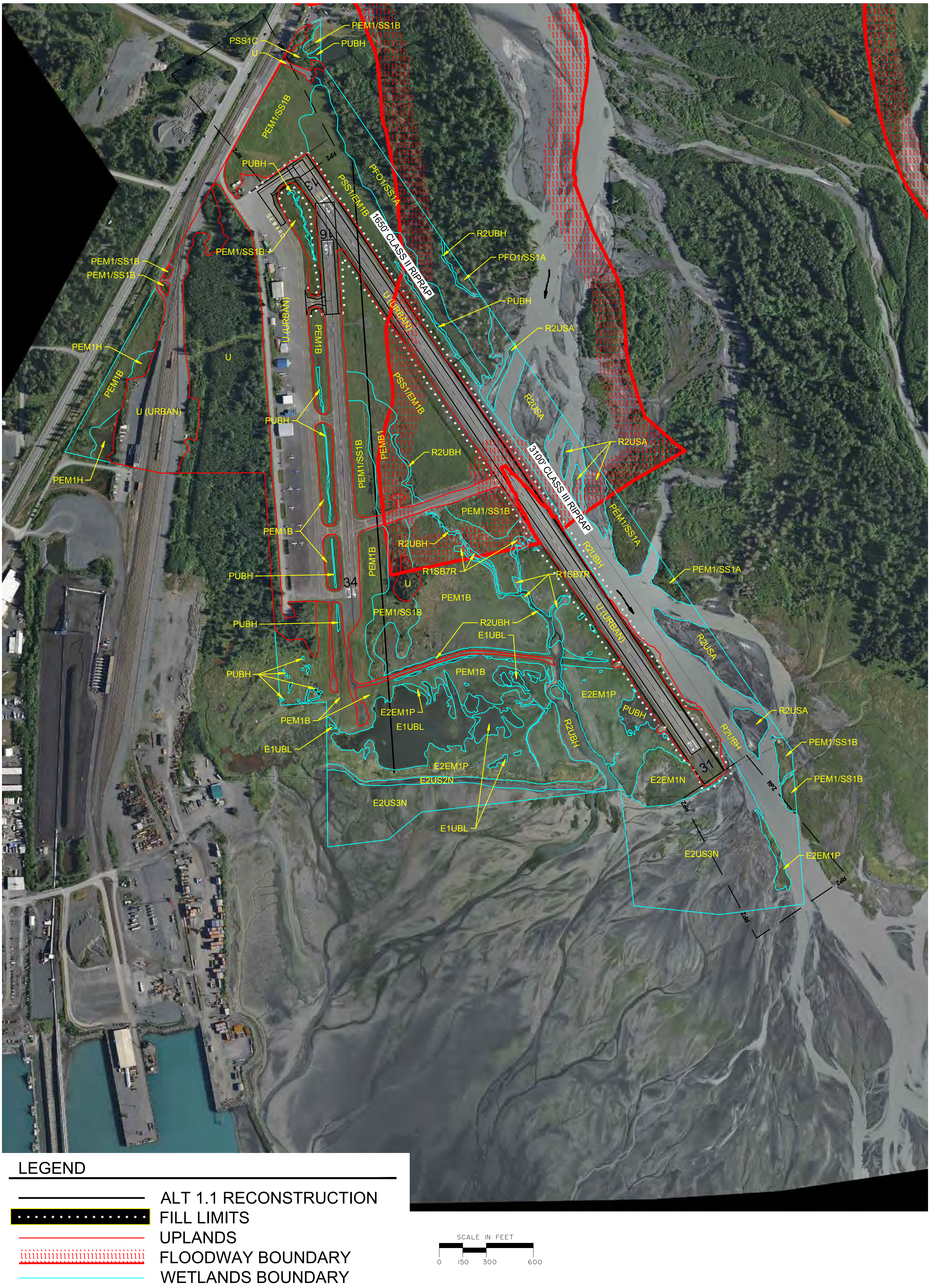

Figure 7

Alt 1.1 RECONSTRUCT EXISTING RUNWAY 13/31 (4,533ft x 75ft)
- Raise Runway 13/31 above 100yr flood level
- Install armor to protect runway 13/31
- Adjust Runway 16/34 profile to match into raised Runway 13/31
- Reconstruct Taxiway B & C to match into runway modifications
- Eliminate Taxiways A, D & E

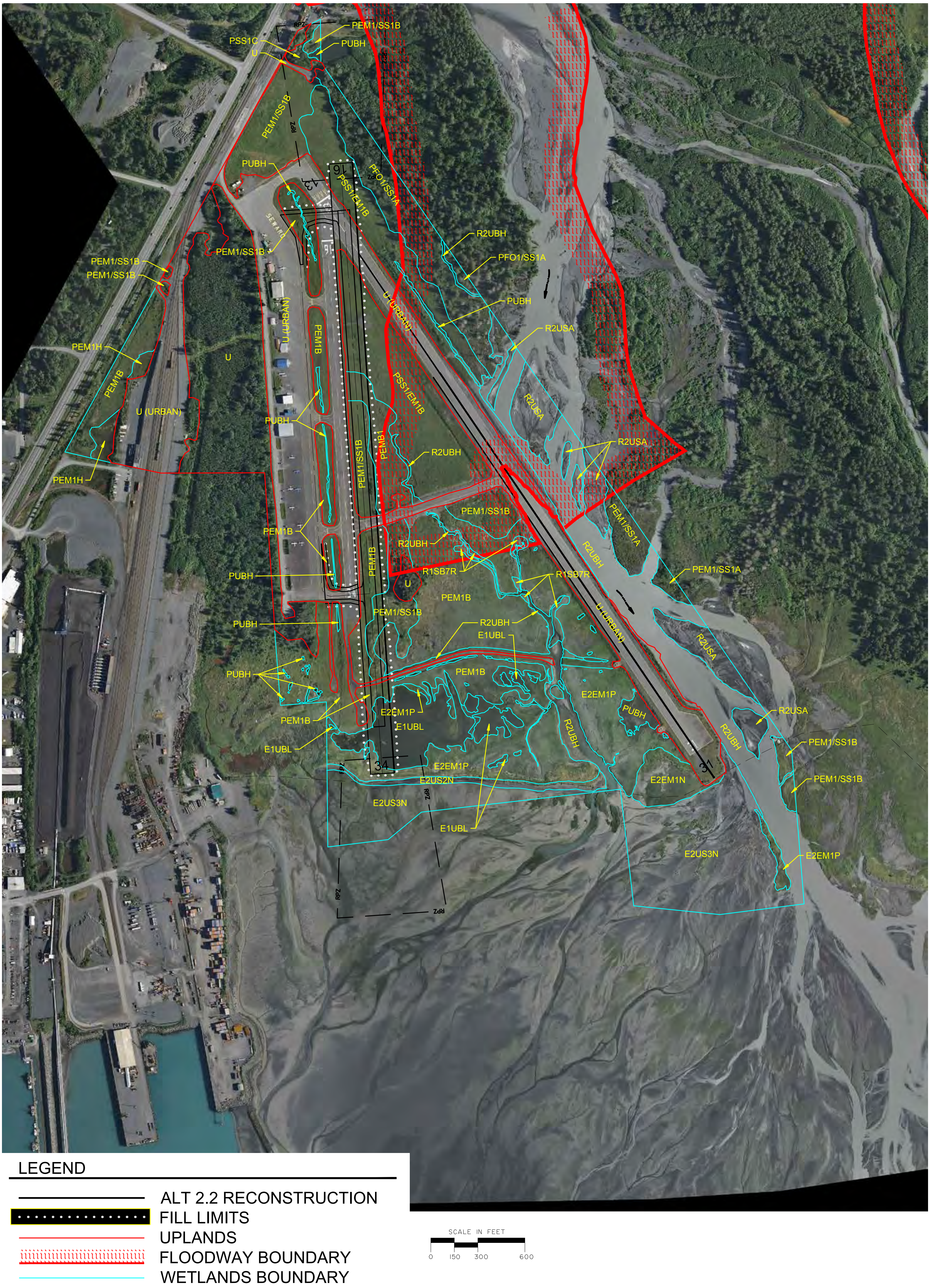

Figure 8

Alt 2.2 RECONSTRUCT EXISTING RUNWAY 16/34 (3,300ft x 75ft)

- -Abandon Runway 13/31 and allow flood water over topping of the existing runway
- -Raise Runway 16/34 above 100 year flood level
- -Relocate Taxiway B to match into runway modifications
- -Reconstruct Taxiway F to match into runway modifications
- -Eliminate Taxiways A, C, D & E

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Preliminary Environmental Research

Air Quality

A review of the U.S. Environmental Protection Agency's List of Nonattainment Areas for All Criteria Pollutants and of the Alaska Department of Environmental Conservation (ADEC) Division of Air Quality's Non-Point Mobile Source Program website on December 15, 2016 indicated that the project area does not fall within an air quality nonattainment or maintenance area. The proposed project is not likely to result in any permanent air quality impacts, as all disturbed areas will be permanently stabilized after project completion and DOT&PF does not anticipate airport operations would increase significantly after the proposed project is constructed.

Anadromous Fish Streams and Essential Fish Habitat

A review of the Alaska Department of Fish and Game (ADF&G) *Atlas to the Catalog of Waters Important to the Spawning, Rearing or Migration of Anadromous Fishes* and the National Marine Fisheries Service (NMFS) Essential Fish Habitat (EFH) Mapper on December 15, 2016 found that the following waterbodies near the Seward Airport project contain anadromous fish and EFH (Table 1).

Table 1 – Anadromous Fish Streams in Project Area

Stream Name	AWC Code	Location	Anadromous Species and Use
Airport Creek	231-30-10080-2003	East side of the airport and adjacent to Runway 13/31	Spawning habitat for pink salmon
Unnamed anadromous fish stream	231-30-10075	Southern end of the airport between Runway 16/34 and Runway 13/31	Spawning habitat for pink salmon
Unnamed anadromous fish stream	231-30-10080-2017	East of the airport and Runway 13/31	Rearing habitat for coho salmon Spawning and rearing habitat for sockeye salmon
Resurrection River	231-30-10080	East of the airport	Spawning habitat for chum salmon Spawning and rearing habitat for Coho salmon Spawning habitat for pink salmon Spawning habitat for eulachon Chinook and sockeye salmon present
Resurrection Bay	N/A	South of the airport	Flathead sole present Pacific cod present Walleye pollock present All 5 species of Pacific salmon present

Alternative 1.1 is anticipated to affect the Resurrection River but not any of the other streams listed in Table 1. This Alternative may place fill below ordinary high water (OHW) of Resurrection River. Temporary adverse impacts from construction would occur, such as

increased turbidity and sedimentation. DOT&PF will coordinate with and obtain appropriate authorization from the U.S. Army Corps of Engineers (USACE), NMFS, and ADF&G prior to work that may involve anadromous or resident fish streams. Alternative 2.2 is not anticipated to impact any of the fish streams listed in Table 1.

Construction

Air quality degradation during construction may result from equipment exhaust and disturbed soil particles that become airborne. These impacts would be mitigated through the use of Best Management Practices (BMP) such as watering to minimize dust and routine equipment maintenance.

Water quality degradation during construction may result from sedimentation of storm water runoff. Alternative 1.1 would require work in the Resurrection River to provide increased armoring of the riverbank and to provide appropriate embankment for the increased runway height. This may result in temporarily increased turbidity. These impacts would be mitigated by using appropriate BMPs and implementing a Storm Water Pollution Prevention Plan in accordance with the Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit (CGP). There is no other pollutant input anticipated during construction.

Temporary work areas or vegetated buffers may be located in wetlands if other upland areas are not available. Any such impacts would be included as part of the USACE's Section 404 wetland permitting process.

Estimated Ground Disturbance and Clearing Activities

Alternative 1.1 would disturb approximately 7.5 acres of ground and Alternative 2.2 would disturb approximately 15 acres. Ground disturbing activities would include grading, ditching, pavement removal, utility relocation, embankment construction, installation of armor protection and vegetative clearing within the airport property.

Flood Plain and Regulatory Floodway

A review of the Federal Emergency Management Agency (FEMA) online Flood Insurance Rate Maps (FIRM) on December 16, 2016, indicated that the proposed project area falls within the Regulatory Floodway, 1% Annual Change of Flood Hazard, and 0.2% Annual Chance of Flood Hazard Flood Hazard Zones (FEMA 2016, defined within FEMA flood maps 02122C4543D and 02122C5006D, effective September 27, 2013 (FEMA 2013).

DOT&PF completed a flood study for the proposed project and is available for agency review. Alternative 1.1 would require placement of fill within the regulatory floodway as well as the floodplain (see Figure 2) from raising the runway. Increases to the base flood elevation (BFE) by as much as 4 feet would occur in some areas. This encroachment and subsequent rise in the base flood elevation would result in flood waters backing up onto private properties along the Resurrection River.

Thus the selection of Alternative 1.1 would require a Letter of Map Revision (LOMR) to modify the effective FIRM and Floodway map.

Fill for Alternative 2.2 would fall within the floodplain but outside the regulatory floodway (See figure 3). Alternative 2.2 would produce a BFE increase of less than 1 foot. As a result, the FIRM and Floodway will not need to be modified for this alternative.

Hazardous Waste

A review of the ADEC Contaminated Sites Mapper on December 16, 2015 showed 1 active contaminated site and 4 cleaned up sites located near the project area (Table 2).

Table 2 –Contaminated Sites In and Adjacent to Project Area

Site Name	File Number	Contamination Type	Approximate Location	Activity Status
Seward Military Resort	2102.26.069	Contaminated soil and groundwater at the site from a broken underground storage tank supply line	1,700 feet west of Airport Road	Active
ARRC Seward Rail Yard	2332.38.002	diesel range organic contamination from leaky heating oil underground storage tank	880 feet west from the airport and 1,166 feet west of Runway 16/34	Cleanup Complete - Institutional Controls
ARRC Henderlong Building Seward	2332.38.033	benzene and toluene were found in soil	600 feet southwest of the airport and 1,265 feet from Runway 16/34	Cleanup Complete
Harbor Air Service	2332.38.005	Soil contamination from abandoned 55-gallon drums	270 feet west of Runway 16/34	Cleanup Complete
Seward, City of-Sewer Lift Station #4	2332.26.014	diesel range organic contamination from leaky underground storage tank	2,000 feet northwest of Airport Road	Cleanup Complete

Since the only active site is located off airport land and away from the proposed improvements, DOT&PF anticipates no impacts to contaminated sites are or that contaminated soils would be encountered during construction. Additional assessment of individual private properties may be needed prior to property acquisitions.

Historic Properties, Archeological, and Cultural Resources

Based on a Cultural Resources Survey conducted in 2004 by Northern Land Use Research for the Seward Airport Master Plan effort, and presented in the 2008 Finding of No Significant Impact, the following sites are in the vicinity of the Airport property.

- Site No. SEW-148, associated with the Seward Moose Pass Trail (previously Iditarod National Historic Trail), runs discontinuously adjacent to the railroad; portions of this trail fell into disuse after the completion of the Alaska Railroad in 1923.

- Site No. SEW-007 is associated with the Russian Trail dating back from the Russian Period; the exact location of this site has not been identified. Remnants of an old road at the southern end of the project area could relate to Site No. SEW 007.
- Site No. SEW-835, the Naval Radio Station, is located on the eastern bank of Resurrection River, east of the project area.

DOT&PF and FAA will proceed in accordance with Section 106 of the National Historic Preservation Act.

Invasive Species

A search of the University of Alaska Anchorage Exotic Plants Information Clearinghouse (EPIC) Invasive Plants Mapper, conducted on December 15, 2016 indicated that several invasive plant species are located in the vicinity of the proposed project. DOT&PF will comply with Executive Order 13112 (Invasive Species) by ensuring that ground disturbing activities are minimized and disturbed areas are revegetated with seed recommended for the region by Alaska Department of Natural Resources' (ADNR') *A Revegetation Manual for Alaska*.

Material and Disposal Sites

The Contractor would supply material for the runway, subgrade structure, surfacing, and armor protection. Similarly, the Contractor would obtain rights to disposal sites. If the Contractor elects to use an undeveloped material site, contract language will require the Contractor to acquire all necessary permits and clearances for the site(s) and provide copies to the DOT&PF Project Engineer prior to development. Per DOT&PF specifications, the Contractor will also be responsible for implementing a Storm Water Pollution Prevention Plan. Material from a borrow site that has not received the appropriate permits and clearances will not be accepted for project construction.

Migratory Birds and Eagles' Nests

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) website, reviewed on December 14, 2016, indicated that the following species of migratory birds could potentially be affected by activities in this location:

- Bald Eagle *Haliaeetus leucocephalus* (season: year-round);
- Black Oystercatcher *Haematopus bachmani* (season: year-round);
- Fox Sparrow *Passerella iliaca* (season: breeding);
- Kittlitz's Murrelet *Brachyramphus brevirostris* (season: breeding);
- Lesser Yellowlegs *Tringa flavipes* (season: breeding);
- Marbled Godwit *Limosa fedoa* (season: breeding);
- Marbled Murrelet *Brachyramphus marmoratus* (season: year-round);
- Olive-sided Flycatcher *Contopus cooperi* (season: breeding);
- Pelagic Cormorant *Phalacrocorax pelagicus pelagicus* (season: year-round);
- Rock Sandpiper *Calidris ptilocnemis ptilocnemis* (season: migrating);
- Rufous Hummingbird *selasphorus rufus* (season: breeding);
- Short-billed Dowitcher *Limnodromus griseus* (season: breeding); and
- Short-eared Owl *Asio flammeus* (season: breeding)

According to the USFWS, in Southcentral Alaska, the recommended time period for avoiding vegetation clearing on shrub or open (shrub cover or marsh, pond, tundra, gravel, or other treeless/shrubless ground) habitat is May 1 through July 15. Clearing and grubbing would not occur within the migratory bird window, except as permitted by federal, state, and local laws.

Although migratory birds may temporarily avoid the project area during construction activity, the proposed project is not likely to result in permanent adverse effects to wildlife due to pre-existing levels of development and disturbance at the airport.

A search of the University of Alaska Southeast and USFWS *Wetland Ecosystems Protocol* website on July 21, 2016, indicated that there are four bald eagle nests within 1,000 feet of the proposed project area:

- Nest No. 5/Object ID 1865 is located within the project area and about 365 feet northeast of Runway 13/31 at 60.1333, -149.4167.
- Nest No. 14/Object ID 1873 is located approximately 290 feet east of the airport and about 789 feet northeast of Runway 13/31 at 60.1349, -149.416.
- Nest No. 6/Object ID 1657 is located approximately 733 feet northeast of the airport and about 1,125 feet northeast of Runway 13/31 at 60.1321, -149.41.
- Nest No. 11/Object ID 1661 is located approximately 911 feet north of the airport and about 1,677 feet north of Runway 13/31 at 60.1396, -149.4235.

DOT&PF would coordinate with the USFWS to determine an appropriate course of action since some bald eagle nests are active and fall within the primary (330 feet) or secondary (660 feet) protection zones.

Navigable Waters

Reviews of the Alaska Department of ADNR's Navigable Waters online mapper on December 15, 2016, indicated that the one navigable river that intersects with the project is the Resurrection River, USGS GNIS ID: 01413859. The USACE's List of Navigable Waters reviewed on December 20, 2016 does not list the Resurrection River as navigable or under the jurisdiction of Section 10 of the Rivers and Harbors Act. Alternative 1.1 would require work within the Resurrection River. DOT&PF would obtain permissions prior to completing any work within the Resurrection River. Further, Resurrection Bay is navigable; however, DOT&PF does not anticipate the bay would be directly impacted by the proposed project.

Noise

Per the *FAA Environmental Desk Reference for Airport Actions* (2015), a noise analysis is required for actions involving a new airport location, a new runway, a major runway extension, or runway strengthening; or, when annual operations exceed 90,000 propeller operations or 700 jet operations. The projected operations for the Seward Airport do not approach the above-stated operational thresholds; accordingly, no noise analysis will be prepared.

Right-of-Way

The proposed project would not involve the placement of fill outside of the airport property. However, both alternatives will require property acquisition to contain Runway Protection Zones. Alternative 1.1 will require raising Runway 13/31 up to 4 feet at some locations to ensure it is above the 100 year flood elevation. Due to its proximity to the Resurrection River, the raised runway is expected to produce a rise in the base flood elevation which will cause inundation of numerous private properties outside or airport property (See Figures 4 & 5). Acquisition of the affected properties will be required.

Raising Runway 16/34 (Alternative 2.2) above the 100 year flood level (less than 1 foot) is not anticipated to raise the base flood elevation sufficiently to flood adjacent private properties more than the existing conditions (See Figure 6).

Further mitigation of airspace obstructions may necessitate acquisition of property rights to cut trees and limit build heights for each alternative.

State Parks, National Parks, National Forests, Wild and Scenic River

A search of the ADNR Division of Parks and Outdoor Recreation website on December 14, 2016 indicated the Caines Head State Recreation Area is about 7 miles from the proposed project area. The National Park Service (NPS) website queried December 14, 2016 indicated the Kenai Fjords National Park is about 4 miles from the proposed project. The National Forest Service website review conducted December 14, 2016 indicated that the Chugach National Forest is about 1 mile from the proposed project area. DOT&PF does not anticipate the proposed project would result in any adverse impacts to parks, forests, or wild and scenic rivers.

State Refuges, National Wildlife Refuges, Critical Habitat Areas, and Sanctuaries

A review of ADF&G online listing of State of Alaska Refuges, Critical Habitat Areas, and Sanctuaries and the USFWS' IPaC website on December 15, 2016 indicated that there are no refuges, critical habitat areas or sanctuaries within or adjacent to the proposed project area.

Threatened and Endangered Species

A query on the USFWS' IPaC and ADF&G threatened and endangered species websites on December 14, 2016 indicated that there are no threatened species and one endangered species, the Short-tailed Albatross (*Phoebastria albatrus*), near the proposed project area. A query of the NMFS Endangered Species Act (ESA)/Marine Mammal Protection Act (MMPA) Mapper website on December 15, 2016 indicated that there are 3 endangered species (humpback whale, North Pacific right whale, and sperm whale) in Resurrection Bay just south of the proposed project area. There are no critical habitats within or adjacent to the proposed project area.

DOT&PF does not anticipate the proposed project would impact or adversely affect a threatened or endangered species, since all ESA-listed species are located in Resurrection Bay.

U.S. DOT Act Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 (recodified at 49 U.S.C. 303(c)) was adopted to protect public parks, recreation lands, wildlife and waterfowl refuges, and historic properties from encroachment by public transportation facilities. The act states that federally-funded transportation projects may not "use" these properties unless there is no other prudent and feasible alternative and the project includes all possible planning to minimize harm, or the project results in a "de minimis" use. Under Section 4(f), a "use" can occur under three circumstances - when land from a 4(f) property is incorporated into a transportation facility; when a 4(f) property is temporarily occupied (adversely); and when the proximity impacts of a transportation project are so severe that they substantially impair the activities, features, and attributes that qualify the resource for Section 4(f) protection.

Based on a review of state and federal agency protected areas in Alaska and the City of Seward park locations on December 14 and 18, 2016, the proposed project area does not include any public park, recreation area, wildlife and waterfowl refuge of national, State, or local significance or land from a historic site of national, State, or local significance.

Water Quality

Five potential receiving water bodies for the proposed project are listed in Table 1. A review of the ADEC Impaired Waters mapper on December 15, 2016 indicated that none of the receiving waters are impaired.

A review of the ADEC Drinking Water Protection Mapper on December 15, 2016 revealed many groundwater sources and associated drinking water protection areas established along the project corridor. The proposed project is not anticipated to impact local aquifers or established drinking water sources.

Wetlands and Other Waters of the U.S.

DOT&PF conducted a Wetland Delineation and Aquatic Site Assessment in 2004 to determine the presence and extent of wetlands for the 2008 Seward Airport Master Plan Environmental Assessment and Finding of No Significant Impacts. DOT&PF field checked the 2004 delineation in September 2016 and updated wetlands boundaries. Identified wetland types include: Estuarine and Marine Deepwater (E1UBL); Estuarine and Marine Wetland (E2USN, E2USM, E2EM1P); Freshwater Pond (PUBH); Riverine (R3USC, R3UBH); and Freshwater Forested/Shrub Wetland (PFO1/SS1A, PSS1A, PSS1/EM1R, PSS1/EM1C).

DOT&PF anticipates fill would be placed in wetlands for the proposed improvements at the airport. DOT&PF will design the project such that wetland impacts are avoided or minimized to the maximum extent practicable. DOT&PF will comply with mitigation guidelines for any impacts that cannot otherwise be avoided. For purposes of comparison, preliminary estimates of wetland impacts are 5 acres for Alternative 1.1 and 13.5 acres for Alternative 2.2 (see attached Figures 7 and 8). .

Social and Economic

A review of the Environmental Protection Agency (EPA) Environmental Justice Mapper on December 15, 2016 indicated the percent of minority populations living within the project area (32%) is less than the rest of the Alaska (37%). The low-income population percent within the proposed project area (29%) is somewhat higher than the rest of the state (26%). The proposed project is not anticipated to adversely affect neighborhoods, community cohesion, or disadvantaged social groups. Alternative 1.1 would result in an increase to the BFE and would likely require property acquisitions to mitigate for the increased flood impact potential. Should this alternative be carried forward for further consideration, DOT&PF will evaluate whether any disadvantaged social groups are disproportionately affected by the increased flood elevations.

Land Use and Transportation Plans

On August 2015, the following land use and transportation plans were identified and will be considered in the development of this project: DOT&PF *Seward Airport Master Plan* June 2008); DOT&PF *2012-2015 Statewide Transportation Improvement Program (STIP)* (amended June 5, 2015); *Kenai Peninsula Borough (KPB) Transportation Plan* (December 2003); *KPB All Hazard Mitigation Plan* (June 2005); *City of Seward 2020 Comprehensive Plan* (June 2005).

Permits and Authorizations

This project may require the following permits:

- APDES CGP for storm water discharge
- ADF&G Fish Habitat Permit
- ADNR Land Use Permit
- USACE Section 404 permit
- KPB Multi-agency Permit
- KPB Floodplain Development Permit

From: Selinger, Jeff S (DFG) <jeff.selinger@alaska.gov>
Sent: Wednesday, January 25, 2017 8:29 AM
To: Boydston, Mark A (DOT); ak_fisheries@fws.gov; erin_knoll@fws.gov; Moore, Eric A (DNR); DNR, Parks OHA Review Compliance (DNR sponsored); Ashton, William S (DEC); Lidren, Grant M (DEC); Heil, Cynthia L (DEC); Litchfield, Virginia P (DFG); Smith, Jimmy C (CED); Lidren, Grant M (DEC); Davis, Tammy J (DFG); Kubitzj@akrr.com; Brian Lindamood; Hcd.Anchorage@noaa.gov; jeanne.hanson@noaa.gov; dglenz@cityofseward.net; cepoa-rd-kenai@usace.army.mil; MBest@kpb.us; bharris@kpb.us; ncarver@kpb.us; knoyes@kpb.us; tdearlove@kpb.us
Cc: Elliott, Brian A (DOT); Beaton, Barbara J (DOT); ak-airport-env@faa.gov
Subject: RE: Seward Airport Improvements / Agency scoping letter

I do not have any wildlife concerns with this proposed project.
Jeff

Jeff Selinger
Kenai Area Wildlife Biologist
Soldotna ADFG Office
907-260-2905
jeff.selinger@alaska.gov

From:	Speerstra, Linda CIV USARMY CEPOA (US) <Linda.Speerstra@usace.army.mil>
Sent:	Friday, February 3, 2017 7:59 AM
To:	Boydston, Mark A (DOT)
Cc:	Hyslop, Jamie R CIV USARMY CEPOA (US)
Subject:	FW: Seward Airport Improvements / Agency scoping letter
Attachments:	image001.jpg; Seward AP_Figs 1-8_Agency scoping letter.pdf; Seward AP_Agency scoping letter 1-24-17.pdf; Seward Airport Improvements_Preliminary Environmental Research.pdf

Good morning Mark, thank you for contacting the Corps in regards to the Seward Airport Improvements project. I've assigned your information to Mr.
Jamie Hyslop for further review. Have a great weekend! Linda

From: Presley, Stephanie <spresley@kpb.us>
Sent: Wednesday, February 15, 2017 1:35 PM
To: Boydston, Mark A (DOT); Beaton, Barbara J (DOT)
Cc: Harris, Bryr; Dearlove, Tom; Donna Glenz; Long, Ron
Subject: RE: Seward Airport Improvements / Agency scoping letter
Attachments: SBCFSA Comments Re Seward Airport Improvements 021517.pdf

Mr. Boydston and Ms. Beaton,

Please find attached comments from the Seward/ Bear Creek Flood Service Area board. Below are additional comments and questions from staff.

We would appreciate receiving the DOT&PF flood study for the proposed project.

The airport needs listed in the scoping letter includes "construct flood protection to prevent erosion damage from the 100-year flood". Could you please provide details of the proposed protection measures?

The scoping letter states property acquisition would be required for both alternatives. Would this be acquisition of the Civil Air Patrol and/ or KPB parcels north of the airport?

Of note in the preliminary environmental research, the KPB and City of Seward FIRMs were revised October 20, 2016. Though the floodway boundaries did not change, the AE/VE zones were revised in the coastal study. Panels 02122C4543E and 02122C5006E are the currently effective FIRMs.

Please add this email address to the agency and stakeholders group lists for future correspondence/ meetings.

Thank you for the opportunity to comment on this project.

Best regards,

Stephanie Presley
Service Area Coordinator, CFM
Seward/Bear Creek Flood Service Area
P.O. Box 1554, Seward, Alaska 99664
Ph: (907) 224-3340 Fax: (907) 224-5197
www.kpb.us/service-areas/sbcfsa

Like us on Facebook for periodic information and updates.

Kenai Peninsula Borough
Seward/Bear Creek Flood Service Area
302 Railway Ave, Suite 123, P.O. Box 1554
Seward, Alaska 99664
(907) 224-3340 (Fax) 224-5197
www.kpb.us/service-areas/sbcfsa

February 15, 2017

State of Alaska Department of Transportation & Public Facilities
Preliminary Design and Environmental Section
P.O. Box 196900
Anchorage, Alaska 99519-6900

Re: Request for scoping comments
Project: Seward Airport Improvements
Project No.: TBD/ Z5485700000

At the February 13, 2017 regular meeting of the Seward/ Bear Creek Flood Service Area, the board reviewed the Agency Scoping Letter, Preliminary Environmental Research including Figures 1 through 8, and voted unanimously to provide the following comments regarding the Seward Airport Improvement project.

The SBCFSA board is in support of the needed improvements at the Seward airport and advise the State to take the necessary action to protect this important investment from future flood damages. As stated in the agency scoping letter, the service area has experienced major flooding at least six times and multiple high water events over the last 30 years. Flood waters from Resurrection River have overtopped the runways and airport property many times, with increasing frequency in recent years.

Resurrection River transports huge volumes of sediment each year, migrating channels with each high water event. Following one major event, the main channel was directed south, straight into the long runway, instead of flowing down the east bank channels. The SBCFSA board would highly recommend this project include rerouting the channel back to the east bank to minimize erosion of the runway and future flood damages.

Regardless of which alternative is selected, elevating the runways and installing additional erosion protection will be a short-term solution, and will not address the cause of runway erosion. The expense of the proposed improvements may have been avoided by regular mitigation in Resurrection River. To maximize the use of tax-payer dollars, the board recommends this project include a long-term flood mitigation plan for annual sediment removal and channel maintenance. Materials removed from the rerouted channel could be used to reinforce embankments directing flood waters away from the airport. Without mitigation of sediment and regular channel maintenance, the improved infrastructure at the airport will continue to be threatened, costing additional tax-payer dollars.

The SBCFSA board is supportive of the improvements to the airport and could work with the State to protect this investment from future flood damages. Please feel free to contact our administrative office for additional information or assistance.

Respectfully,

Bill Williamson

Bill Williamson, Chairman
Seward/ Bear Creek Flood Service Area Board

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

DESIGN & ENGINEERING SERVICES
Aviation Design

PO Box 196900
Anchorage, AK 99519-6900
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Toll Free: 800 770 5263
TDD: 907 269 0473
TTY: 800 770 8973
Fax Number: 907 248 1573
Web Site: dot.state.ak.us

April 19, 2017

Bill Williamson
Chairman
Seward/Bear Creek Flood Service Area Board
P.O. Box 1554
Seward, AK 99664

Dear Mr. Williamson:

The Alaska Department of Transportation & Public Facilities (DOT&PF) would like to thank you for your response to our January 24, 2017 request for agency comments. We appreciate your support of the Seward Airport Improvements project.

The Resurrection River's migration to the west, along the edge of the runway, is indeed unfortunate. DOT&PF has evaluated the potential for dredging in the river and has found that this solution is not viable. A memo, prepared by the projects Hydrologist describing the rationale behind this decision, can be found on the projects website:

http://www.dot.state.ak.us/creg/sewardairport/documents/Resurrection-River-Excavation-Memo-final.pdf

DOT&PF is committed to finding the engineering alternative which best addresses all the issues at the airport, including the flooding issue. We welcome your input. Comments and questions from Stephanie Presley have been answered. We have also sent a copy of the Hydrologic and Hydraulic Report to Bryr Harris. Through an open and collaborative process we hope to ensure the success of this project.

If you are interested in keeping up with the project, please go to the website and sign up on the mailing list. When the site is updated, a notice is sent out to everyone on the mailing list.

If you have further questions regarding the environmental effects of this project, please contact Mark Boydston, Environmental Impact Analyst, at (907) 269-0524 or via email at mark.boydston@alaska.gov. Questions or input regarding the engineering aspects of the proposed project can be directed to me at (907) 269-0617 or via email at barbara.beaton@alaska.gov.

Sincerely,

Barbara J. Beaton

Barbara J. Beaton, P.E.
Project Manager

From: Olivia Cohn <olivia@solsticeak.com>
Sent: Friday, February 17, 2017 3:17 PM
To: 'Douglass_cooper@fws.gov'; 'Leah_kenney@fws.gov'; 'shina.duvall@alaska.gov'; 'william.ashton@alaska.gov'; 'grant.lidren@alaska.gov'; 'cindy.heil@alaska.gov'; 'Vlitchfield@kpb.us'; 'ginny.litchfield@alaska.gov'; 'jimmy.smith@alaska.gov'; 'grant.lidren@alaska.gov'; 'tammy.davis@alaska.gov'; 'jeff.selinger@alaska.gov'; 'Kubitzj@akrr.com'; 'LindamoodB@akrr.com'; 'jeanne.hanson@noaa.gov'; 'matthew.eagleton@noaa.gov'; 'greg.balogh@noaa.gov'; 'dglenz@cityofseward.net'; 'Jamie.r.hyslop@usace.army.mil'; 'spresley@kpb.us'; 'bharris@kpb.us'; 'tdearlove@kpb.us'
Cc: Beaton, Barbara J (DOT); 'Royce Conlon'; 'Robin Reich'
Subject: 3/2/17 Seward Airport Project Agency Scoping Mtg., Soldotna

Good afternoon –

Thank you for responding to a recent email and Doodle Poll inviting you to the agency scoping meeting for the Seward Airport Improvement Project. DOT&PF is initiating environmental scoping for a project at the airport that will likely include:

- Runway/taxiway improvements
- Pavement rehabilitation or reconstruction
- Installation of new airport lighting and an electrical enclosure building
- New navigational aids

We have determined that the best time to meet is:
Thursday, March 2, 2017 from 1:00 pm to 3:00 pm
At the Kenai Peninsula College, Kenai River Campus, 156 College Rd., Soldotna
CTEC Building, Room 105

The Project's Purpose and Need, Alternatives, and potential environmental concerns will be discussed. We will be sending additional project information and an agenda prior to the meeting.

In an effort to maximize agency participation, this meeting will take place in Soldotna. If you are unable to attend in person, however, please contact me to set up a teleconference. If you are unable to attend during the meeting time, we may be able to set up a separate meeting or time to talk.

Thank you.

Olivia Cohn
Environmental Planner
Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | olivia@solsticeak.com
www.solsticeak.com

From: Olivia Cohn
Sent: Wednesday, March 1, 2017 9:51 AM
To: cindy.heil@alaska.gov; grant.lidren@alaska.gov; william.ashton@alaska.gov; shina.duvall@alaska.gov; jimmy.smith@alaska.gov; Vlitchfield@kpb.us; ginny.litchfield@alaska.gov; tammy.davis@alaska.gov; jeff.selinger@alaska.gov; LindamoodB@akrr.com; Kubitzj@akrr.com; dglenz@cityofseward.net; spresley@kpb.us; bharris@kpb.us; tdearlove@kpb.us; greg.balogh@noaa.gov; jeanne.hanson@noaa.gov; matthew.eagleton@noaa.gov; Jamie.r.hyslop@usace.army.mil; Douglass_cooper@fws.gov; Leah_kenney@fws.gov
Cc: barbara.beaton@alaska.gov; RoyceConlon@pdceng.com; Robin Reich; EricaBetts@pdceng.com
Subject: Reminder and Mtg. Materials: 3/2/17 Seward Airport ProjectAgency Scoping Mtg., Soldotna
Attachments: MtgAgenda_SewardAirportAgencyScoping_2017-03-02.pdf; SewardAirportAlternativesFigures.pdf

We look forward to seeing you this **Thursday, March 2, 2017 at 1:00 p.m.** for the Seward Airport Improvement Project agency scoping meeting.

As a reminder, the meeting will take place at the Kenai Peninsula College, Kenai River Campus (156 College Rd., Soldotna, Alaska) in the CTEC Building, Room 105.

Please find the meeting agenda attached. In addition, the Seward Airport Improvement Project Frequently Asked Questions (online at www.dot.state.ak.us/creg/sewardairport/faq.shtml) and Resurrection River memorandum (online at www.dot.state.ak.us/creg/sewardairport/documents.shtml) are available on the Project website and will be discussed during the meeting. The Project Alternatives will also be discussed and are attached.

For those of you who will be teleconferencing in to the meeting, please use the following call in details:

- Call 1-800-315-6338
- Use passcode 10285#

Thank you.

Olivia Cohn
Environmental Planner
Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | olivia@solsticeak.com
www.solsticeak.com

Seward Airport Improvements Project
(Project No. Z548570000)

Agency Scoping Meeting • March 2, 2017 • Kenai Peninsula College, Soldotna, Alaska

Agency Scoping Meeting Agenda and Overview

Thursday, March 2, 2017, 1:00 pm to 3:00 pm
Kenai Peninsula College, Kenai River Campus, CTEC Building, Room 105
156 College Rd., Soldotna, AK

Agency Scoping Meeting Purpose

To initiate National Environmental Policy Act (NEPA) agency scoping for the Seward Airport Improvements Project (#Z548570000) by describing the proposed project and gathering input from agencies on the project's purpose and need, alternatives, environmental conditions, potential environmental consequences, and permitting issues.

Agency Scoping Meeting Agenda

1:00 pm	Welcome and Introductions
1:05 pm	Project Purpose and Need
1:15 pm	Progress on Project to Date
1:25 pm	Project Alternatives
1:50 pm	Existing Environmental Conditions
2:00 pm	Agency Questions and Input
2:50 pm	Project Schedule and Next Steps
3:00 pm	Adjourn

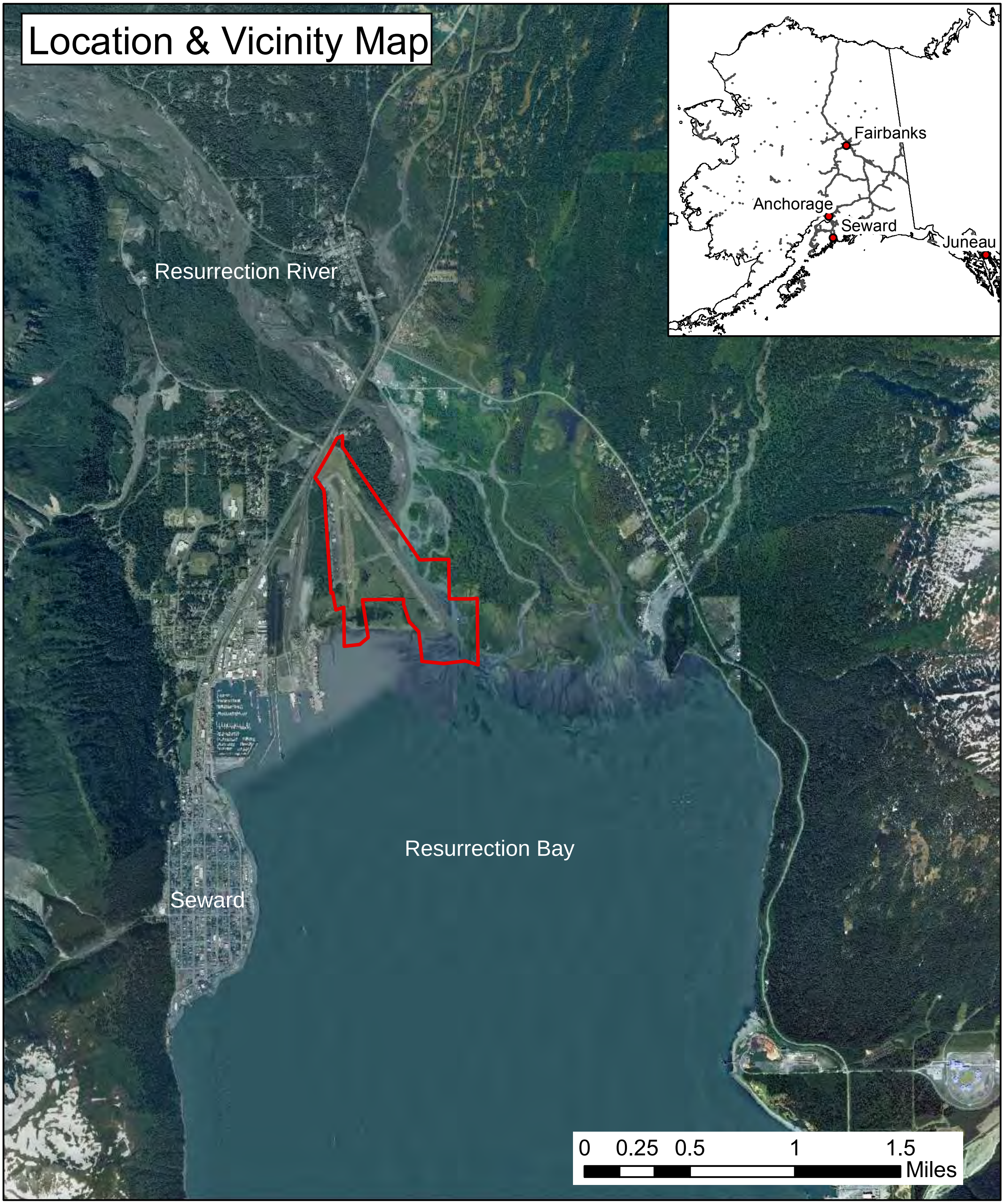
Please provide agency scoping comments by March 16, 2017.

Send scoping comments to:
Mark Boydston, DOT&PF Environmental Analyst
Email: mark.boydston@alaska.gov
Phone: 907.269.0524

For technical questions, please contact:
Barbara Beaton, P.E. DOT&PF Project Manager
Email: barbara.beaton@alaska.gov
Phone: 907.269.0617

Visit the project on the web at: www.dot.state.ak.us/creg/sewardairport

Location & Vicinity Map



Location
Section: 34, 35 - 2, 3
Township: 1N - 1S
Range: 1W
Meridian: Seward
USGS Quad: Seward A-7

Legend

🟥 Seward Airport

State of Alaska
Department of Transportation and Public Facilities
Central Region
Seward Airport Improvements

Date: 12/12/16 Figure: 1

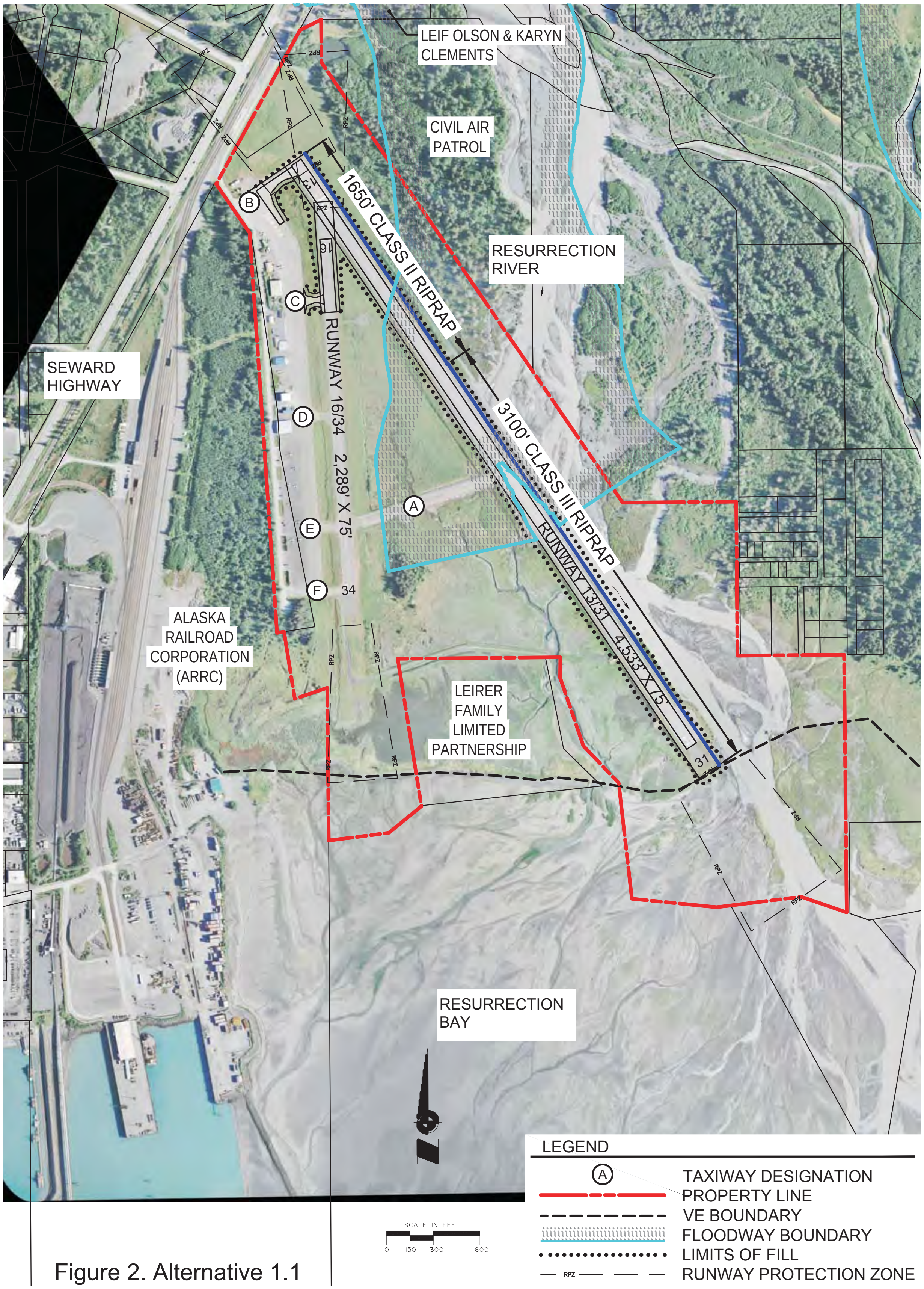


Figure 2. Alternative 1.1

P:\2014\14075FB-SEWARD_AP-IMPR\C\Des\Concept Drawings\C-Alternative Graphics.dwg, 12/15/2016 9:19:20 AM, 1:2

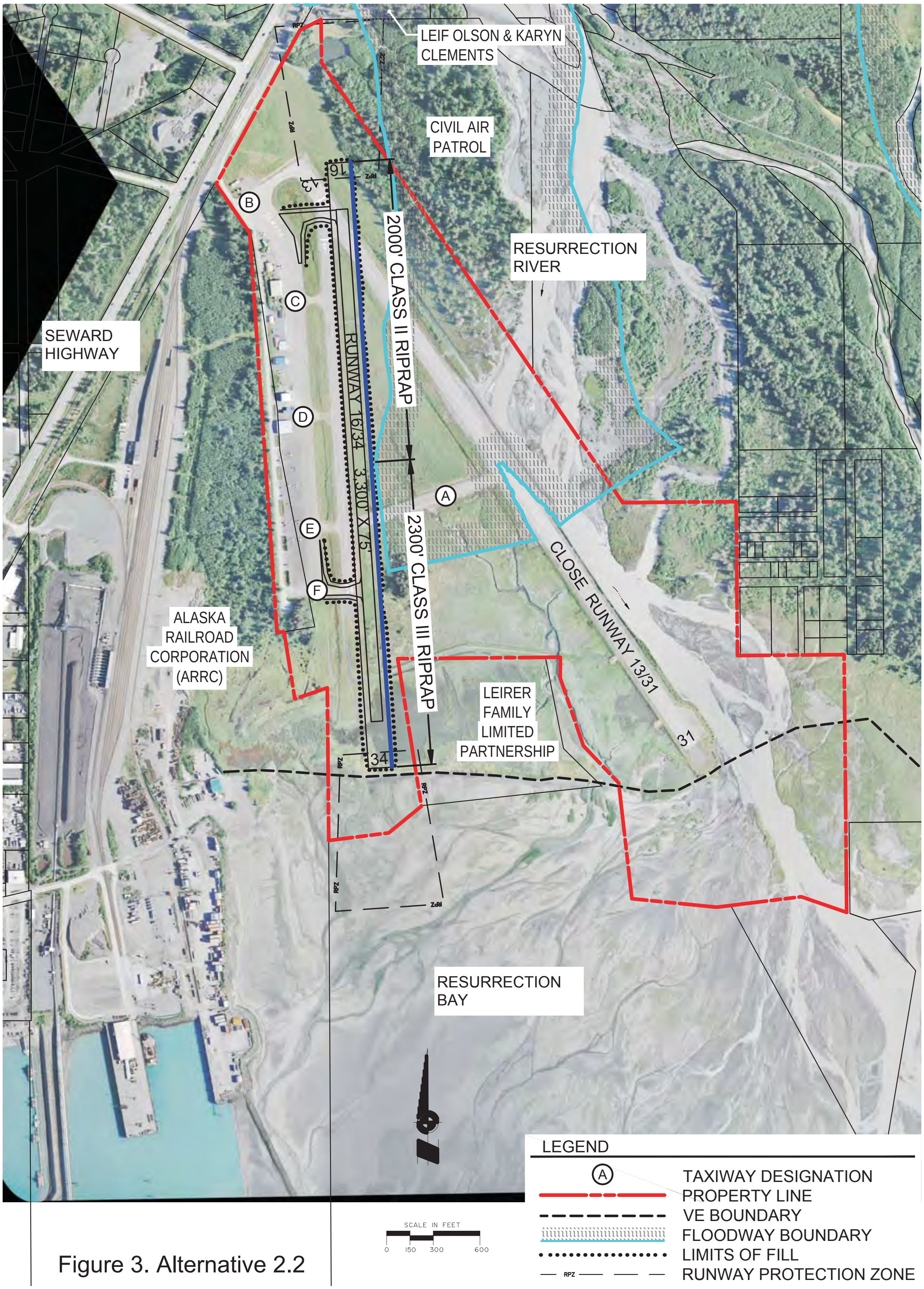


Figure 3. Alternative 2.2

P:\2014\14075FB-SEWARD_AP-IMPR\C\Des\Concept Drawings\C-Alternative Graphics.dwg, 12/15/2016 9:20:46 AM, 1:2

From: Dwayne Atwood [mailto:datwood@cityofseward.net]
Sent: Wednesday, February 22, 2017 3:46 PM
To: Boydston, Mark A (DOT); Beaton, Barbara J (DOT)
Cc: Ron Long; Donna Glenz
Subject: Seward Airport Improvements / Scoping Letter (Project No. TBD/ Z548570000)

Dear Mr. Boydston and Ms. Beaton,

Attached you will find a letter of comment from the City of Seward. We appreciate the opportunity to provide input on the proposed Seward Airport Improvement project. Please add this email address (as well as the address for Assistant City Manager Ron Long) to the agency stakeholders list for future correspondence.

Thank you,

Dwayne Atwood, Planning Technician

Certified Floodplain Manager, CFM
City of Seward
Community Development Department
P.O. Box 167
Seward, Alaska 99664
(907) 224-4049

CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664-0167

- Main Office (907) 224-4050
- Police (907) 224-3338
- Harbor (907) 224-3138
- Fire (907) 224-3445
- City Clerk (907) 224-4046
- Engineering (907) 224-4049
- Utilities (907) 224-4050
- Fax (907) 224-4038

February 22, 2017

DOT&PF
Design & Engineering Services
Preliminary Design & Environmental
P.O. Box 196900
Anchorage, Alaska 99519-6900

Dear Brian Elliott

Thank you for the opportunity to comment on the proposed Seward Airport Improvement project.

The City of Seward desires to see the same result as DOT&PF: a reliable working airport meeting ADG-II and Alaska Community Class airport design standards, and that will accommodate future demand and growth. We offer the following, based on your agency scoping letter of January 24, 2017.

As you've noted, recent changes in stream morphology have resulted in more frequent overtopping of R/W 13/31. It has also shifted the main watercourse of Resurrection River to the west, at first obliquely against and then aligned with the runway. It is fair to say that, rather than "...the main runway is located adjacent to the river..." that the river has relocated itself adjacent to the runway. We have discussed this in the DOT sponsored community meetings held over the last couple of years to address this issue, and were informed that in-river work, or channelization, is prohibited. Doing such work in the river is not impossible, or even impractical. Routine in-river work mining gravel, protecting riverbanks and adjacent properties, and performing flood mitigation and prevention tasks are routinely permitted and completed, both by government agencies and private parties in and adjacent to the Resurrection River. Redirecting the river as an element of protecting the runway should not be taken off the table. As is common with rapid transfer high-deposition streams in the area watershed, watercourses migrate within the floodplain boundaries, and at some point this river will be somewhere other than where it is now. Formulating a protection strategy (Alt 1.1 or 2.2) on an assumption that the floodway watercourse will remain in one place like a well-defined Kenai River or similar will likely impede the river from migrating further west, but will be of no use if the river migrates to the east. From a floodplain manager's perspective rerouting the river or placing obstructions that shape and limit the river's own natural relocation are channelization activities that require engineering and permitting. Neither is impossible, nor is one prohibited and the other allowed outright.

The current flow path continues to deposit material at the head of Resurrection Bay, causing siltation at the Alaska Railroad dock that requires ongoing maintenance and expense. It may be that the Railroad prefers a one-time larger investment (with others) towards relocating the river flow to the channel further east, where the predominant flow was located until fairly recently. This would allow natural siltation to continue, but without repeatedly impacting shipping operations.

The possible need to acquire private properties in order to implement either alternative was mentioned. Without specific parcels being identified in the scoping letter, we can't be sure which properties would be impacted, but it is likely the numerous smaller parcels to the east of R/W 13/31. These properties, though subdivided and platted, can never be practically developed. There is no legal access, and gaining same would be a large multi-agency effort. There are no utilities (required by City Code prior to issuing building permits), and no easements across the various private and public lands that would be crossed to connect utilities. These facts are reflected in the assessor's tax values; most of the smaller lots are valued at less than $1,000. Several owners have deeded their properties to the City in order to avoid paying taxes on undevelopable property. This gives the City, and the Seward Bear Creek Flood Service Area, a conservation and flood mitigation set-aside that's very valuable in providing needed "sponge" areas, with vegetation as stabilization. If acquisition of some or all of these parcels is necessary to implement the project work, the City will facilitate in any way we can, including acquisition and assisting with a LOMR.

We view the restoration of the predominant flow of Resurrection River to its historic channel matrix to the east, which includes sufficient width for inevitable meandering, as critical to the lasting success of either alternative. We prefer Alternative 1.1 as the less intensive in terms of wetlands impacts (~5 acres v. 13.5 for Alternative 2.2), likelihood of less ongoing maintenance, mitigation of continuing impacts to shipping at the Alaska Railroad dock, and most likely to meet the common goals of a working and reliable airport that meets applicable design criteria and plans for future demand and growth.

The scoping letter mentions that Seward is served by rail, road, and the marine highway; the Alaska Marine Highway System suspended operation in and from Seward in the every early 2000's.

We appreciate the opportunity to comment on this important project. We look forward to participating in the continuing discussion.

Sincerely,

City of Seward, Alaska

Donna Glenz

Ron Long,
Assistant City Manager

Donna Glenz,
City Planner (for Ron Long)

Email: rlong@cityofseward.net
Phone: 907 224-2020

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

DESIGN & ENGINEERING SERVICES
Aviation Design

PO Box 196900
Anchorage, AK 99519-6900
Phone Number: 907 269 0617
Toll Free: 800 770 5263
TDD: 907 269 0473
TTY: 800 770 8973
Fax Number: 907 248 1573
Web Site: dot.state.ak.us

April 19, 2017

Ron Long
Assistant City Manager
City of Seward
P.O. Box 167
Seward, AK 99664

Dear Mr. Long:

The Alaska Department of Transportation & Public Facilities (DOT&PF) would like to thank you for your response to our January 24, 2017 request for agency comments. We appreciate your support of the Seward Airport Improvements project.

DOT&PF has evaluated the potential for dredging in the river and has found that this solution is not viable. A memo describing the rationale behind this decision can be found on the projects website:
http://www.dot.state.ak.us/creg/sewardairport/documents/Resurrection-River-Excavation-Memo-final.pdf

Flood maps showing the extent of the existing 100 year flood, as well as the 100 year flood maps for each alternative, were included in the scoping package. These maps included property boundary lines. By inspection, more properties are affected by flood waters from Alternative 1.1 versus Alternative 2.2. According to the Borough Tax Map, many of these properties are under private ownership. Mitigation for flood impacts will be assessed during the property acquisition phase. We will identify properties that will require acquisition as part of the project alternative(s) to be carried forward in the environmental document.

Thank you for identifying our error concerning the Alaska Marine Highway System. If you have further questions regarding the environmental effects of this project, please contact Mark Boydston, Environmental Impact Analyst, at (907) 269-0524 or via email at mark.boydston@alaska.gov. Questions regarding the engineering aspects of the proposed project can be directed to me at (907) 269-0617 or via email at barbara.beaton@alaska.gov.

Sincerely,

Barbara Beaton

Barbara J. Beaton, P.E.
Project Manager

cc: Donna Glenz, City Planner

"Keep Alaska Moving through service and infrastructure."

From: Kindred, Cori M (DNR)
Sent: Thursday, February 23, 2017 4:04 PM
To: Boydston, Mark A (DOT)
Subject: RE: Seward Airport Improvements / Agency scoping letter

Mr. Boydston,

The Department of Natural Resources (DNR) Division of Mining, Land and Water, Southcentral Regional Land Office (SCRO) wishes to ensure that the Department of Transportation and Public Facilities is aware of the following information concerning the proposed Seward Airport Improvements project area in order to better assist the agency in its decision making-process regarding the proposed project:

- DOTPF's management rights in the project area are limited to uplands only, therefore, DOTPF has no managing interest below ordinary high water (OHW) of the Resurrection River. If the project requires work or improvements below OHW of the Resurrection River or otherwise outside of DOTPF's existing management rights, authorization is required from SCRO.
- DOTPF states that the proposed project alternatives are not anticipated to directly impact Resurrection Bay but may require work within the Resurrection River. The State places a high value on navigable water access. While SCRO supports DOTPF's planned activities in the project area, our office also requests that navigation of the river not be restricted as a result of airport construction or operation.
- Gravel and similar rock materials can be purchased from SCRO- managed material sites if required for the project. The contact for SCRO material sales is Chandler Long, 269-8560, or chandler.long@alaska.gov.

Please let me know if there are questions regarding these comments. Thank you for the opportunity to comment.
-Cori Kindred

Cori Kindred
Natural Resource Specialist II
Department of Natural Resources
Division of Mining, Land & Water
Southcentral Region, Easement Management Unit
550 W 7th Ave, Suite 900c
Anchorage, AK 99501
(907) 334-2676

From: Hyslop, Jamie R CIV USARMY CEPOA (US) <Jamie.R.Hyslop@usace.army.mil>
Sent: Thursday, February 23, 2017 9:41 AM
To: Boydston, Mark A (DOT); Beaton, Barbara J (DOT)
Cc: Speerstra, Linda CIV USARMY CEPOA (US)
Subject: POA-1989-672, Resurrection River, Seward Airport Improvements, Corps Response to Agency Scoping Letter
Attachments: POA-1989-672_Scoping Letter.pdf

Mark and Barbara,
Please see the enclosed comment letter concerning the agency scoping letter you sent January 24, 2017, for the Seward Airport Improvement Project.
Please let me know if you have any questions.

Respectfully,
Jamie Hyslop
Project Manager
907-753-2670

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
44669B STERLING HIGHWAY
SOLDOTNA, ALASKA 99669

February 23, 2017

Regulatory Division
POA-1989-672

Mr. Brian Elliott
Alaska Department of Transportation
Post Office Box 196900

Dear Mr. Elliott:

The United States (U.S.) Army Corps of Engineers, Alaska District (Corps) is providing this letter as a written comment to the January 24, 2017, Seward Airport Improvements Scoping Letter. Your project has been assigned number POA-1989-672, Resurrection River, which should be referred to in all correspondence with us.

The Corps' regulatory authorities are based on two laws: Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403), which prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from the Corps; and Section 404 of the Clean Water Act (CWA), which prohibits the discharge of dredged or fill material into waters of the U.S. without a Corps permit. Based on information provided, and available to our office, portions of the proposed work may occur in waters of the U.S. and would, therefore, be within the Corps' jurisdiction.

Waters of the U.S. include, but are not limited to, tidal waters, rivers both perennial and intermittent streams and wetlands. Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include "muskegs", swamps, marshes, bogs, and similar areas.

The Corps' evaluation of a Section 10 and/or a Section 404 permit application involves multiple analyses, including (1) evaluating the proposal's impacts in accordance with the National Environmental Policy Act (NEPA) (33 CFR part 325), (2) determining whether the proposal is contrary to the public interest (33 CFR § 320.4), and (3) in the case of a Section 404 permit, determining whether the proposal complies with the Section 404(b)(1) Guidelines (Guidelines) (40 CFR part 230).

If the proposal requires a Section 404 permit application, the Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR § 230.10(a)). Time and money spent on the proposal prior to applying for a Section 404 permit cannot be factored into the Corps' decision whether there is a less damaging practicable alternative to the proposal.

If an application for a Corps permit has not yet been submitted, the project proposer may request a pre-application consultation meeting with the Corps to obtain information regarding the data, studies or other information that will be necessary for the permit evaluation process. A pre-application consultation meeting is strongly recommended if the proposal has substantial impacts to waters of the United States, or if it is a large or controversial project.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact me via email at Jamie.R.Hyslop@usace.army.mil, by mail at the address above, by phone at (907) 753-2670, if you have questions. For more information about the Regulatory Program, please visit our website at http://www.poa.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Jamie Hyslop
Project Manager

Meeting Notes

Date: May 26, 2017
Time: 10:00 am
Location: Teleconference

Meeting Subject: Seward Airport Improvements Alternatives Discussion with U.S. Army Corps of Engineers (USACE)

Introduction

The purpose of this teleconference was to further explain the rationale for dismissing Seward Airport Improvements alternatives with the USACE.

Table 1. Meeting Attendees

Organization	Name
U.S. Army Corps of Engineers	Jamie Hyslop
Alaska Department of Transportation and Public Facilities (project team)	Barbara Beaton, Mark Boydston
PDC Engineers, Inc. (project team)	Royce Conlon, Erica Betts
Solstice Alaska Consulting, Inc. (project team)	Robin Reich

Welcome and Team and Agency Representative Introductions

The meeting began at 10:00am with introductions led by Barbara Beaton, Alaska Department of Transportation and Public Facilities (DOT&PF).

Alternatives Background

Barbara presented the rationale for dismissing Alternative 1.1 and maintaining Alternative 2.2 into the environmental document phase, referencing the attached report. She said that DOT&PF is considering dismissing Alternative 1.1 from further consideration in the environmental assessment because it would:

- Raise the flood level of the Resurrection River and create the greatest flood impacts within the floodplain
- Have considerable maintenance needs to stay operational
- Result in fish habitat impacts because of fill within the Resurrection River channel
- Impact medivac operations because the only suitable runway for the medivac aircraft (RW 13-31) would be closed during construction

She said that DOT&PF is proposing moving forward with consideration of Alternative 2.2 and the No Action Alternative.

Jamie Hyslop, USACE, said that the USACE is required to authorize only the least environmentally damaging practicable alternative. An alternative is practicable if it can be constructed, is an existing and feasible technology, and if the costs are reasonable. The USACE must also consider the public interest review factors, including the purpose and need for the project. Jamie said that it appears that Alternative 1.1 may not meet the purpose and need, since it may not be reliable during or after flood events. If that is the case, DOT&PF may be able to dismiss the alternative as not practicable.

Jamie said that from the information that was provided, he is unable to compare the alternative to determine which is least environmentally damaging (i.e. which alternative has the most/least wetlands impacts). Jamie said that to fully consider whether the alternative would be permitted, the USACE needs a full description of the environmental impacts, including the fill below mean high water and wetlands and marine impacts.

He said that during the permitting process, practicability, including how well the project meets the purpose and need, and the environmental impacts would be considered; but since he doesn't have an application to consider, he can't tell DOT&PF whether Alternative 2.2 is "permitable."

Barb asked whether DOT&PF should prepare and submit an application. Jamie said that is the next step. He said that the application should be for the preferred alternative and that it should explain how it was selected. He would like to see a separate alternatives analysis in the application. The analysis should consider each alternative and whether it meets the purpose and need for the project. The USACE would consider whether each alternative meets the public interest factors.

Jamie said that the process would include 15 days for the USACE to comment/ask for clarification on the application and then time for DOT&PF to address comments. Then the USACE would move to the decision phase.

Royce Conlon, PDC, stated that currently DOT&PF are consulting with the Federal Aviation Administration (FAA). The FAA may determine that Alternative 1.1 is not reasonable to carry forward because it would result in significant impacts and require an Environmental Impact Statement (EIS). Royce asked whether the FAA's determination of significance would weigh into the USACE's decision making process.

Jamie said that he did not have experience with using another federal agency's determination; however, it might not need USACE's requirement for permitting the least environmentally damaging alternative.

Mark Boydston, DOT&PF, stated that the DOT&PF hydrologist says that the Resurrection River dynamics make Alternative 1.1 unfeasible. Barbara said that DOT&PF will likely use the hydrologist's rationale that Alternative 1.1 is not reasonable to move forward with Alternative 2.2 (and the no action alternative) into the environmental document phase.

Jamie explained the difference between the USACE's authority under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. He said that in Seward, activities below the high tide line, which is 13.8 feet, and adjacent wetlands would fall under Section 404. Activities below mean high water (9.7 feet) would fall under Section 10. Robin Reich, Solstice Alaska Consulting, Inc., said that the permitting process is the same for both Section 10 and 404. Jamie said that he would want to see the areas and volumes for Section 404 and Section 10 waters detailed in the application.

Barbara asked whether the USACE would be open to mitigation and whether using a mitigation bank would be acceptable. Jamie said that the USACE's order of preference for mitigation is: 1) mitigation banks; 2) in-lieu fee; 3) permittee responsible mitigation. He said that the DOT&PF should identify mitigation within the application.

Adjourn

The meeting concluded at 11:00 am.

From: Brian Lindamood [mailto:LindamoodB@akrr.com]
Sent: Friday, February 24, 2017 2:32 PM
To: brian.Elliot@alaska.gov
Cc: Clark Hopp; James Kubitz; Blake Adolfae; Rachel Maddy; Douglas Stephens; Christy Terry; Boydston, Mark A (DOT); Andy Donovan
Subject: Seward Airport Master Plan Comments

Mr. Elliot-

Please find our comments regarding the Seward Airport Master Plan documents you sent last month. A hard copy will follow in the mail.

Sincerely,

Brian A. Lindamood, PE, SE
Director – Capital Projects
907.265.3095 *office* | 907.441.6088 *mobile*
mailing: PO Box 107500, Anchorage, AK 99510-7500
physical: 327 W. Ship Creek Ave, Anchorage, AK 99501
web: www.AlaskaRailroad.com

ALASKA
RAILROAD

February 24, 2017

ENGINEERING
TEL 907.265.3095
FAX 907.265.2638

Brian Elliot
Alaska Department of Transportation and Public Facilities
4111 Aviation Avenue, PO Box 196900
Anchorage, AK 99519-6900

RE: Seward Airport Master Plan Comments

Dear Mr. Elliot:

The Alaska Railroad (ARRC) has reviewed the documents provided by the Alaska Department of transportation and Public Facilities (the "Department") on January 24th, 2017. We have also had additional discussions with the Department regarding our ongoing master planning process with our Seward Terminal that abuts the Seward Airport, and have participated in some discussions with the Department regarding the possible transfer of land owned by ARRC that is under lease to the airport. While ARRC has no specific objections regarding what the Department has proposed, we do have two concerns which must be addressed.

First, ARRC presently uses the Airport Access Road for access to large tracts of property on the east side of our reserve. Access is accommodated by two driveway permits along the road, and where the road enters our right-of-way at the north end of the reserve. Our planning requires that we retain what is effectively public use of this road, and we expect that traffic along this corridor will grow over time. It is our understanding that there may be some federal implications associated with funding that may run afoul of this use. We request that the Department take the steps necessary to ensure that our use is not restricted.

Secondly, the proposed southward extension of Runway 16/34 will shift the existing "air rights" that the Department currently has over ARRC property over an area we plan for marine freight development. Given the nature of marine freight operations, it is possible that the extension of these air rights will prevent, restrict, or certainly complicate ARRC's planned development in this area. If the runway is to be extended as shown, any further restrictions on ARRC airspace that encumber ARRC's development in any way will have to be fully mitigated by the Department.

Thank you for the opportunity to comment on the document. Please feel free to contact me if you have any further questions.

Sincerely,

Brian Lindamood, PE, SE
Director, Capital Projects

cc: Clark Hopp
Roy Thomas
Andy Donovan
Blake Adolfae
Rachel Maddy
Jim Kubitz
Mark Boydston

327 W. Ship Creek Avenue
Anchorage, Alaska 99501

MAILING ADDRESS
P.O. Box 107500, Anchorage, Alaska 99510-7500

TEL 907.265.2300 FAX 907.265.2416
AlaskaRailroad.com

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

DESIGN & ENGINEERING SERVICES
Aviation Design

PO Box 196900
Anchorage, AK 99519-6900
Phone Number: 907 269 0617
Toll Free: 800 770 5263
TDD: 907 269 0473
TTY: 800 770 8973
Fax Number: 907 248 1573
Web Site: dot.state.ak.us

April 18, 2017

Brian Lindamood, P.E., S.E.
Director, Capital Projects
Alaska Railroad Corporation
327 W. Ship Creek Avenue
Anchorage, AK 99501

Dear Mr. Lindamood:

The Alaska Department of Transportation & Public Facilities (DOT&PF) would like to thank you for your response to our January 24, 2017 request for agency comments. We have appreciated the ARRC's open communication during the scoping phase of this project.

We are aware of the ARRC's desire to use the current Airport Access Road as future access to your property. Our Right of Way Chief is taking the lead on this issue as well as the proposed land exchange. Should the department elect to move forward with Alternative 2.2, impacts to ARRC property resulting from airspace requirements, will be addressed during the property acquisition phase of the project. However we first need to complete the environmental process.

DOT&PF is committed to finding the engineering alternative which best addresses all the issues at the airport. We will continue to keep the Seward Working Group (the ARRC is a member) informed of our progress. Through an open and collaborative process we hope to ensure the success of this project.

If you have further questions regarding the environmental effects of this project, please contact Mark Boydston, Environmental Impact Analyst, at (907) 269-0524 or via email at mark.boydston@alaska.gov. Questions regarding the engineering aspects of the proposed project can be directed to me at (907) 269-0617 or via email at barbara.beaton@alaska.gov.

Sincerely,

Barbara J. Beaton, P.E.
Project Manager

From: Harris, Bryr <bharris@kpb.us>
Sent: Wednesday, March 1, 2017 11:21 AM
To: Olivia Cohn
Subject: RE: Reminder and Mtg. Materials: 3/2/17 Seward Airport ProjectAgency Scoping Mtg., Soldotna

Good morning Olivia,

I will be attending tomorrow's meeting. I've been looking through the materials you provided and those on the project website. It mentions that an H&H study has been conducted and that FEMA will be consulted as part of the environmental assessment. Is it possible to see a report from the H&H? Will the project include submitting a Conditional Letter of Map Revision (CLOMR) to FEMA?

Thank you!

Bryr Harris
Floodplain Administrator, CFM
Kenai Peninsula Borough • River Center
514 Funny River Road Soldotna, AK 99669
(907) 714-2464 • bharris@kpb.us
www.kenairivercenter.org

From: Olivia Cohn
Sent: Wednesday, March 22, 2017 10:47 AM
To: 'Leah_kenney@fws.gov'
Cc: 'Robin Reich'; 'Royce Conlon'; Beaton, Barbara J (DOT); 'Erica Betts'
Subject: Request for Scoping Comments for the Seward Airport Improvement Project Agency Scoping
Attachments: Seward AP_Figs 1-8_Agency scoping letter.pdf

Hello Leah:

After the Seward Airport Improvements Project agency scoping meeting took place on March 2, 2017, you indicated that you would like a copy of the Alaska Department of Transportation and Public Facilities' (DOT&PF) request for scoping comments for this Project.

Please find the DOT&PF's request for scoping comments letter and accompanying materials attached.

Thank you,

Olivia Cohn
Environmental Planner
Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | olivia@solsticeak.com
www.solsticeak.com

From: Kenney, Leah <leah_kenney@fws.gov>
Sent: Thursday, March 23, 2017 10:44 AM
To: Olivia Cohn
Subject: Re: Request for Scoping Comments for the Seward Airport Improvement Project Agency Scoping

Hi Olivia,

Thank you for sending this information. As you discussed during the scoping meeting, information on both migratory birds and bald eagles are included in the scoping comments letter. I see that the recommend time period for avoiding land disturbance and vegetation clearing for nesting migratory species will be implemented, and that coordination with USFWS for any active bald eagle nests will be initiated. Thus, I have no further comments at this point.

Thank you!

Leah

--
Leah Kenney
Fish and Wildlife Biologist
Ecological Services Branch
USFWS Anchorage Field Office
4700 BLM Road
Anchorage, Alaska, 99507
907-271-2440

From: Solstice AK
Sent: Wednesday, May 10, 2017 10:24 AM
To: 'cindy.heil@alaska.gov'; 'grant.lidren@alaska.gov'; 'william.ashton@alaska.gov'; 'shina.duvall@alaska.gov'; 'jimmy.smith@alaska.gov'; 'Vlitchfield@kpb.us'; 'ginny.litchfield@alaska.gov'; 'tammy.davis@alaska.gov'; 'jeff.selinger@alaska.gov'; 'LindamoodB@akrr.com'; 'Kubitzj@akrr.com'; 'dglenz@cityofseward.net'; 'spresley@kpb.us'; 'bharris@kpb.us'; 'tdearlove@kpb.us'; 'greg.balogh@noaa.gov'; 'jeanne.hanson@noaa.gov'; 'matthew.eagleton@noaa.gov'; 'Jamie.r.hyslop@usace.army.mil'; 'Douglass_cooper@fws.gov'; 'Leah_kenney@fws.gov'; 'rlong@cityofseward.net'; 'datwood@cityofseward.net'
Cc: 'mark.boydston@alaska.gov'; 'barbara.beaton@alaska.gov'; 'joy.vaughn@alaska.gov'; 'RoyceConlon@pdceng.com'; Robin Reich; 'EricaBetts@pdceng.com'; Olivia Cohn
Subject: 3/2/17 Seward Airport Project Agency Scoping Mtg. Summary
Attachments: SewardAirport_AgencyScopingMeeting_PPTPresentation_03022017.pdf; SewardAirport_AgencyScopingMtgNotes.pdf

Good afternoon:

Thank you for participating in the March 2, 2017 Seward Airport Improvement Project agency scoping meeting. We value your input on this important project. For those that were unable to attend the meeting, we appreciate your continued interest.

A meeting summary and the PowerPoint presentation referenced during the discussion are attached.

Solstice Alaska Consulting, Inc.
2607 Fairbanks Street, Suite B, Anchorage, AK 99503
907-929-5960 | solsticeak@solsticeak.com
www.solsticeak.com

Meeting Notes

Date: March 2, 2017

Time: 1:00 p.m.

Location: Kenai Peninsula College, Kenai River Campus, CTEC Building, Room 105,
156 College Rd., Soldotna, AK

Meeting Subject: Seward Airport Improvements Project (#Z548570000)
Agency Scoping Meeting

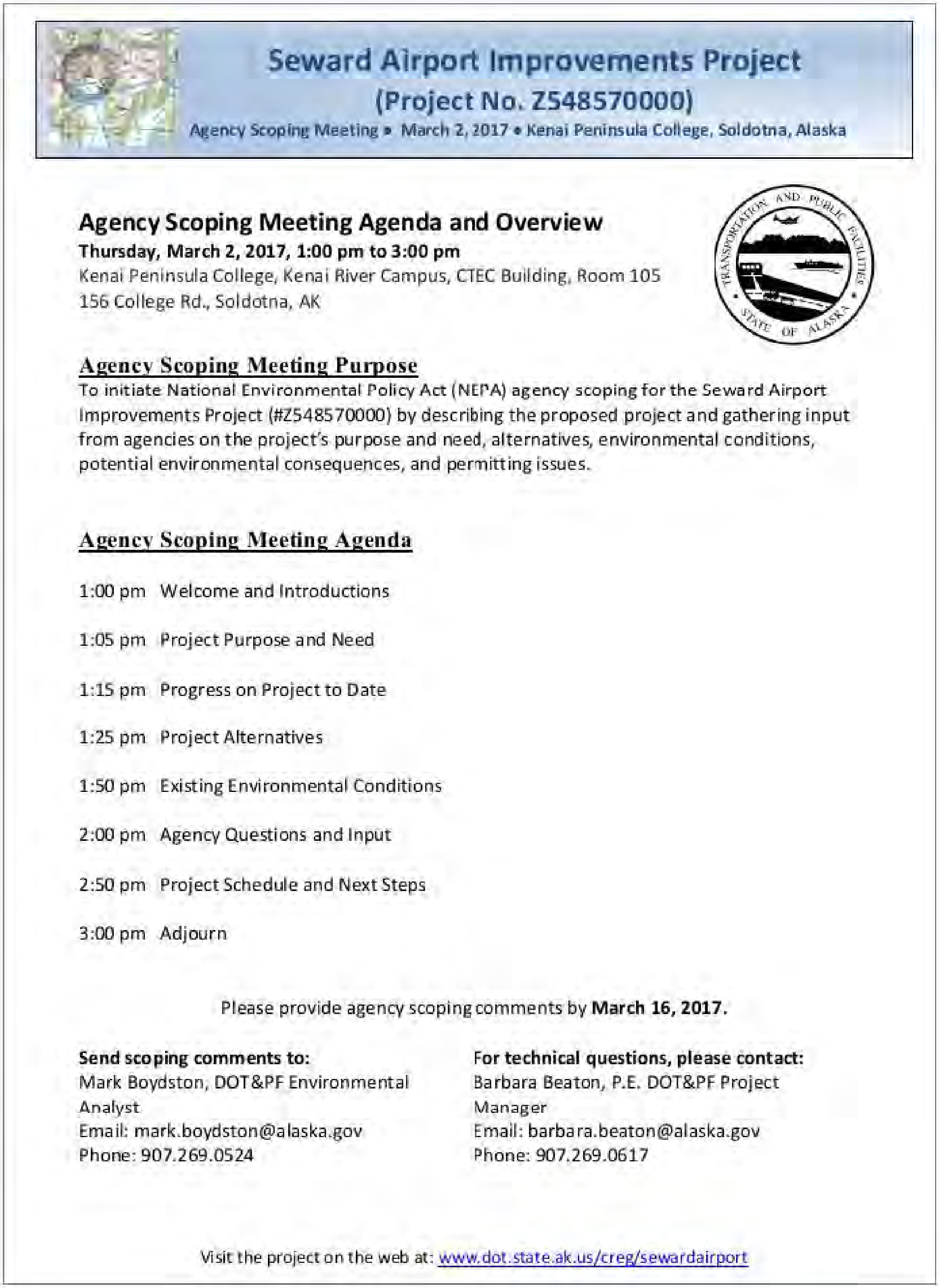
Introduction

This document provides a summary of the Seward Airport Improvements Project agency scoping meeting that was held on March 2, 2017 in Soldotna, Alaska. It began at approximately 1:00 p.m. and adjourned at approximately 2:40 p.m. Table 1 lists meeting attendees and invited agency representatives. Seven agency/stakeholder representatives were in attendance either in person or via teleconference along with seven project team members.

Table 1. Meeting Attendees

Organization	Name
Alaska Department of Fish and Game (ADF&G), Division of Habitat	Ginny Litchfield
ADF&G, Division of Habitat, Invasive Species Program	Tammy Davis (via teleconference)
City of Seward	Donna Glenz, Dwayne Atwood (via teleconference)
Kenai Peninsula Borough (KPB)	Stephanie Presley (via teleconference)
U.S. Army Corps of Engineers (USACE), Kenai Field Office Regulatory Division	Jamie Hyslop
U.S. Fish and Wildlife Service (USFWS)	Leah Kenney (via teleconference)
Alaska Department of Transportation and Public Facilities (DOT&PF) *(project team)*	Barbara Beaton, Joy Vaughn Mark Boydston, (via teleconference)
PDC Engineers, Inc. *(project team)*	Royce Conlon Erica Betts (via teleconference)
Solstice Alaska Consulting, Inc. *(project team)*	Olivia Cohn, Robin Reich (via teleconference)
Invited, but not in attendance	
Alaska Department of Environmental Conservation (ADEC), Division of Air Quality, Non-Point & Mobile Sources Program	Cindy Heil
ADEC, Division of Spill Prevention and Response, Contaminated Sites	Grant Lidren
ADEC, Division of Water, Wastewater Discharge Authorization, Stormwater and Wetlands	William Ashton
Alaska Department of Natural Resources (ADNR), Division of Parks & Outdoor Recreation (DPOR), State Historic Preservation Officer (SHPO)	Shina duVall, RPA
Alaska Department of Commerce, Community, & Economic Development (ADCCED), Division of Community & Regional Affairs	Jimmy Smith
ADF&G, Division of Wildlife Conservation	Jeff Selinger
Alaska Railroad Corporation (ARRC)	Brian Lindamood, Jim Kubitz
KPB	Bryr Harris
Kenai River Center	Tom Dearlove
National Marine Fisheries Service (NMFS)	Greg Balogh, Matt Eagleton, Jeanne Hanson
USFWS	Doug Cooper

The meeting agenda, documenting the meeting's purpose, goals, and format, is presented in Figure 1.



Seward Airport Improvements Project
(Project No. Z548570000)
Agency Scoping Meeting ▪ March 2, 2017 • Kenai Peninsula College, Soldotna, Alaska

Agency Scoping Meeting Agenda and Overview

Thursday, March 2, 2017, 1:00 pm to 3:00 pm
Kenai Peninsula College, Kenai River Campus, CTEC Building, Room 105
156 College Rd., Soldotna, AK

Agency Scoping Meeting Purpose

To initiate National Environmental Policy Act (NEPA) agency scoping for the Seward Airport Improvements Project (#Z548570000) by describing the proposed project and gathering input from agencies on the project's purpose and need, alternatives, environmental conditions, potential environmental consequences, and permitting issues.

Agency Scoping Meeting Agenda

1:00 pm Welcome and Introductions

1:05 pm Project Purpose and Need

1:15 pm Progress on Project to Date

1:25 pm Project Alternatives

1:50 pm Existing Environmental Conditions

2:00 pm Agency Questions and Input

2:50 pm Project Schedule and Next Steps

3:00 pm Adjourn

Please provide agency scoping comments by **March 16, 2017.**

Send scoping comments to:
Mark Boydston, DOT&PF Environmental Analyst
Email: mark.boydston@alaska.gov
Phone: 907.269.0524

For technical questions, please contact:
Barbara Beaton, P.E. DOT&PF Project Manager
Email: barbara.beaton@alaska.gov
Phone: 907.269.0617

Visit the project on the web at: www.dot.state.ak.us/creg/sewardairport

Figure 1. Meeting Agenda

Welcome and Team and Agency Representative Introductions

The meeting began at approximately 1:00 p.m. with introductions led by Barbara Beaton, the DOT&PF Project Manager. Barbara welcomed meeting attendees and stated that the purpose of the meeting was to discuss environmental concerns/impacts associated with the two alternatives included in the scoping package.

Royce Conlon, Project Manager for PDC, then proceeded to review the meeting agenda (Figure 1). She noted that the conversation would also follow the PowerPoint presentation (slides are referenced throughout this document) that was distributed prior to the meeting. The agency scoping materials (distributed in January 2017 by Mark Boydston, DOT&PF), frequently asked questions (www.dot.state.ak.us/creg/sewardairport/faq.shtml), and the Resurrection River dredging memo (www.dot.state.ak.us/creg/sewardairport/documents/Resurrection-River-Excavation-Memo-final.pdf) would also be discussed.

Project Background; Purpose and Need

Project Funding. Royce explained that the Project is a DOT&PF project with funding from the Federal Aviation Administration (FAA), and FAA standards must be followed.

- Standards include runway length and width specific to a certain size aircraft and relative to aircraft use/demand. The City of Seward has investigated other funding sources, but currently this Project is funded primarily by FAA with a small State of Alaska match.

Project Team. The project team (PowerPoint slide 3) consists of the DOT&PF with PDC Engineers leading the design of the project, Shannon & Wilson for geotechnical support, Hydraulics Mapping and Modeling (HMM) for flood studies, and Solstice Alaska Consulting for public involvement and biological assessment.

- Mark Boydston, DOT&PF, is the primary contact for all environmental comments.

Purpose and Need. The project Purpose and Need was discussed (PowerPoint slide 4), was paraphrased from the agency scoping letter P&N and pictures showing recent flooding and runway damage.

Challenges. One of the biggest challenges of this project consists of flooding caused by the Resurrection River; Rivers of this size and type are hard to control. Since a significant portion of the main runway is located within the regulatory floodway (according to the FEMA FIRM map), the runway has been overtopped several times. The damage from flooding has been extensive. The history of the river's challenges was discussed (PowerPoint slide 5).

- The DOT&PF and HMM hydrologists have provided input into understanding flood constraints and potential impacts to flooding from the proposed improvements.
- The river began moving toward the airport sometime after the 1987 photo was taken; by 1996 the river was adjacent to the runway and a revetment project was completed to protect the runway from further damage; by the time the 2014 aerial photo was taken, the river had changed course and was hitting the airport perpendicularly, frequently eroding and overtopping the main runway surface.

- The 2008 Seward Airport Master Plan recommended raising the main runway and providing erosion protection. An Environmental Document was completed in conjunction with this effort and a FONSI was issued for that Action. However, since the documents were completed, flooding and erosion of the airport has become substantially worse, thus this effort to re-evaluate the options.

Project Progress. Recently, and following the 2008 Airport Master Plan recommendations, Project progress has been made (PowerPoint slide 6).

- Facility requirements were updated (www.dot.state.ak.us/creg/sewardairport/documents/SWD_Av_Activity_Fac_Rqmts_Memo_07142015.pdf).
- Two public and three Stakeholder Working Group (SWG) meetings were held.
- The purpose and need as well as project constraints were identified.
- A preliminary geotechnical evaluation, a flood study (including a dredging analysis: www.dot.state.ak.us/creg/sewardairport/documents/Resurrection-River-Excavation-Memo-final.pdf), and a wetlands delineation were completed.

Alternatives. Two alternatives are being considered, (PowerPoint slide 7). DOT&PF emphasized that this meeting should help identify whether there are fatal flaws in either option or whether both are viable options to be carried forward.

- Both alternatives would include repaving some surfaces, new lighting, creating a service road(s), acquiring property, and establishing a float plane change-out area.
- Alternative 1.1 (PowerPoint slide 9) would keep the longer, main runway in its current configuration/alignment, but it would raise the embankment as much as 7 feet in some areas (4.4 foot average) to establish a final elevation 2 feet above the 100-year flood level (i.e. 2 foot of free board). Also, additional riprap would be installed to create a less permeable runway. The additional embankment and riprap placed in the floodway would cause an increase in the base flood elevation of as much as 4 feet.
- The key advantage of Alternative 1.1 is the longer runway. Alternative 2.2 would be about 950 feet shorter.
- The need for a longer runway was discussed. A participant noted that if the existing runway were capable of handling heavier aircraft, there might be larger aircraft using the airport.
    - According to research completed during the scoping phase of the project, the historical number of larger aircraft using the airport (about 24 operations) do not come close to the number of operations (500) needed to qualify it as the design aircraft (the basis for airport geometry) for the airport. FAA may be willing to fund improvements to the existing main runway that is currently in place, but will not fund construction of a longer runway on a different alignment (i.e. Alternative 2.2). In other words, they may fund retaining the existing infrastructure as is, but are not able to fund new construction of a runway that is longer than demand warrants.
- Modeled flood boundaries are identified for each Alternative (PowerPoint slides 9 and 10). Construction within the floodway (Alternative 1.1) would cause a rise in the base flood elevation by as much as four feet and the FEMA flood map would need to be revised as a result of the increase. Alternative 2.2 does not require construction in the floodway. As a

result, a revision to the FEMA flood map will not be required. Barb noted that revising the FEMA flood map is a time-consuming process.

Agency Input/Questions

The meeting was opened to questions from the agencies.

FIRM Flooding; Mitigate/Offset Flooding. Stephanie Presley (KPB) asked what FEMA thinks about the FIRM process? Is this (the project alternatives) something that they would consider?

- DOT&PF answered that the project would have to go through the LOMAR/CLOMAR process, including a public review for Alternative 1.1 but not for Alternative 2.2. DOT&PF would let land owners know how they would be impacted.
  - The Airport Improvement Project would need to pay mitigation for properties impacted by flooding as a result of raising the runway. This would be assessed during the LOMAR/CLOMAR process. This process is expensive, and the project team would like to avoid it, unless the alternative is the best way to move forward.
- Stephanie commented that it looks like the majority of properties that would be underwater are not developed.
  - Barbara noted that information obtained from the Borough Tax Map indicated that some of the properties were developed. A Native allotment, a property type that can take up to ten years to acquire, could also be affected. Joy Vaughn, DOT&PF, added that properties would be impacted on both sides of the river.
- It was asked if there is a way to mitigate/offset floods in another area.
  - Barb answered that the state is not going to dredge. If the flooding caused by project improvements impact property, the state has to mitigate any damages. As the project advances, the project will need to look at impacts to all affected properties.
  - Barbara said that typically, when a plan involves a braided river, the river should be given as much room as possible. Currently, the river is constrained by the airport and that has been a cause of the flooding.

Runways, Entrapment, and Crosswinds.

- Stephanie asked if the existing longer runway would be closed or removed.
  - For Alternative 2.2 (PowerPoint slide 10), the main runway would be closed, the pavement and lighting system would be removed, the embankment would remain to allow nature to take its course, potentially it would be eventually breach.
  - For this alternative, the existing crosswind runway would be offset to meet standards, lengthened, raised above the 100-year flood level and protected with riprap.
- A concern was raised about fish entrapment; namely if the existing main runway was allowed to breach, could channels/ponds be created that would cause fish to become trapped/isolated? It was noted that means to avoid fish entrapment should be considered during project design.
- The alternative aims to stay out of VE flood zone in order to avoid permitting that would be required if fill was placed in this area.
- Crosswinds were discussed.

  - The project team looked at wind coverage. Alternative 2.2 would allow for aircraft operation under almost all wind conditions (currently has 98% wind coverage) which exceeds the FAA desired wind coverage of 95%.

Comparing Alternatives and Environmental Issues. Environmental considerations were discussed (PowerPoint slide 11). DOT&PF asked if there are other environmental aspects to consider.

- Alternative 1.1, with the longer runway, would require substantial more erosion protection, which would involve the placement of fill within the river.
- For Alternative 2.2, there are more wetland impacts, but there are no in-river water impacts. There is a pond near this alternative, a portion of which would be filled.
  - Ginny Litchfield, ADF&G, said that, from a fish habitat perspective, the second alternative (2.2) is much more desirable.
- Alternative 1.1, because it involves fill within the floodway, will require revising the FEMA FIRM map. Fill from Alternative 2.2 would occur within the floodplain *but not* the floodway and would not require a FEMA Letter of Map Revision.
- It was asked is wetland areas of impacts for the alternatives available.
  - Preliminary impacts have been calculated (shown on slide 11); Alternative 1.1 is estimated to be 5 acres whereas Alternative 2.2 is 13.5 acres. Before doing a detailed impact analysis DOT&PF is trying to determine if Alternative 1.1 is viable to carry forward; or if the flood impacts present reason enough to eliminate it.
- Jamie Hyslop, USACE, noted that, based on purpose and need, USACE authorizes the least environmentally-damaging practical alternative based on costs, logistics, and technology. It should be proven that other alternatives are not viable if they have less wetlands impacts. He also mentioned after discussion of flooding, that perhaps it was too early for his involvement. This issue can be discussed further when USACE has received the wetlands permit application.
  - DOT&PF noted that an estimate of property costs would be determined to help with the analysis.
- DOT&PF noted that Alternative 2.2 has been discussed as the engineer-preferred alternative; however, they would like agency input on the Alternative 1.1.
  - DOT&PF emphasized that, unless there is a strong reason to move forward with Alternative 1.1, they will likely only move forward with Alternative 2.2.

Wetlands.

- It was emphasized that it would be helpful to understand the project impacts on improved riparian habitat. Ginny said that this should be included as part of the wetlands assessment.
  - DOT&PF asked USACE how impacts occurring to a low-value wet area compare to impacts to a high-value wet area. USACE said the project should look at impacts to types of wetlands based on their functions and values and whether the wetlands are common or unique within the watershed.

- It was asked whether USACE has records of permits issued over time within the Resurrection River watershed. Jamie confirmed that USACE has a record of permits, though it is not totally complete and there is not summary of past impact losses.
- DOT&PF asked whether a river/waterbody is valued more than other types of wetlands.
  - USACE responded by saying that this is determined on a case-by-case basis.
- Whether an USACE permit fell under Section 10 (of the Rivers and Harbors Act) or Section 404 (of the Clean Water Act) was discussed.

Flooding/Sedimentation.

- Jamie asked whether the airport was currently submerged.
  - The project team confirmed that areas of the airport are sometimes submerged. The river water backs up during high tide. When the tide is in, as detailed in the hydrology report, the river inundates the middle area of the airport.
- Stephanie asked whether DOT&PF has considered that sediment could fill in the section between the two runways.
  - The project team answered that there could be natural sedimentation of the area, if the river continues to overtop and erode the existing runway. The area could continue to fill with river sediment, but it is hard to predict. It was noted that Metco is mining gravel upriver.
  - With the difficulty of predicting the rivers course and sedimentation, the project is trying to come up with the best design possible.
- Stephanie asked if FEMA has been contacted to remap the area since there has been 12 years of sedimentation of the area since the FIRM map was completed in 2005.
  - The project team responded that, they did new mapping and compared it to the existing FEMA mapping to estimate sedimentation and recent changes in the river. LiDAR was completed for the land surface while in the river cross sections were surveyed in the field at the same locations as the FIRM cross sections.
    - Stephanie requested a copy of the flood study. DOT&PF agreed to provide information, and added that it was done with the best possible information to predict flood events.
    - It was also noted that in the 1990s, DOT&PF did hydrology studies that resulted in a revetment project to the runway. That improvement project held up for nearly 20 years.

Eagle Nests.

- Leah Kenney, USFWS, said that she appreciated the information, and USFWS would like to be made aware of active eagle nests in the areas and recommended that they be a project consideration. Leah can put the Project team in touch with USFWS' eagle permitter. The proximity of eagle nests and appropriate permits under the Bald and Golden Eagle Protection Act were discussed.
  - It was noted that the agency scoping packet includes information on eagle nests on pages 4 and 5. Leah requested a scoping packet and the project team agreed to share it.

Comments. Comments should be directed to Mark (mark.boydston@alaska.gov, 907-269-0524), and technical questions should be directed to Barbara (barbara.beaton@alaska.gov, 907-269-0617). Technical questions may be directed to Joy at 907-269-0812 while Barbara is out of office through March 20, 2017.

SWG. Stephanie asked whether there will be another SWG meeting.

- DOT&PF commented that there will be another SWG conference call. The SWG has been providing input throughout the process, and the two alternatives have been shared with the SWG.
    - Written comments have been received from ARRC, and ARRC has been an active SWG member. Among their comments is concern about potential airspace conflicts.
    - The SWG was made aware of a third alternative that extends the crosswind runway to 4000' in length, but there is currently inadequate demand for the longer runway to fit under this funding source, so it was not pursued further.

Adjourn

Comments and concerns were requested by about March 16, 2017. The meeting concluded at approximately 2:40pm.

Alaska Department of Transportation & Public Facilities

Seward Airport Improvements

March 2, 2017

Welcome!

- Agenda
  - (1pm) Welcome and Introductions
  - Purpose and Need
  - Progress to Date
  - Project Alternatives
  - Existing Environmental Conditions
  - Agency Questions and Input
  - Project Schedule and Next Steps
  - Adjourn (3pm)

Project team

- **ADOT&PF**
  - Barbara Beaton, P.E.
    - Project Manager
  - Joy Vaughn, P.E.
    - Consultant Coordinator
  - Mark Boydston
    - Environmental Analyst
- **PDC Engineers**
  - Royce Conlon, P.E.
    - Project Manager
  - Angela Smith, P.E.
    - Project Engineer
  - Erica Betts, AK-CESCL
    - Environmental Analyst
- **Solstice Alaska**
  - Robin Reich
    - Public Involvement Coordinator/Biologist
  - Carla SlatonBarker
    - Public Involvement Specialist
- **Hydraulics & H Modeling**
  - Ken Karle, P.E.
    - Project Hydrologist
- **Shannon & Wilson**
  - Kyle Brennen, P.E.
    - Geotechnical Engineer

Purpose and Need

- Provide reliable working airport that meets the near term demand & complies with FAA Standards.

- Airport located within the floodplain of Resurrection River - has been overtopped 18 times in the last 5 years

Hydrology is the Biggest Challenge of this Project

River flooding has caused:

- Extensive erosion that compromises the runway's pavement structure. As floodwaters recede, fines (the binding material or "glue") in the base materials are washed out, leaving voids between the large rocks under the pavement.
- Reduction of pavement strength, resulting in weight restrictions being placed on the main runway.

Why is River Hydrology an Engineering Challenge?

River Type — On the Move and Hard to Control

- The Resurrection River is a braided river, meaning that it constantly moves from channel to channel within the floodplain—as the photos above show. Where any braided river will move over time is always a guess, but this is particularly true for the Resurrection River, which carries a lot of natural sediment (gradually clogging existing channels as it settles out) and meltwater (carving new channels during peak seasonal flows). Attempts to control braided rivers provide only short-term benefits, or else require constant maintenance and demand continual funding.

Progress to Date

- 2008 Master Plan
- Update of Facility Requirements and Aviation Use Forecast
- Public Meetings (9/11/14 & 4/20/16)
- Stakeholder Working Group Meetings (11/19/14, 7/21/15, 4/20/16)
- Identified Purpose and Need as well as Constraints
- Geotechnical evaluation
- Flood analysis
- Dredging/Excavation of Resurrection River Memo
- Updated Wetlands Delineation

Project Alternatives

- Alternative 1.1 would include:
  - Reconstruct and raise R/W 13/31 above 100-yr flood lever (up to 4 feet) requiring FIRM map revisions
  - Install riprap to protect embankment. Adjust elevation of R/W 16/34 and T/Ws B and C to match the new R/W 13/31 elevation

- Alternative 2.2 would include:
  - Close R/W 13/31 and discontinue maintenance
  - Reconstruct and raise R/W 16/34 above the 100-yr flood level (less than 1 foot). Includes shifting R/W east
  - Install riprap to protect embankment from flooding

Project Alternatives cont..

- Both Alternatives include:
  - Eliminate or reconfigure T/Ws A, C, D and E to comply with new FAA guidance
  - Repave other airport surfaces
  - Install new lighting and electrical enclosure building
  - Relocate, repair, or replace navigational aids and markings
  - Construct service roads
  - Install security fencing
  - Property acquisitions
  - Construct an access road and ramp to accommodate float plane floats to wheel change-outs

ALTERNATIVE 1.1

Reconstruct Existing Main Runway (13-31) (4,249 feet x 75 feet)

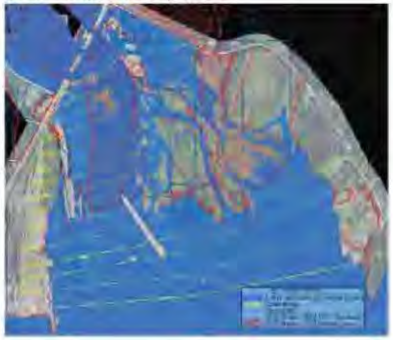
- ✈ Reconstruct and raise Runway 13-31 above the 100-year flood level. Install riprap to protect the embankment.
- ✈ Adjust elevations of Runway 16-34 and Taxiways B and C to match new runway elevation. Eliminate Taxiways A, D, and E to comply with new FAA guidance.

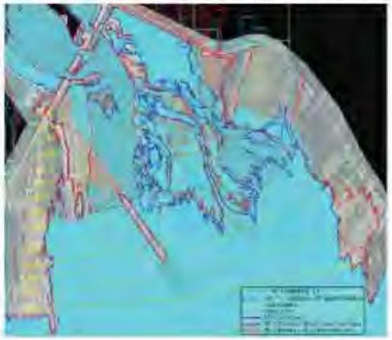
Key Advantage

- \+ Runway will still accommodate historical jet traffic, although it will be slightly shorter to provide the full required Runway Safety Area.

Key Disadvantages

- \- Creates the greatest flood impacts.
  - Requires armoring and raising the runway by 4 feet on average.
  - The higher runway will redirect more flood water further to the other side of the river, impacting more properties than the other alternatives, thereby lengthening the property acquisition phase.
  - Impacts the Resurrection River floodway, requiring a revision of the FIRM (flood) map. May not be achievable due to the additional impacts to river properties. Requires a public process. The FIRM revision is expected to lengthen the permitting process by about 2 years.
- \- Most difficult option to permit and construct due to the work required in the river.
- \- Offset from the apron remains substandard for large aircraft.


100 Year Floodplain - Existing Conditions


100 Year Floodplain - Alternative 1.1

ALTERNATIVE 2.2

Shift Existing Crosswind Runway (16-34) East & Add 1,011 Feet (3,300 feet x 75 feet)

- Close Runway 13-31 and allow floodwater to overtop it.
- Reconstruct and raise Runway 16-34 above the 100-year flood level. Install riprap to protect the embankment.
- Relocate Taxiway B and adjust Taxiway F to match new runway elevation. Eliminate Taxiways A, C, D, and E to comply with new FAA guidance.

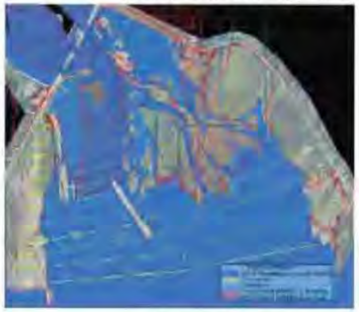
Key Advantages

- Sufficient for current and predicted aircraft demand. Accommodates the design aircraft.
- Less susceptible to flood damage than Alternative 1.1, since improvements are located further away from the river threat.
- Lengthens the runway that is best aligned with the predominant wind direction.
- Increases the runway offset from the apron to allow larger aircraft to use the apron.
- Has the least environmental and flood impacts of all alternatives. Impacts the floodplain but not the floodway.
- Raises the 100-year flood level by less than 1 foot, resulting in minor additional flood impacts to river properties. Fewer properties to be acquired than Alternative 1.1, and consequently, a shorter property acquisition process.
- Could be phased to extend to a longer runway as future demand warrants.
- Easiest option to construct.

Key Disadvantages

- One runway (13-31) would be eliminated.
- The new, improved Runway 16-34 would be 949 feet shorter than the abandoned runway.

100-Year Floodplain - Existing Conditions



100-Year Floodplain - Alternative 2.2

Environmental Considerations

- Anadromous fish streams in project area
  - Resurrection River, Airport Creek and 2 unnamed streams
  - Alt 1.1 will place fill in Resurrection River
- Floodplain impacts
  - Alt 1.1 - Increase in BFE up to 4 ft in some areas, would require FIRM Map revision.
  - Alt 2.2 - BFE increases < 1ft.
- Migratory Birds
  - Eagle nests near project
  - Bird watching area
- Wetlands
  - Alt 1.1 - Estimated 5 acres of impacts
  - Alt 2.2 - Estimated 13.5 acres of impacts

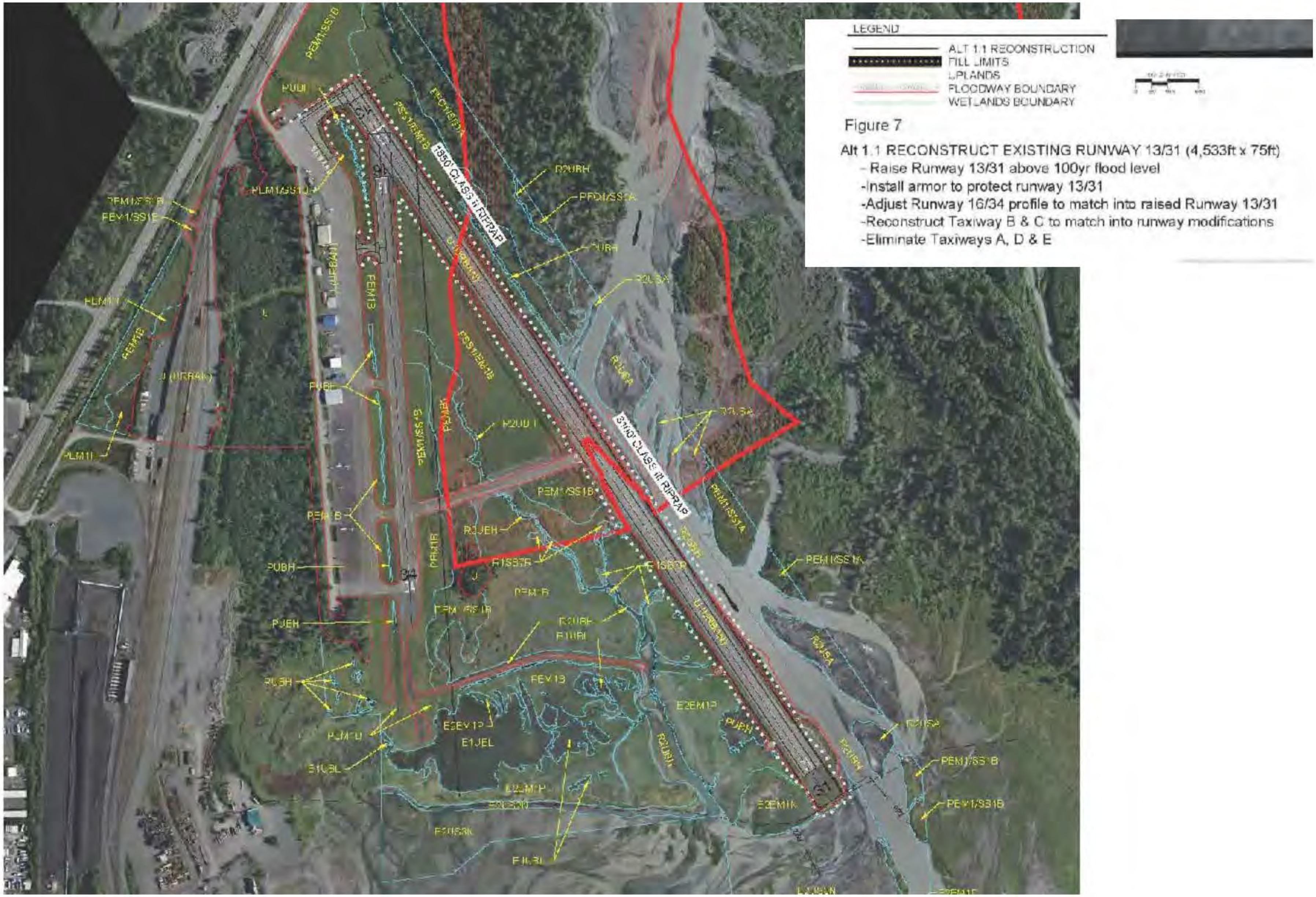


Figure 7

Alt 1.1 RECONSTRUCT EXISTING RUNWAY 13/31 (4,533ft x 75ft)
- Raise Runway 13/31 above 100yr flood level
-Install armor to protect runway 13/31
-Adjust Runway 16/34 profile to match into raised Runway 13/31
-Reconstruct Taxiway B & C to match into runway modifications
-Eliminate Taxiways A, D & E

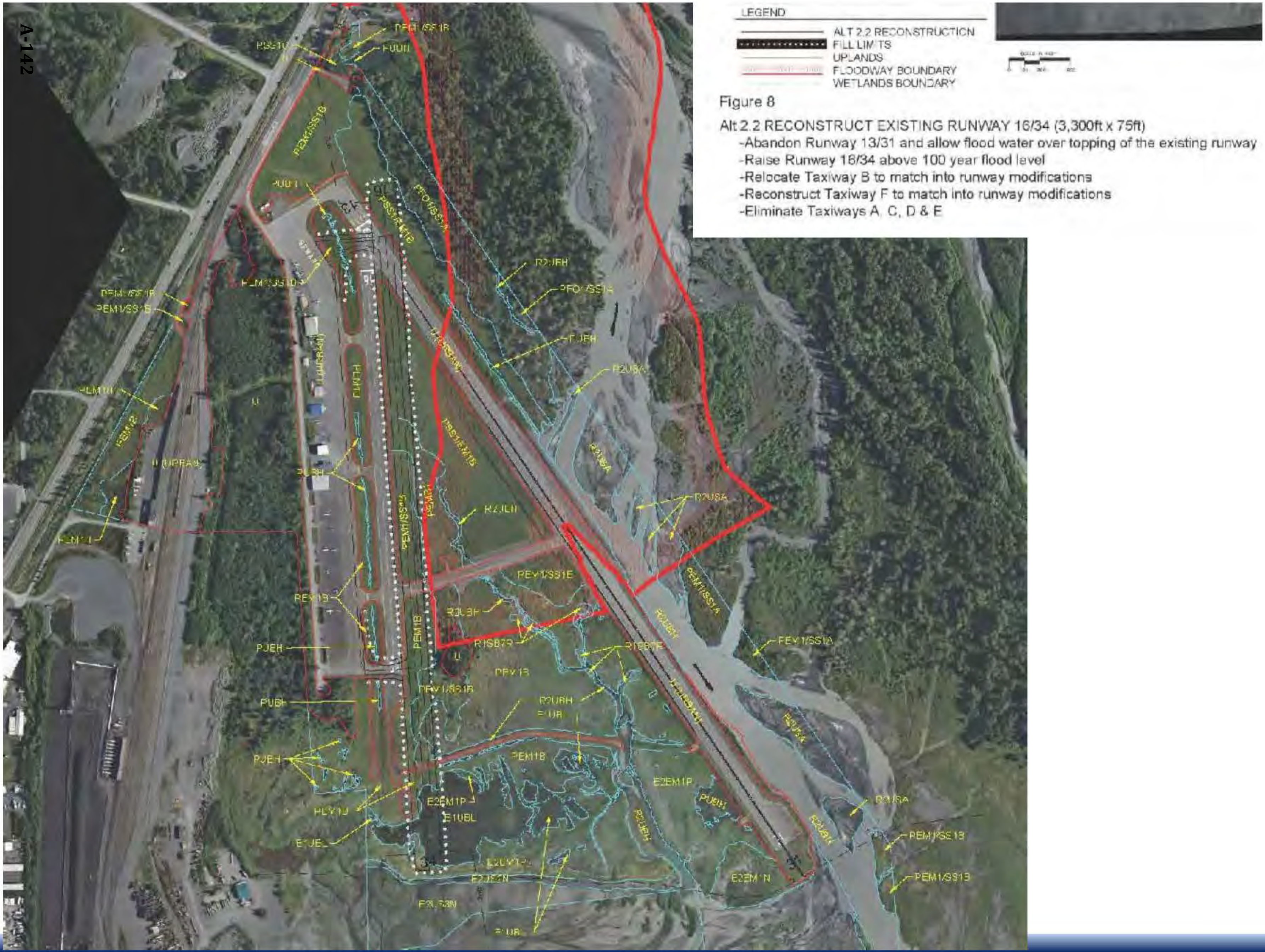


Figure 8

Alt 2.2 RECONSTRUCT EXISTING RUNWAY 16/34 (3,300ft x 75ft)

- Abandon Runway 13/31 and allow flood water over topping of the existing runway
- Raise Runway 16/34 above 100 year flood level
- Relocate Taxiway B to match into runway modifications
- Reconstruct Taxiway F to match into runway modifications
- Eliminate Taxiways A, C, D & E

Questions?

- Agency Concerns
- Potential Permitting issues

Thank you

Please send scoping comments (by March 16) to:

Mark Boydston, DOT&PF Environmental Analyst

Mark.boydston@alaska.gov

907-269-0524

For technical questions, please contact:

Barbara Beaton, P.E., DOT&PF Project Manager

Barbara.beaton@alaska.gov

907-269-0617

From: Ken Karle [mailto:kkarle@mtaonline.net]
Sent: Thursday, July 26, 2018 10:41 AM
To: Perkins, Dwight <Dwight.Perkins@fema.dhs.gov>
Subject: Resurrection River at Seward, Alaska Airport

Hi Ted,

I have some questions regarding a project I am working on,as a subcontractor to PDC Engineers in Fairbanks, AK for an Alaska DOT project. The Seward, Alaska Airport is located within the Regulatory Floodplain of the Resurrection River. The ADOT's project manager has contacted a FEMA Map Specialist through email to get some advice. As we still need additional guidance, the ADOT PM suggested that I contact FEMA directly to get more information. I recalled from our work together on the City of Valdez/Lowe River project that you are the lead FEMA Engineer for Alaska. If there is someone else that I should contact in regard to my questions below, could you please forward this email or provide a name.

Brief project history-one of the two runways at the Seward Airport has experienced increased flooding over the past 30 years or so. Located on an alluvial fan at the river's mouth, the main channel of the Resurrection River has migrated over the years and is currently running along (and occasionally over) the embankment of Runway 13/31 (the main runway). Recent map revisions have placed much of Runway 13/31 within the Regulatory Floodway. ADOT wishes to make improvements at the airport, including closing down Runway 13/31 and raising and lengthening Runway 16/34, which is NOT in the Floodway.

Starting 4 years ago, we began hydraulic modeling to assess conditions and guide the design. We acquired the FEMA model, acquired new LiDAR and channel surveys to update the FEMA cross-sections, and arrived at a design which is based on abandoning Runway 13/31-no work to be conducted in the Floodway. Because we had the LiDAR and survey data, and because the 1D model is a very poor fit where cross-sections are up to 8,000 ft wide across a braided, vegetated floodplain, we subsequently decided to use HEC-RAS 5.0 and create a 2D model. We have an EG (existing conditions) and a preferred design (Alternative 2) model. Again, the preferred design abandons Runway 13/31, and raises and lengthens Runway 16/34, which is NOT in the Floodway. No work in the Floodway.

When compared to the EG model results, the 2D design model shows very slight increases in WSELs, generally on the order of 0.05-0.2 ft or less in most areas. In one small location, up to 0.4 ft.

We originally assumed that as we were not encroaching within the adopted Regulatory Floodway, and all flood level increases were well under 1 ft, a CLOMR was not necessary. The Map Specialist referred us to 44 CFR 60.3 (d) (4) and indicated that a CLOMR was necessary.

My questions:

1. Table 9-Floodway Data Resurrection River of the Effective FIS for the Kenai Peninsula Borough includes columns showing 1% annual chance flood WSELs for cross-sections without floodway and with floodway. If our relative modeled wsel increases (2D, Design minus EG), overlain along the cross-sections A thru Q, are all less than the allowed floodway increase shown in the right hand column, do we still need to prepare a CLOMR?
2. If we need to submit a CLOMR, can we use the results from the 2D models?
3. At what point is an actual map revision triggered? Will increases of a tenth of a foot dictate the necessity of revising the FIRMS? Will we need to submit a LOMR following completion of the project?

Any help or guidance you can offer at this point would be quite helpful. Again, if it is more appropriate for me to direct these questions elsewhere, please let me know. I'd be glad to call you at your convenience to discuss further. Thank you.

Regards,

Hydraulic Mapping and Modeling
Kenneth F. Karle, P.E.
1091 W Chena Hills Drive
Fairbanks, AK 99709
ph 907.479.5227 mobile 907.388.3450
fax 907.456.1751
mailto:kkarle@mtaonline.net

From: Perkins, Dwight [mailto:Dwight.Perkins@fema.dhs.gov]
Sent: Thursday, July 26, 2018 10:21 AM
To: Ken Karle <kkarle@mtaonline.net>
Cc: Wood-McGuiness, Karen <Karen.Wood-McGuiness@fema.dhs.gov>; Smith, Jimmy C (CED) <jimmy.smith@alaska.gov>; dglenz@cityofseward.net; Harris, Bryr <bharris@kpb.us>
Subject: RE: Resurrection River at Seward, Alaska Airport

Hi Ken,

I assume you are working with the local floodplain administrator on all of this work and have obtained the needed floodplain development permit. This would usually lay out what is needed as part of meeting the permit requirements. I primarily am in charge of the regional floodplain mapping side of things so I am not always fully versed from the regulations side of things. Karen Wood-McGuiness would be the FEMA contact for these regulations and Jimmy Smith is that contact from the state. I am cc:ing them here as well as the local floodplain administrators for the city of Seward (Donna Glenz) and the Kenai Peninsula Borough (Bryr Harris).

Where I have been generally involved with this discussion is that sometimes I get requests from the community to help them assess whether a proposal is truly a no-rise in a floodway that allows them to not require a LOMR. My general understanding is that if one is developing entirely outside of the floodway, a LOMR would not be required from the FEMA side of things. A community can still request that one submit one to represent the changed condition as a condition of the floodplain development permit but it is not a federal requirement as I understand it.

Ted Perkins, P.E.
Regional Engineer
FEMA Region 10
425-487-4684

Federal Emergency Management Agency (FEMA), Region X is committed to providing access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request a disability accommodation contact me at least five (5) working days in advance at 425-487-4684 or Dwight.Perkins@fema.dhs.gov

From: Wood-McGuiness, Karen [mailto:Karen.Wood-McGuiness@fema.dhs.gov]
Sent: Friday, July 27, 2018 11:05 AM
To: Ken Karle <kkarle@mtaonline.net>
Cc: dglenz@cityofseward.net; 'Smith, Jimmy C (CED)' <jimmy.smith@alaska.gov>; Perkins, Dwight <Dwight.Perkins@fema.dhs.gov>
Subject: RE: Resurrection River at Seward, Alaska Airport

Ken,
Please clarify if any of the proposed project is within the effective floodway. Any "development" laterally located within a floodway is required to determine if the project will cause a rise (encroachment) in the base flood elevation. From your email you indicate that your hydrologic analysis indicates "…modeled increases are well less than a foot,…" The requirement is there can be 0.00 foot increase in the base flood elevation of the current effective maps in the Flood Insurance Study (FIS). If there is more than a 0.00 foot rise from the project (including upstream and downstream), a CLOMR/LOMR is required if the development were to continue as designed. This is a common misinterpretation of the concept of "zero rise" in the floodway.

Please let me know if you have any additional questions.
Karen

Karen Wood-McGuiness, CFM
Senior Floodplain Mgmt. Specialist
FEMA Region 10, Mitigation Division
130 228th Street SW, Bothell, WA 98021
425-487-4675; 425-213-9918 (cell)
karen.wood-mcguiness@fema.dhs.gov

Federal Emergency Management Agency (FEMA), Region 10 is committed to providing acces, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disablilities. To request a disability accommodation contact me at least five (5) working days in advance at 425-487-4675 or karen.wood-mcguiness@fema.dhs.gov.

From: Ken Karle [mailto:kkarle@mtaonline.net]
Sent: Friday, July 27, 2018 11:20 AM
To: Wood-McGuiness, Karen <Karen.Wood-McGuiness@fema.dhs.gov>
Cc: dglenz@cityofseward.net; 'Smith, Jimmy C (CED)' <jimmy.smith@alaska.gov>
Subject: RE: Resurrection River at Seward, Alaska Airport

Hi Karen,

As you can see below from my email to Ted Perkins, we are seeking some guidance with respect to a project on the Resurrection River at Seward, AK. As the modeling and design efforts advance, we would like to have a better understanding of whether or not a CLOMR/LOMR might be required for this project. As described below, the planned project activities avoid the Regulatory Floodway, and modeled increases are well less than a foot, and less than those shown in the Floodway Data table for the Resurrection River in the Effective FIS.

Any guidance or insight you can provide would be appreciated. I'd be glad to call you at your convenience to discuss further. Thank you.

Regards,
Ken

Hydraulic Mapping and Modeling
Kenneth F. Karle, P.E.
1091 W Chena Hills Drive
Fairbanks, AK 99709
ph 907.479.5227 mobile 907.388.3450
fax 907.456.1751
mailto:kkarle@mtaonline.net

From: Ken Karle [mailto:kkarle@mtaonline.net]
Sent: Monday, July 30, 2018 11:59 AM
To: Wood-McGuiness, Karen <Karen.Wood-McGuiness@fema.dhs.gov>
Cc: dglenz@cityofseward.net; 'Smith, Jimmy C (CED)' <jimmy.smith@alaska.gov>; Perkins, Dwight <Dwight.Perkins@fema.dhs.gov>
Subject: RE: Resurrection River at Seward, Alaska Airport

Karen,
To follow up on our correspondence last Friday, we're still not quite clear from reading your response as to whether or not a proposed project, located entirely outside of the effective regulatory floodway, will require a CLOMR/LOMR. To clarify:

Our proposed project is entirely outside of the Effective Regulatory Floodway:
The proposed project is located in the flood fringe; 2D hydraulic analysis of the design indicate modeled WSEL increases are well less than one foot.

Will a CLOMR/LOMR be required? If convenient for you, I would be glad to call, so that we can be certain we're headed down the correct path. Thanks for your assistance.

Ken

From: Ken Karle <kkarle@mtaonline.net>
Sent: Wednesday, August 8, 2018 9:22 AM
To: Royce Conlon <RoyceConlon@pdceng.com>; Erica Betts <EricaBetts@pdceng.com>
Subject: CLOMR

I am having difficulty getting a clear and timely response from FEMA Region X regarding whether or not a CLOMR will be required for the Seward Airport project even if all project activities remain outside of the Regulatory Floodway. However, I spoke on the phone this morning with Jimmy Smith, who is the National Flood Insurance Program management specialist for the State of Alaska. He recommended that we proceed by contacting the City of Seward Floodplain Manager, Jackie C Wilde. See her contact info below. If she cannot provide an answer, then her course of action will be to contact Karen Wood-McGuiness at FEMA Region X for guidance.

I would be glad to follow up with Jackie, though Barb may prefer that ADOT&PF do so.

Ken

Jimmy Smith, Local Government Specialist
Department of Commerce, Community, and Economic Development
Division of Community and Regional Affairs
550 West 7th Avenue, Suite 1640
Anchorage, AK 99501
Phone: (907) 269-4132 FAX: (907) 269-4066
jimmy.smith@alaska.gov

Jackie C. Wilde
Community Development
Title: Planner
Phone: 907 224-4048
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Hydraulic Mapping and Modeling
Kenneth F. Karle, P.E.
1091 W Chena Hills Drive
Fairbanks, AK 99709
ph 907.479.5227 mobile 907.388.3450
fax 907.456.1751
mailto:kkarle@mtaonline.net

From: Ken Karle [mailto:kkarle@mtaonline.net]
Sent: Friday, August 10, 2018 9:53 AM
To: 'Royce Conlon' <RoyceConlon@pdceng.com>
Cc: 'Erica Betts' <EricaBetts@pdceng.com>
Subject: RE: CLOMR

Friday update; I emailed, called and left a voicemail for Jackie Wilde at the City of Seward yesterday morning and today. No response yet. Still no response from Karen Wood-Guinness at FEMA.

I did notice that the City of Seward's website for floodplain information has changed since I last looked at it earlier this year. The link to the 'floodplain development permit application' doesn't work, and there is no information at all for 'floodplain development permit/floodplain management.' That's not encouraging.

From: Ken Karle <kkarle@mtaonline.net>
Sent: Friday, August 10, 2018 10:33 AM
To: Royce Conlon; Erica Betts
Subject: FW: CLOMR

Just got a call from Andy Bacon, COS, who works for Jackie Wilde. He is going to send a floodplain permit application to Barb Beaton (cc Royce), and will contact FEMA Region X to help settle the question of whether or not a CLOMR will be required. I will forward his contact info later this afternoon, when he sends me a recap message.

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Design and Engineering Services – Central Region
Preliminary Design & Environmental

TO: Barbara Beaton
Project Manager
Aviation Design

DATE: August 23, 2018

TELEPHONE NO: 269-0526

PROJECT NUMBER: Z548570000
PROJECT NAME: Seward Airport Improvements

FROM: Paul Janke, PhD, PE
Regional Hydrologist

SUBJECT: FEMA Policy on Water Surface Elevation Rise in a Floodway

As requested, following is a discussion of FEMA policy regarding a water surface elevation rise in a floodway.

The 44 CFR 60.3 (d) (2) states that a regulatory floodway must be designed to carry the base flood without increasing the water surface elevation during the base flood more than one foot. The floodway for the Resurrection River adjacent the Seward airport shown on the current FEMA maps must meet this criterion or it would not have been approved. Calculations by Ken Karle show that the water surface elevation rise in the Resurrection River floodway during the regulatory discharge (or base flood) due to encroachments not in the floodway for the Seward Airport Improvements project is less than one foot. Consequently, this rise meets the FEMA requirements.

Confusion on this issue may be because the FEMA policy that allows the one foot maximum water surface elevation rise applies only if the rise is the result of an encroachment that is not in the floodway. This applies to the Seward Airport Improvements project. However, 44 CFR 60.3 (d) (3) states that an encroachment in a regulatory floodway is prohibited unless an analysis shows this will not result in any increase in the water surface elevation during the base flood. This project will cause no encroachment in the floodway and hence the no rise criterion is not required.

Additional confusion on this issue may be because of 44 CFR 60.3 (d) (4). This states that a community may permit encroachments within the floodway that result in a base flood elevation increase provided the community applies for a conditional FIRM and floodway revision, fulfills the requirements for such revision, and receives FEMA approval. However, this does not apply to the Seward Airport Improvements project because no encroachment in the floodway is proposed.

cc: Royce Conlon, PE, PDC
Ken Karle, PE, HMM

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Section 106
Comments and Correspondence

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THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and
Public Facilities

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
dot.alaska.gov

In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
Consultation Initiation

January 29, 2018

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the preliminary Area of Potential Effect (APE) as described below.

For purposes of the National Historic Preservation Act, we are initiating this consultation with you to assist us in determining the Area of Potential Effect (APE) and identifying historic properties that may be affected by the proposed project.

Project Description

The proposed project would (see attached Figure 2):

- Reconstruct Runway (RW) 16-34:
    - shift RW east and raise it above the 100 year flood level with 2 feet of freeboard
    - extend the length from the existing 2,289 feet to 3,300 feet
    - Install armor rock to protect RW from flooding
- Relocate Taxiway (TW) B to match proposed RW 16-34 location
- Reconstruct TW F to match proposed RW 16-34 location
- Relocate, repair, or replace navigational aids, and markings
- Install security fencing

- Property acquisitions
- Construct an access road and ramp to accommodate aircraft floats to wheel change-outs
- Relocate the Automated Surface Observation System (ASOS) and the Airport Beacon
- Remove TWs A, D and E
- Repave other airport surfaces as needed
- Install new airfield lighting and an electrical enclosure building
- Close Runway (RW) 13-31 and discontinue maintenance

Preliminary Area of Potential Effect

A previous APE was defined in the Environmental Assessment for the Seward Airport Improvements Master Plan Environmental Assessment (July 2008). The proposed project preliminary APE (Figure 3) matches the 2008 APE with the exception of the boundaries to the north and south which have been extended to include property acquisitions to accommodate the Runway Protection Zone (RPZ) for the expanded RW 16-34. The entire Civil Air Patrol parcel to the north is being acquired so as to not leave the Civil Air Patrol with an inaccessible remnant parcel as a result of the proposed improvements. The APE will be finalized after comments are received from your agency and the consulting parties.

Identification Efforts

Based on a Cultural Resources Survey conducted in 2004 by Northern Land Use Research for the Seward Airport Master Plan (2008), the following AHRS sites are in the vicinity of the Airport property:

- SEW-00007, the Russian Trail. This trails dates back to the period of time when Russian traders occupied Resurrection Bay. The exact location of this site has not been identified. A determination of eligibility has not been submitted for this site.

- SEW-00148, the Seward Moose Pass Trail (previously Iditarod National Historic Trail). This trail runs discontinuously adjacent to the railroad between Seward and Moose Pass, Alaska. Portions of this trail fell into disuse after the completion of the Alaska Railroad in 1923. This site is eligible for NHRP.

A review the OHA AHRS mapper on January 8, 2018, showed the following additional sites to those listed above within or adjacent to the preliminary APE:

- SEW-00029, Alaska Railroad. This site number is for the portion of the Alaska Railroad from Seward to mile post 64 (Potter). The Alaska Railroad was nominated to the National Register in the late 1970s under Criterion A, but the nomination was never finalized

- SEW-00835, Seward Naval Radio Station. Original buildings for the station were built in 1917. Today the only building still existing is the station powerhouse. The powerhouse has been taken over by the Resurrection River and is currently mostly destroyed. DOT&PF is currently submitting a DOE as not eligible since the powerhouse is almost completely destroyed by the river.

- SEW-01550, Seward Engine House. Seward Engine House (aka Roundhouse) is a maintenance building used to service rolling stock. It is situated within the ARRC Seward rail yard, which was established in the current location after the devastating 1964 earthquake. A determination of eligibility has not been done for this site.

- SEW-01552, Collapsed hangar. This site consists of the collapsed iron supports and sheet metal cladding of an airplane hangar and associated rubble, including a wooden storage crate and machinery parts. SEW-01552 may be the remains of a hangar destroyed during the 1964 tsunami. Site determined not eligible by the SHPO in 2014.

- SEW-01553, Isolated felled tree. This site consists of an isolated felled tree segment, believed to be Sitka spruce, measuring 8 feet in diameter and 15 feet in length and featuring squared cuts on both ends. The tree has possible logging industry associations with SEW-001554. Site determined not eligible by the SHPO in 2014.

- SEW-01554, Logged area. Tree stumps and felled trees associated from the Louisiana-Pacific Sawmill logging operations that operated in Seward until the 1960s. Site Determined not eligible by the SHPO in 2014.

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- SEW-01557, Seward Highway. The Seward Highway is a 125 mile-long two-lane road that runs from Seward to Anchorage. It is owned by the Alaska DOT&PF. A determination of eligibility has not been done for this site.

Consulting Parties

DOT&PF is initiating consultation with the following parties: SHPO, City of Seward, Chugachmiut, Inc., Resurrection Bay Historical Society, and Qutekcak Native Tribe.

If you have questions or comments related to this proposed project, please contact Mark Boydston, Environmental Analyst, at the address above, by telephone at (907) 269-0524, or by e-mail at mark.boydston@alaska.gov.

Your timely response will greatly assist us in incorporating your concerns into project development. For that purpose, we respectfully request that you respond within thirty days of your receipt of this correspondence.

Sincerely,

Michael T. Wanzenried
Cultural Resources Specialist

Enclosures:
Figure 1 - Location and Vicinity Map
Figure 2 - Proposed Action
Figure 3 - Preliminary APE

Electronic cc w/ enclosures:
Barbara Beaton, Project Manager, DOT&PF Aviation Design
Brian Elliot, DOT&PF Central Region, Regional Environmental Manager
Kathy Price, DOT&PF Statewide Cultural Resources Manager

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
dot.alaska.gov

In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
Consultation Initiation

January 29, 2018

Scott Allen, Tribal Administrator
Qutekcak Native Tribe
P.O. Box 1467
Seward, AK 99664

Dear Mr. Allen,

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the preliminary Area of Potential Effect (APE) as described below.

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- Construct an access road and ramp to accommodate aircraft floats to wheel change-outs
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Sincerely,

Michael T. Wanzenried
Cultural Resources Specialist

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Barbara Beaton, Project Manager, DOT&PF Aviation Design
Brian Elliot, DOT&PF Central Region, Regional Environmental Manager
Kathy Price, DOT&PF Statewide Cultural Resources Manager

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

PO Box 196900
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Toll Free: 800.770.5263
TDD: 907.269.0473
dot.alaska.gov

In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
Consultation Initiation

January 29, 2018

Angela Vanderpool, Executive Director
Chugachmiut, Inc.
1840 Bragaw Street, Suite 110
Anchorage, Alaska 99508-3463

Dear Ms. Vanderpool:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the preliminary Area of Potential Effect (APE) as described below.

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Consulting Parties

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Sincerely,

Michael T. Wanzenried
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Barbara Beaton, Project Manager, DOT&PF Aviation Design
Brian Elliot, DOT&PF Central Region, Regional Environmental Manager
Kathy Price, DOT&PF Statewide Cultural Resources Manager

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
dot.alaska.gov

In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
Consultation Initiation

January 29, 2018

Willard Dunham, President
Resurrection Bay Historical Society
P.O. Box 55
Seward, AK 99664

Dear Mr. Dunham:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the preliminary Area of Potential Effect (APE) as described below.

For purposes of the National Historic Preservation Act, we are initiating this consultation with you to assist us in determining the Area of Potential Effect (APE) and identifying historic properties that may be affected by the proposed project.

Project Description

The proposed project would (see attached Figure 2):

- Reconstruct Runway (RW) 16-34:
    - shift RW east and raise it above the 100 year flood level with 2 feet of freeboard
    - extend the length from the existing 2,289 feet to 3,300 feet
    - Install armor rock to protect RW from flooding
- Relocate Taxiway (TW) B to match proposed RW 16-34 location
- Reconstruct TW F to match proposed RW 16-34 location
- Relocate, repair, or replace navigational aids, and markings
- Install security fencing
- Property acquisitions

- Construct an access road and ramp to accommodate aircraft floats to wheel change-outs
- Relocate the Automated Surface Observation System (ASOS) and the Airport Beacon
- Remove TWs A, D and E
- Repave other airport surfaces as needed
- Install new airfield lighting and an electrical enclosure building
- Close Runway (RW) 13-31 and discontinue maintenance

Preliminary Area of Potential Effect

A previous APE was defined in the Environmental Assessment for the Seward Airport Improvements Master Plan Environmental Assessment (July 2008). The proposed project preliminary APE (Figure 3) matches the 2008 APE with the exception of the boundaries to the north and south which have been extended to include property acquisitions to accommodate the Runway Protection Zone (RPZ) for the expanded RW 16-34. The entire Civil Air Patrol parcel to the north is being acquired so as to not leave the Civil Air Patrol with an inaccessible remnant parcel as a result of the proposed improvements. The APE will be finalized after comments are received from your agency and the consulting parties.

Identification Efforts

Based on a Cultural Resources Survey conducted in 2004 by Northern Land Use Research for the Seward Airport Master Plan (2008), the following AHRS sites are in the vicinity of the Airport property:

- SEW-00007, the Russian Trail. This trails dates back to the period of time when Russian traders occupied Resurrection Bay. The exact location of this site has not been identified. A determination of eligibility has not been submitted for this site.

- SEW-00148, the Seward Moose Pass Trail (previously Iditarod National Historic Trail). This trail runs discontinuously adjacent to the railroad between Seward and Moose Pass, Alaska. Portions of this trail fell into disuse after the completion of the Alaska Railroad in 1923. This site is eligible for NHRP.

A review the OHA AHRS mapper on January 8, 2018, showed the following additional sites to those listed above within or adjacent to the preliminary APE:

- SEW-00029, Alaska Railroad. This site number is for the portion of the Alaska Railroad from Seward to mile post 64 (Potter). The Alaska Railroad was nominated to the National Register in the late 1970s under Criterion A, but the nomination was never finalized

- SEW-00835, Seward Naval Radio Station. Original buildings for the station were built in 1917. Today the only building still existing is the station powerhouse. The powerhouse has been taken over by the Resurrection River and is currently mostly destroyed. DOT&PF is currently submitting a DOE as not eligible since the powerhouse is almost completely destroyed by the river.

- SEW-01550, Seward Engine House. Seward Engine House (aka Roundhouse) is a maintenance building used to service rolling stock. It is situated within the ARRC Seward rail yard, which was established in the current location after the devastating 1964 earthquake. A determination of eligibility has not been done for this site.

- SEW-01552, Collapsed hangar. This site consists of the collapsed iron supports and sheet metal cladding of an airplane hangar and associated rubble, including a wooden storage crate and machinery parts.

SEW-01552 may be the remains of a hangar destroyed during the 1964 tsunami. Site determined not eligible by the SHPO in 2014.

- SEW-01553, Isolated felled tree. This site consists of an isolated felled tree segment, believed to be Sitka spruce, measuring 8 feet in diameter and 15 feet in length and featuring squared cuts on both ends. The tree has possible logging industry associations with SEW-001554. Site determined not eligible by the SHPO in 2014.

- SEW-01554, Logged area. Tree stumps and felled trees associated from the Louisiana-Pacific Sawmill logging operations that operated in Seward until the 1960s. Site Determined not eligible by the SHPO in 2014.

- SEW-01555, Airport Bay Road. This road is the segmented remains of an earthen road that ran from Porcupine City sawmill and camp out to the naval radio station and Crawford subdivision. Site Determined not eligible by the SHPO in 2013.

- SEW-01557, Seward Highway. The Seward Highway is a 125 mile-long two-lane road that runs from Seward to Anchorage. It is owned by the Alaska DOT&PF. A determination of eligibility has not been done for this site.

Consulting Parties

DOT&PF is initiating consultation with the following parties: SHPO, City of Seward, Chugachmiut, Inc., Resurrection Bay Historical Society, and Qutekcak Native Tribe.

If you have questions or comments related to this proposed project, please contact Mark Boydston, Environmental Analyst, at the address above, by telephone at (907) 269-0524, or by e-mail at mark.boydston@alaska.gov.

Your timely response will greatly assist us in incorporating your concerns into project development. For that purpose, we respectfully request that you respond within thirty days of your receipt of this correspondence.

Sincerely,

Michael T. Wanzenried
Cultural Resources Specialist

Enclosures:
Figure 1 - Location and Vicinity Map
Figure 2 - Proposed Action
Figure 3 - Preliminary APE

Electronic cc w/ enclosures:
Barbara Beaton, Project Manager, DOT&PF Aviation Design
Brian Elliot, DOT&PF Central Region, Regional Environmental Manager
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THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

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In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
Consultation Initiation

January 29, 2018

Mayor David Squires
City of Seward
P.O. Box 167
Seward, AK 99664

Dear Mayor Squires:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the preliminary Area of Potential Effect (APE) as described below.

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Sincerely,

Michael T. Wanzenried
Cultural Resources Specialist

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Figure 1 - Location and Vicinity Map
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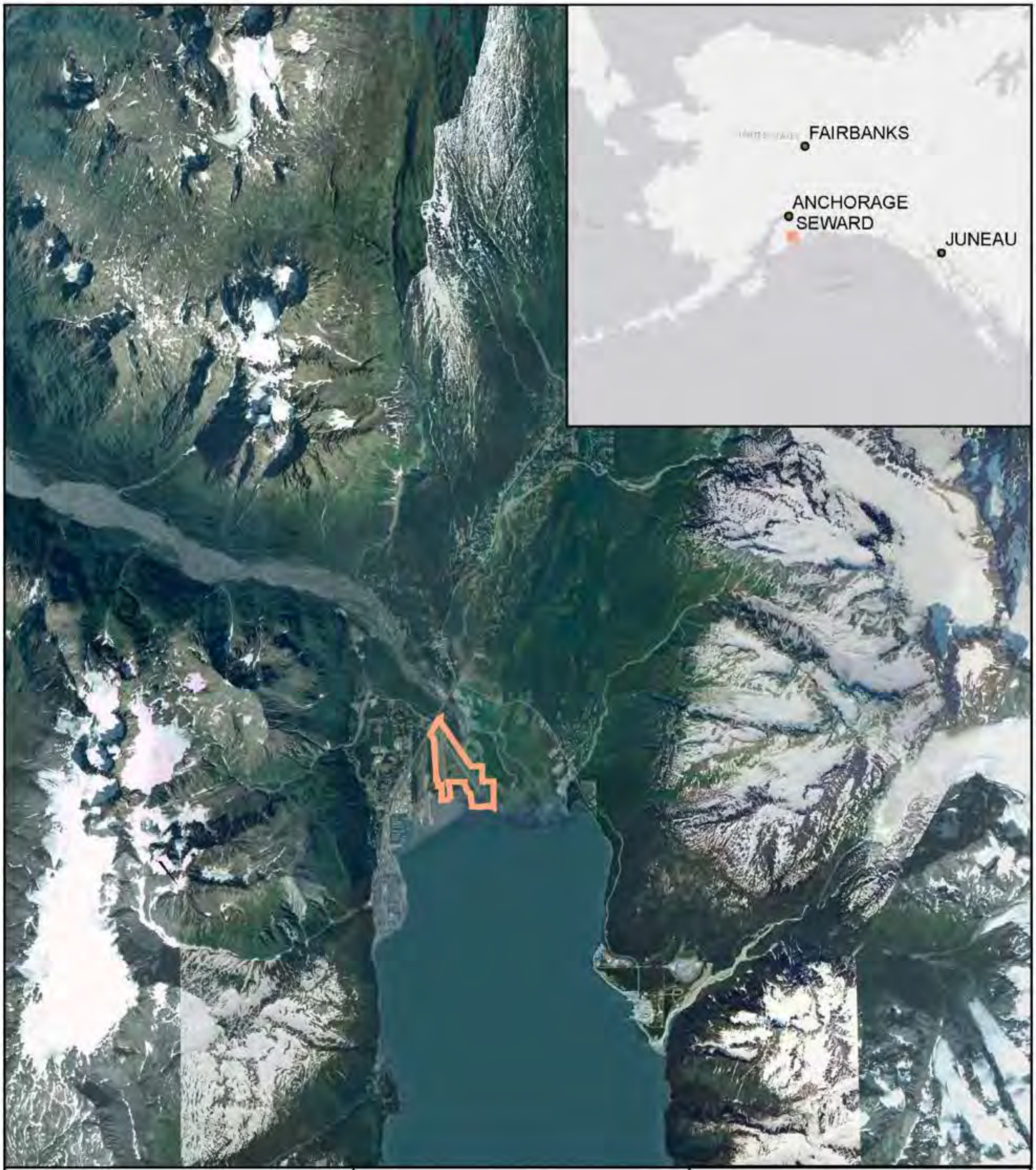


Legend

□ Seward Airport Boundary

Section: 34, 35 - 2, 3
Township: 1N - 1S
Range: 1W
Meridian: Seward
USGS Quad: Seward A-7

0 1 2 Miles

N

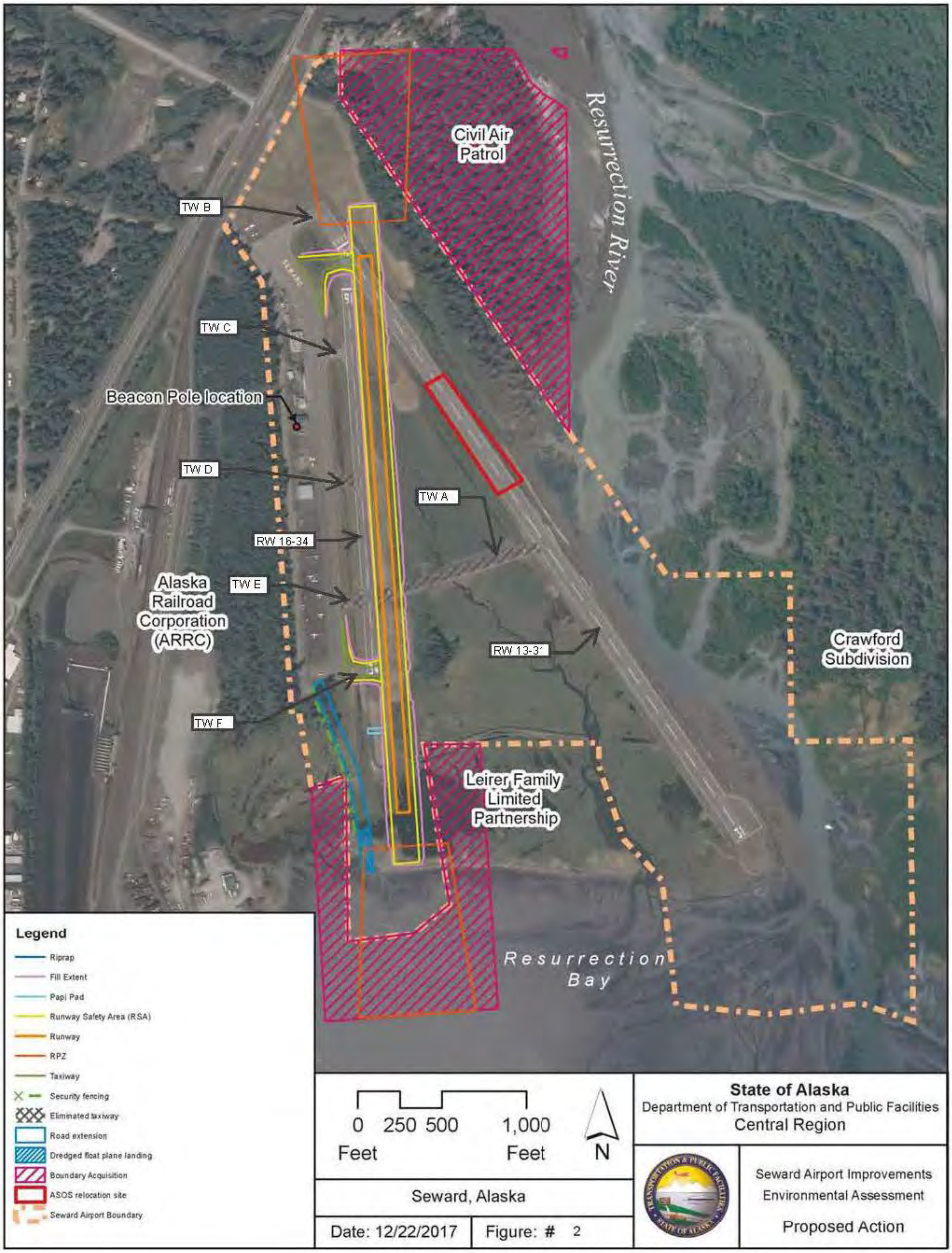
Seward, Alaska

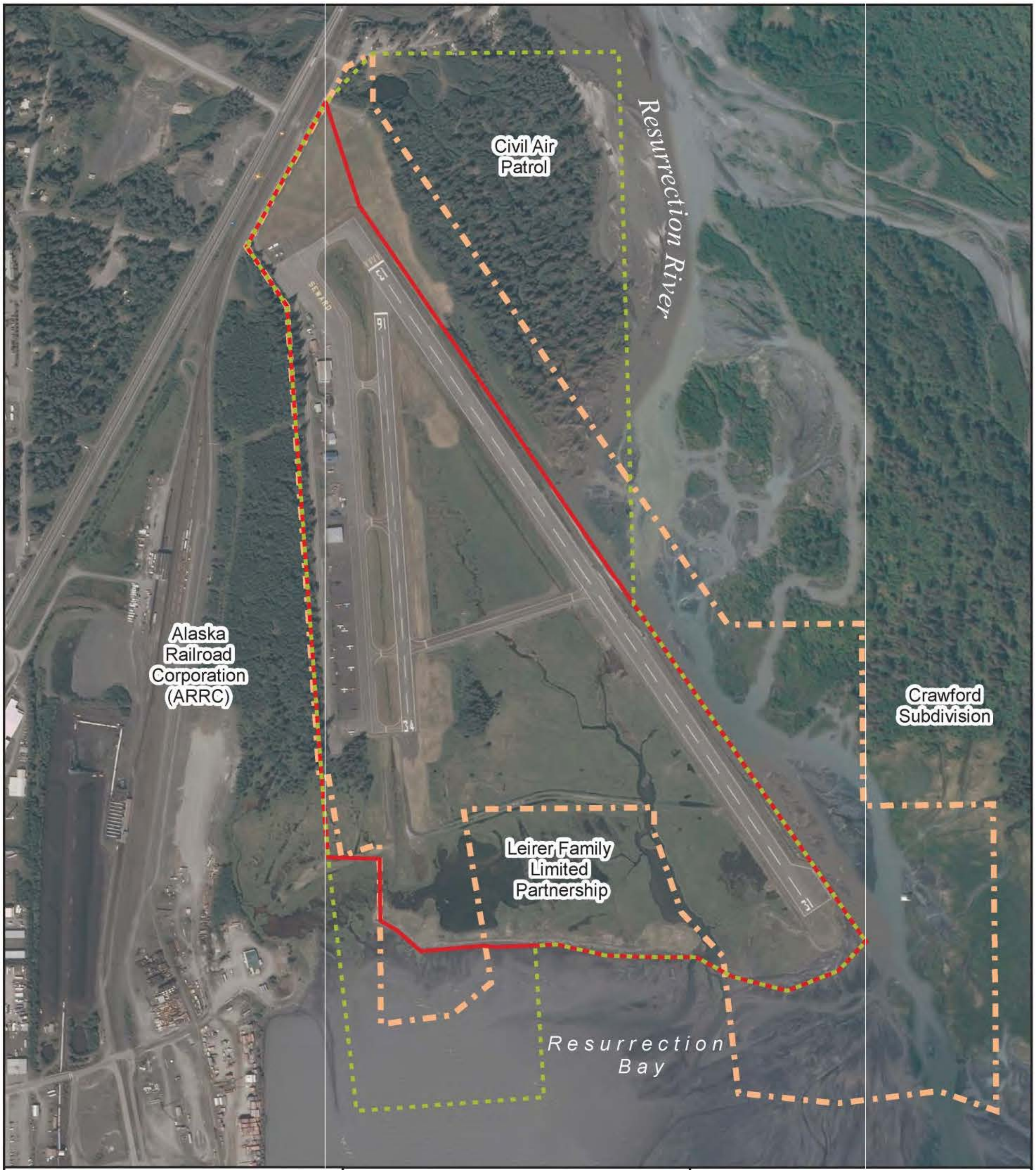
Date: 11/16/2017 Figure: # 1

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Location & Vicinity Map


Civil Air Patrol
Resurrection River
TW B
TW C
Beacon Pole location
TW D
TW A
RW 16-34
Alaska Railroad Corporation (ARRC)
TW E
RW 13-31
Crawford Subdivision
TW F
Leirer Family Limited Partnership
Resurrection Bay
Legend
Riprap
Fill Extent
Papi Pad
Runway Safety Area (RSA)
Runway
RPZ
Taxiway
Security fencing
Eliminated taxiway
Road extension
Dredged float plane landing
Boundary Acquisition
ASOS relocation site
Seward Airport Boundary
0 250 500 1,000
Feet Feet
N
State of Alaska
Department of Transportation and Public Facilities
Central Region
Seward, Alaska
Seward Airport Improvements
Environmental Assessment
Proposed Action
Date: 12/22/2017
Figure: # 2



Legend

🟩 2018 Preliminary APE

🟥 2008 APE

🟧 Seward Airport Boundary

0 250 500 1,000
Feet Feet

N

Seward, Alaska

Date: 1/5/2018

Figure: # 3

State of Alaska
Department of Transportation and Public Facilities
Central Region

Seward Airport Improvements
Environmental Assessment

Area of Potential Effect

From: Rollins, Mark W (DNR)
To: Wanzenried, Michael T (DOT)
Subject: Seward Airport Improvements, TBD/Z548570000, Consultation Initiation
Date: Wednesday, February 14, 2018 2:12:45 PM

3130-1R FAA

RevComp ID # 2018-00112

Hi Michael,

The Alaska State Historic Preservation Office (AK SHPO) received your correspondence (dated January 29, 2018) on January 30, 2018. Following our review of the documentation provided in the initiation letter, we have no objections to the proposed study area/ area of potential effect (APE). We recommend further background research into SEW-007 (Russian Trail) to determine if its historic location is indeed within the APE. We would also like to note that are records show that the cultural resources survey conducted in 2004 by Northern Land Use Research for the Seward Airport Master Plan did not discuss the history of the airport. We recommend researching the early era of airport construction for the Seward Airport. We look forward to receiving the results of the evaluation of the APE as well as FAA/ DOT&PF's findings for this undertaking and will respond with our concurrence and/or comments at that time.

Thank you for sending a Section 106 consultation initiation letter to our office. Please let me know if we can be of further assistance.

-Mark

Mark W. Rollins
Archaeologist II
Alaska State Historic Preservation Office/ Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501

(907) 269-8722

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
dot.alaska.gov

In Reply Refer To:
Seward Airport Improvements
TBD/Z548570000
No Historic Properties Affected
This finding contains two DOEs

June 5, 2018

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) Alaskan Airports Division, is proposing to upgrade airport facilities and protect the Seward Airport from further damage caused by recurrent flooding. The proposed project is located within Sections 34 and 35, T 1S, R1W, Seward Meridian and Sections 2 and 3, T1S, R1W, Seward Meridian on USGS Quad map Seward A-7; Latitude 60.1307, Longitude -149.4188. See enclosed Figure 1 for a location and vicinity map, Figure 2 for the project layout, and Figure 3 which illustrates the project's Area of Potential Effect (APE) as described below.

The DOT&PF on behalf of FAA finds that no historic properties would be affected by the proposed project pursuant to 36 CFR 800.4(d)(1), implementing regulations of Section 106 of the National Historic Preservation Act. This submission provides documentation in support of this finding, as required at 36 CFR 800.11(d).

Project Description

The proposed project would (see attached Figure 2):

- Reconstruct Runway (RW) 16-34:
    - shift RW east and raise it above the 100 year flood level with 2 feet of freeboard
    - extend the length from the existing 2,289 feet to 3,300 feet
    - Install armor rock to protect RW from flooding
- Relocate Taxiway (TW) B to match proposed RW 16-34 location
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- Install security fencing
- Property acquisitions
- Construct an access road and ramp to accommodate aircraft floats to wheel change-outs
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- Remove TWs A, D and E
- Repave other airport surfaces as needed
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- Close Runway (RW) 13-31 and discontinue maintenance

Area of Potential Effect

A previous APE was defined in the Environmental Assessment for the Seward Airport Improvements Master Plan Environmental Assessment (July 2008). The project APE (Figure 3) matches the 2008 APE with the exception of the boundaries to the north and south which have been extended to include property acquisitions to accommodate the Runway Protection Zone (RPZ) for the expanded RW 16-34. The entire Civil Air Patrol parcel to the north is being acquired so as to not leave the Civil Air Patrol with an inaccessible remnant parcel as a result of the proposed improvements.

Identification Efforts

A review of the Archaeology Heritagee Resource Survey (AHRS) on March 20, 2018 and the cultural resources surveys conducted by Northern Land Use Research, Inc. in 2004 and another by HDR in 2013 revealed six sites in the APE; one site (SEW-0007) was unevaluated for the National Register of Historic Places (NRHP), five were not eligible, and one (SEW-01625) was given a site number in April 2018 (Table 1). No historic properties were identified in the APE.

Table 1. Sites located in the Project APE

AHRS Number	Site Type	Year Built	NRHP Status
SEW-00007	Trail	-	Unevaluated
SEW-00835	Seward Naval Radio Station	1917	Not Eligible
SEW-01552	Collapsed hangar	-	Not Eligible
SEW-01553	Ecofact	-	Not Eligible
SEW-01554	Logged area	-	Not Eligible
SEW-01555	Road	1918	Not Eligible
SEW-01625	Airport	1927	Unevaluated

Determination of Eligibility

In response to initiation letters sent on January 29, 2018, the state historic preservation office (SHPO) recommended further background research into SEW-00007 (Russian Trail) and the Seward airport (SEW-01625). DOT&PF conducted determination of eligibilities for both sites.

Summary of the Seward Airport (SEW-01625) Determination of Eligiblity

The original Seward airport was built in 1927 as part of a larger effort by the territorial legislature to use airplanes to promote development and access throughout the state. The original Seward airfield was a 200x1200 foot-long runway carved out of a forested area at the head of Resurrection Bay near the Naval Radio Station (SEW-00835). Over the course of the last 80 years, the boundaries of the airport have been expanded and its facilities steadily improved to meet federal aviation specifications. DOT&PF has found that while the Seward airport has significance under Criterion A for the NRHP—for being among those first airfields built by the territorial government—its lack of integrity in terms of retaining physical characteristics that convey association with early airfields makes it not eligible for the NRHP. Please see attached documentation for further details.

Russian Trail (SEW-0007) Determination of Eligilibity
The possible existence of a Russian trail (SEW-0007) was described in Mary Barry's 1973 *A History of Mining on the Kenai Peninsula*. Barry does not provide a map for SEW-0007's alignment. Instead, she provides a general location based on correspondence with a local miner who noted that "a transportation route led from Kenai River to the south end of Kenai Lake, up Porcupine Creek to Lost Lake, down Lost Creek and over the flats to the Resurrection Bay shipyard near present-day Seward" (Barry 1973: 17). Email correspondence between DOT&PF and SHPO about the existence of SEW-00007 did not result in a better understanding of the site itself but did reveal there was a paper copy of the Seward quadrangle with a dashed line with a similar direction and length as the path of SEW-00007 on the AHRS online mapper.

Cultural resource surveys conducted in 2004 and 2013 at the Seward airport and the Alaska Railroad respectively, failed to identify any remnants of SEW-00007. Subsequent research by DOT&PF for the history of the Seward airport (SEW-01625) also failed to reveal any additional information regarding a documented Russian trail in the project area or even within the surrounding community. Aerial photos of the airport and neighboring railroad yard over the last 70 years document extensive ground disturbance that, supposing the existence of SEW-00007 in this location, would have destroyed any evidence for it within the project APE (Figures 4-8).

Because there are no physical attributes that support the existence of SEW-0007 in the project APE, in addition to the amount of ground disturbing activity in the neighboring Alaska railroad yard, DOT&PF finds that the segment of SEW-00007 from Port Avenue to the south shore of the Resurrection River north of the Seward airport as shown on the AHRS mapper is not eligible for listing to the NRHP.

The FAA agrees with DOT&PF's recommendation that SEW 01625, SEW-0007 are not eligible for the NRHP.

Findings of Effect
There are no historic properties located within the proposed project's APE. As such, DOT&PF has found, and requests your concurrence or comment, that there would be no affect to historic properties.

Consulting Parties

DOT&PF sent consultation initation letters on January 29, 2018 to the following parties: SHPO, City of Seward, Chugachmiut, Inc., Resurrection Bay Historical Society, and Qutekcak Native Tribe. The only party to respond was SHPO on February 14, 2018, with an email that there was no objection to the proposed APE and a recommendation to conduct further research into SEW-0007 (Russian Trail) and the history of the Seward airport.

Please direct your concurrence or comments to me at the address above, by telephone at 907-269-0535, or by e-mail at michael.wanzenried@alaska.gov.

Sincerely,

Michael T. Wanzenried
Cultural Resources Specialist

Enclosures:

Figure 1 - Location and Vicinity Map
Figure 2 - Proposed Action Map
Figure 3 - Area of Potential Effects Map
Figure 4-8 Aerial photographs showing AHRS sites SEW-00007 and SEW-01625
Determination of eligibility for the Seward airport (SEW-01625)

Electronic cc w/ enclosures:

Barbara Beaton, Project Manager, DOT&PF Aviation Design
Brian Elliot, DOT&PF Central Region, Regional Environmental Manager
Kathy Price, DOT&PF Statewide Cultural Resources Manager

Figure1. Loation and Vicinity Map

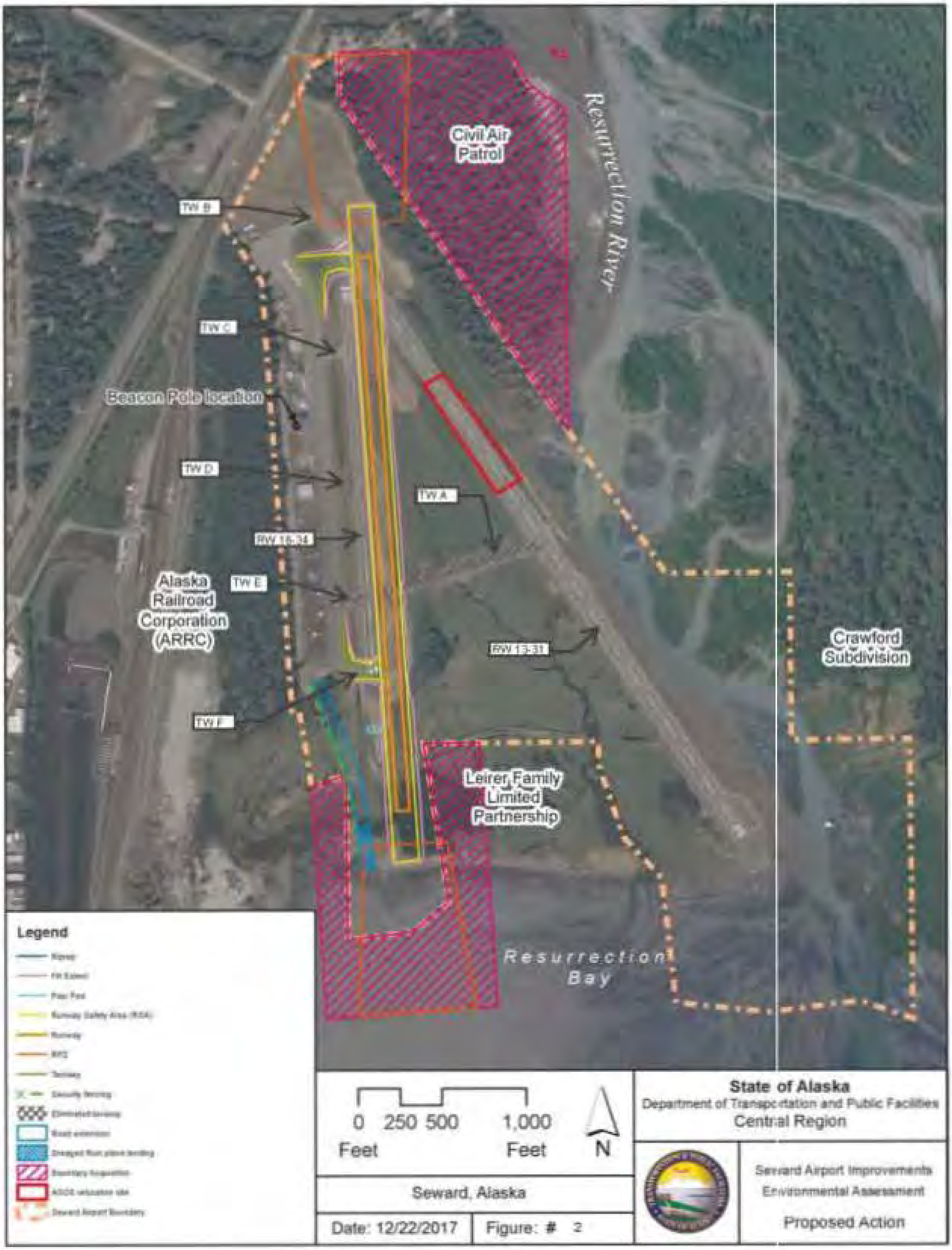

Figure 2. Proposed Action Map

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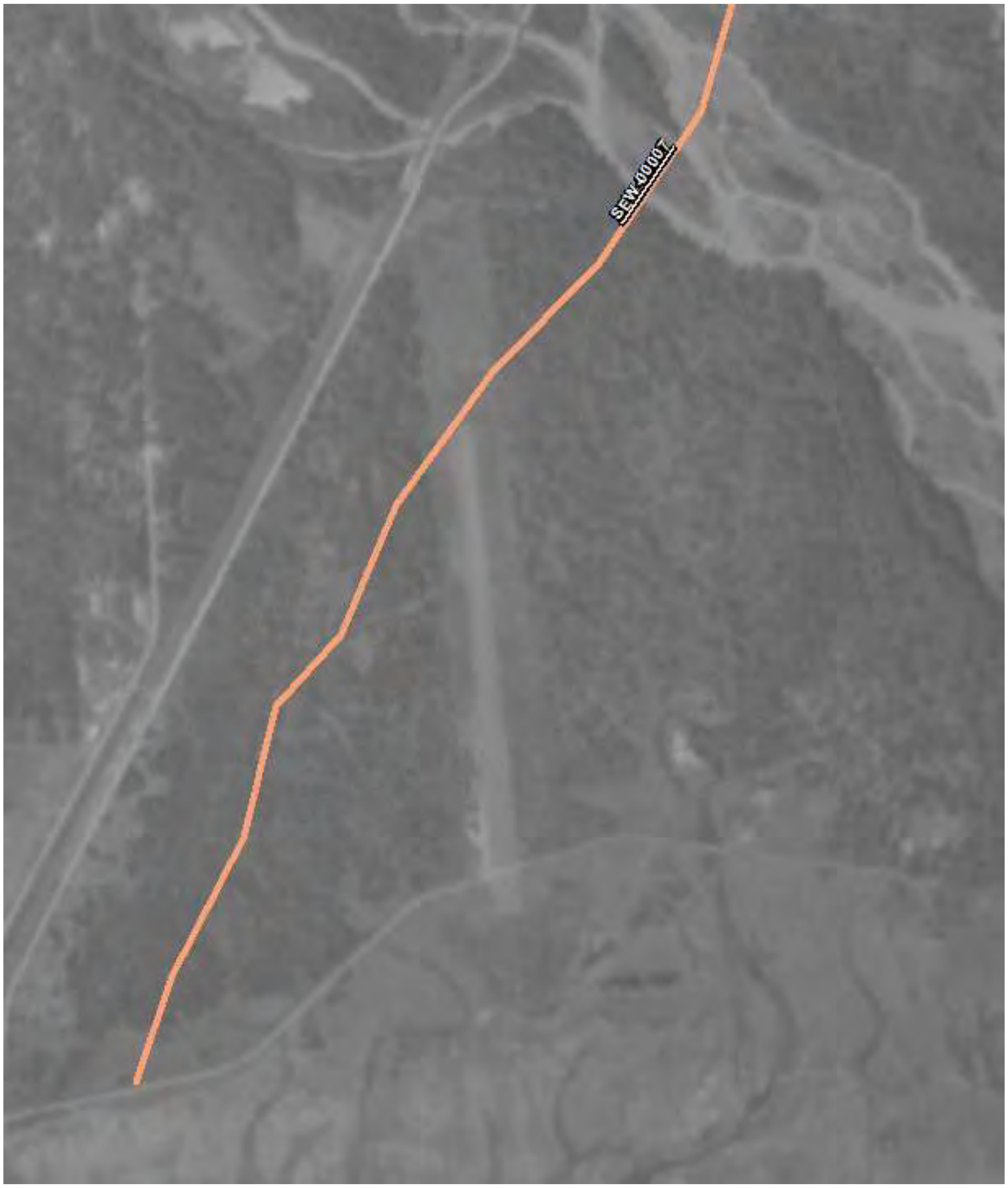

Figure 4. Aerial photograph from 1950 showing the AHRS location of SEW-00007 in relation to the Seward airport.

Figure 5. Aerial photograph from 1976 showing the AHRS location of SEW-00007 in relation to the Seward airport and the Alaska Railroad Yard.

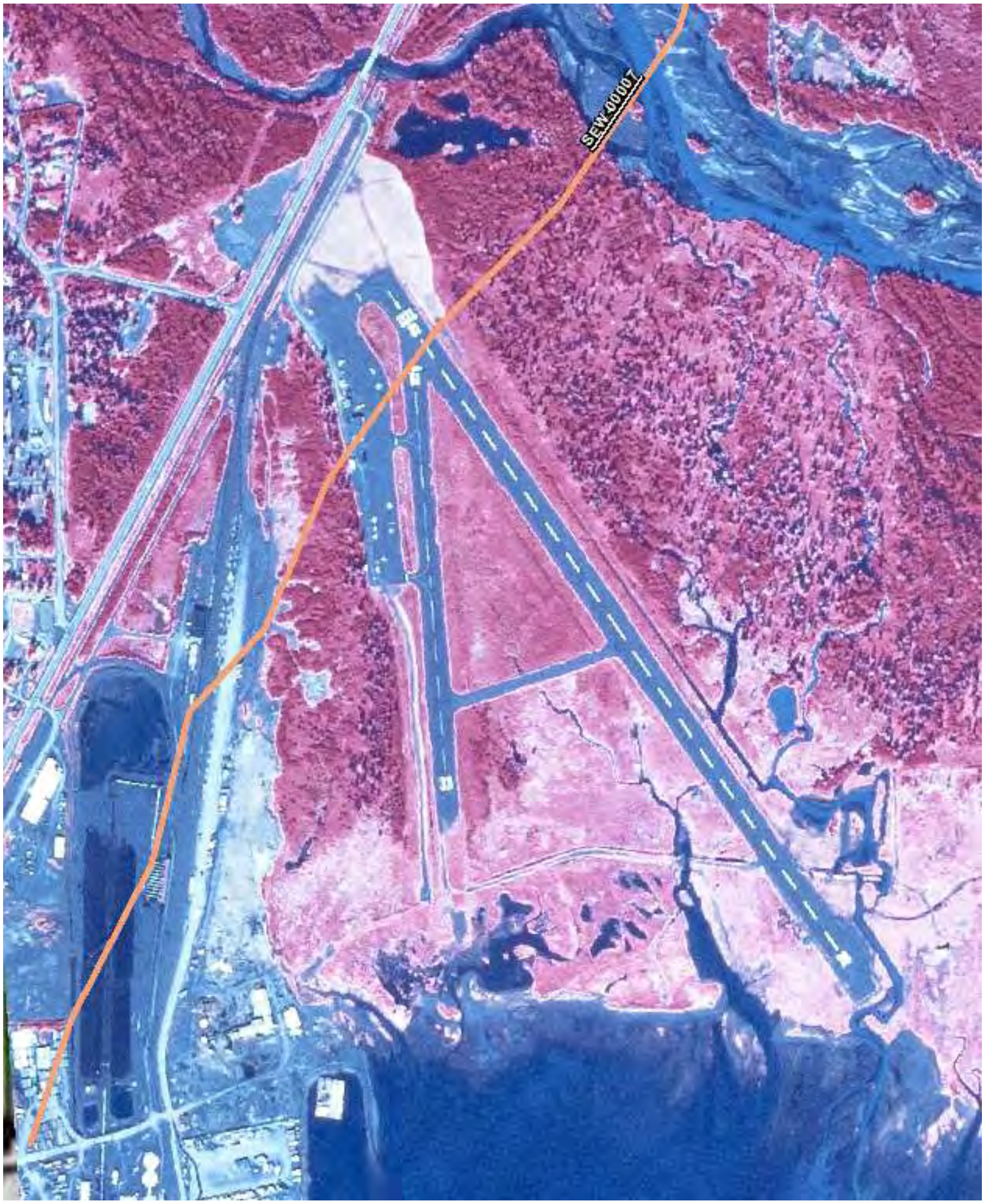

Figure 6. Aerial photograph from 1985 showing the AHRS location in relation to the Seward airport and the Alaska Railroad Yard.

Figure 7. Aerial photograph from 2011 showing the AHRS location of SEW-00007 in relation to the Seward airport and the Alaska Railroad Yard.

Figure 8. Aerial photograph from 2015 showing the AHRS location of SEW-0007 in relation to the Seward airport and the Alaska Railroad Yard.

Seward Airport, Christensen Air Service airplane on gravel runway with Mt. Alice in the background, 1948.
Photo #2410.1.6 courtesy of Resurrection Bay Historic Society

Determination of Eligibility for the Seward Airport (SEW-01625), Seward, Alaska

Michael T. Wanzenried
Alaska Department of Transportation and Public Facilities
Central Region Cultural Resources Specialist
April 2018

THE ENVIRONMENTAL REVIEW, CONSULTATION, AND OTHER ACTIONS REQUIRED BY APPLICABLE FEDERAL ENVIRONMENTAL LAWS FOR THIS PROJECT ARE BEING, OR HAVE BEEN, CARRIED OUT BY DOT&PF PURSUANT TO 23 U.S.C. 327 AND A MEMORANDUM OF UNDERSTANDING (MOU) DATED NOVEMBER 3, 2017 AND EXECUTED BY FHWA ANDDOT&PF.

Contents

Executive Summary

This report provides the basis for the Department of Transportation and Public Facilities' (DOT&PF) finding that the Seward Airport (SEW-01625) is not eligible for the National Register of Historic Places (NRHP). This report was initiated by the Seward Airport Improvement Project (Z548570000) that proposes to reconstruct runway 16-34, close runway 13-31, remove taxiways A, D, and E, relocate taxiway B, reconstruct taxiway F, among other actions. DOT&PF found that the original Seward airfield could be considered for listing to the NRHP under Criterion A for being among those airfields constructed by the territorial government starting in 1925 to promote economic development and improve access to rural areas. However, modifications to the Seward airport over the last 90 years has compromised the integrity of historic physical traits of the original airfield, which makes the Seward airport not eligible for listing to the NRHP.

Community
Airport? 201
Alaska Aviat
System Pla

Seward Airport Determination of Eligibility Study Area

The Seward airport is located on approximately 302 acres at the head of Resurrection Bay, approximately three miles north of the City of Seward's downtown core (Sections 34 & 35 of T01N, R01W and Sections 2 & 3 of T01S, R01W, Seward Meridian; USGS Quadrangle Seward A-7 SW) (Figure 1). The airport is classified as a Local Airport in the 1996 Alaska Aviation System Plan Update (AASP2). A Local Airport "serves as secondary access to a community served by another mode as primary access, or a recreational or emergency airstrip." Seward is connected to the rest of Alaska by railroad, highway, air, and water. Air travel to Seward has never been profitable for regular passenger service. Currently, the Seward Airport consists of two paved runways, a large paved apron, and six taxiways (A-F) and is primarily utilized by small, single engine, A-I aircraft (though the primary runway was designed to meet B-II design standards) (Figure 2). The most frequent users of the airport are Civil Air Patrol, tour operators, and private pilots.

Summary Overview of Airport Use and Modifications

Seward airport's first runway was built between 1927 and 1928. It consisted of a single 200x1200 foot runway. Between 1929 and 1930, the airport was expanded and featured two runways, forming an L shape, with a north-south landing strip measuring 200x1400 feet and an east-west landing strip measuring 200x1200 feet. By 1950, improvements to the airfield had combined the two into a single 2800 feet long runway (today's runway 16-34). An additional runway (today's runway 13-31[1]) was built in 1952 and measured 3800 feet in length on a northwest-southeast axis.

In 1962, a small apron was built on the north end of the airfield, both runways were compacted, and the current entrance to the Seward Highway was built. The Airport suffered minor damage in the 1964 Good Friday earthquake, and repairs made by the United States Army Corps of Engineers included re-establishing the runway, apron, and taxiway grades above the high-tide elevation.

1975 was the year the airport received its contemporary appearance after a surfacing and marking project updated the compacted gravel of both runways, taxiways A – D, and the parking apron with a

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[1] By Federal Aviation Administration rules, runways are numbered according to the points on a compass, from 1-36, reflecting the magnetic compass reading. As the earth's magnetic field changes, the FAA requires runways to be renumbered. Although as built drawings and photographs from different years show different numbering conventions for the runways, this report will use the convention from the 2008 Airport Layout Plan on Figure 2. https://www.ncei.noaa.gov/news/airport-runway-names-shift-magnetic-field

rebuilt sub-surface that was resurfaced with bituminous prime coat and runway markings. In 1983, both runways and the apron were reconstructed by DOT&PF and medium intensity taxiway lights and taxiway markings were added. The 1983 project also included construction of the existing sand storage building.

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Between 1990 and 1991, DOT&PF leased approximately 7.6 acres from the ARRC along the west side of the airport to add lease lots and storage areas on the general aviation apron. The apron and access road were subsequently expanded towards the south in 1991. An erosion control project was completed along the east side of Runway 12-30 (today's runway 13-31) in 1995. Currently, the airport features a number of structures including several tour offices, a large commercial hangar, a DOT&PF maintenance building and sand shed, lighting vaults, and weather stations (Figure 3). None of these buildings are over fifty years of age.

Cultural Chronology of Seward

Relying primarily on Mary Barry's *History of the Gateway City volumes I-III*, Seward's history has been divided into six periods: Human Use and Occupation of the Seward Area Before 1792; Russian Contact (1792-1860); The Lowell Family and the Founding of Seward (1883-1919); Seward Between Wars (1940-1965); Seward's Wartime Growth (1940-1965); Modern Seward (1964-1990).

Human Use and Occupation of the Seward Area Before 1792

For thousands of years prior to the founding of Seward, people made a home among the fjords, inland rivers, and mountains of the Pacific coast of the Kenai Peninsula. Although archaeological sites with tool assemblages morphologically similar to the early Holocene (~10,000-7,500 years ago) have been identified in the upper Cook Inlet, the archaeological record of the southern Kenai Peninsula provides evidence of human occupation region for approximately 7,000 years when people started living along the rocky coastline along today's Kenai Fjords National Park (Clark 1984: 136-137). The earliest cultural manifestations include those related to the Takli Alder and Ocean Bay (7,000 to 4,800 years ago); Takli Birch, Ocean Bay II, and Kachemak I and II (4,800 to 2,800 years ago); Takli Cottonwood and Kachemak III (1,800 to 600 years ago); and Historic Kenai Eskimo (600 years ago to present). These were followed by the Dena'ina, Alutiiq, and Chugamiut (Workman 1998). Archaeological sites related to these traditions have not been documented in the immediate vicinity of Seward and tend to occur further inland near Kenai Lake, throughout the Kenai River drainage, and along the coast.

Russian Contact (1792-1860)

The first non-native peoples to set foot on shore and explore the Seward environs were most likely associated with the Russian American Fur Company when it selected the head of Resurrection Bay to build a ship building yard and fort—named Fort Voskresenkii—between 1792 and 1793 (Brue 2004: 39; Cook and Norris 1998: 45-53; Trepal 2013: 12-13). The decision to use Resurrection Bay was driven more by the necessity to secure locations close to coastal hunting grounds and block the expansion of the Lebedev-Lastochkin Company than for access to adequate building materials (Cook and Norris 1998: 44-52). The early days of the fort consisted of as many as 150 Russian men living and working in this area—a workforce often supplemented with Native labor as the conditions at the fort deteriorated and led to a mutinous uprising (Cook and Norris 1998: 49). The persistent lack of building supplies and decimated sea otter populations made Fort Voskrensenkii economic viability uncertain, and in 1818 the fort's status was downgraded to that of a trade outpost. As noted in an April 10, 1818, memo of the Russian American Company, it was recommended to transfer all the Russians and prisoners to Iliamna, reduce the size of the encampment, and leave one or two Aleut families as managers of the outpost (Pierce 1984: 79). It is unclear when the final abandonment of Fort Voskrensenkii occurred though it was likely fully abandoned sometime in the mid-1800s (Cook and Norris 1995: 55).

The Lowell Family and the Founding of Seward (1883-1919)

Following the Russian departure from Resurrection Bay, the next reported permanent residents were Mary and Frank Lowell who moved there from English Bay sometime between 1883 and 1884 (Barry 1986: 24; Cook and Norris 1998: 71). In the vicinity of the current-day SeaLife Center, steamships would anchor close to shore to pick up furs and drop off mail, people, and supplies—effectively turning the Lowell home on Resurrection Bay into an outpost between the continental United States and mining claims on Turnagain Arm (Barry 1986: 24; Cook and Norris 1998: 71; Trepal 2013: 13). Although Frank abandoned his family in 1893, Mary and her children continued living in Resurrection Bay. By 1900, members of the Lowell family constituted all of the four households in Resurrection Bay and reportedly also had small garden plots and staked mining claims in the area (Barry 1986: 27, 33).

The U.S. Government ordered the first formal surveys of the corridor from Seward to the north in order to gather information on trails and portages that could be used to support military and mining interests further to the north (Cook and Norris 1998: 13). In 1898 Lieutenant H.G. Learnard of the 14th Infantry, geologist Thomas Mendenhall, and a civilian named Bagg surveyed a route from the head of Resurrection Bay near present day Seward to the Matanuska Valley—a trip that required following paths already cut by prospectors through the Salmon Creek Drainage to the Snow River and on to the mining communities of Hope and Sunrise (Bureau of Recreation (BOR) 1977: 23; Cook and Norris 1998: 13; Mendenhall 1899: 275). This survey expedition highlighted the practicality of this route to facilitate the development of mining and agricultural opportunities throughout the region (Barry 1986:33). By 1900, people began arriving into the area in increasing numbers and used pack trains and dog sled teams to move supplies from Resurrection Bay to mining districts throughout the Cook Inlet region (BOR 1977: 25).

In May of 1903, Mary Lowell’s daughter, Eva, married and lived with Harry Revell who had a 320 acre homestead at the head of Resurrection Bay with a small cabin, log stable, and garden (Barry 1986: 30). Part of this homestead became the location for the future airport although no evidence for the buildings have been identified (Kriz and Williams 2005: NP). For several years, Revell had the contract to carry the mail by dogteam from Seward to surrounding mining towns of Sunrise and Hope and provided guide services for railroad officials and visitors to the area (Barry 1986: 30). In 1903 and 1904, he guided John and Frank Ballaine and W.B. Poland of the Central Railroad Company along the route surveyed for railroad construction. When Harry and Eva needed to build a house in Seward to help manage Eva’s failing health in 1906, Revell arranged for Charles Christensen to live at and improve on his homestead claim (Barry 1986: 30). After he and Mary divorced in 1917, Revell arranged to sell parts of his homestead—some of which would later be integrated into part of the Seward airport.

The actual founding of Seward was a result of businessmen and brothers John and Frank Ballaine’s ambition to capitalize on the potential to connect an ice free deep sea port to Alaska’s interior communities and mining districts via railroad. They organized the Alaska Central Railway Company and used existing government surveys as well as their own research to identify Resurrection Bay as the most ideal location to build a town and railroad (Barry 1986: 34-36). Following their initial 1902 surveys to Cook Inlet, the Alaska Central Railway Company purchased much of Seward’s current-day waterfront from Mary Lowell for $4,000 and thirty-seven townlots (Barry 1986: 27). With an additional 160 acres obtained through John Ballaine's Soldier's Additional Homestead Scrip, the foundation for the town of Seward took shape (Barry 1986: 36).

The contrived nature of the town by the Ballaine brothers allowed Seward to prosper without going through the spasms of uncontrolled growth that accompanied most boom towns. Having the financial backing of investors meant that when John Ballaine set sail to build the first buildings at the Seward townsite in August 1903 he was well prepared and had twenty-five employees, draft animals, a pile driver, saw mill, and provisions for the initial construction of the town (Barry 1986: 37-38). Within a few years of its founding, Seward had a dock, water system, electricity, telephone service, banks, and a three-story brick building that housed the headquarters of the Alaska Central Railway Company (Barry 1986: 56-57). One issue that slowed Seward's growth for decades was how inadequate housing and a lack of year-round jobs forced people south for the winter (Barry 1986: 55-61).

Construction of the railroad proceeded in fits and starts. Between 1904 and 1905 nearly 45 miles of track was laid; after which, funding issues and difficult terrain slowed construction considerably and by 1909 a total of 71.5 miles of track had been completed (Cook and Norris 1998: 84). In addition to these problems, the withdrawal of coal lands from public entry in 1907 undermined the economic surety behind the Ballaine venture and in 1911 the Alaska Railroad Company was sold and re-organized into the Alaska Northern Railroad Company (Barry 1986: 66-71; Cook and Norris 1995: 86-87). Unwilling to invest much to upgrade or maintain its property, the Alaskan Northern Railroad went on to experience profound economic failure (Cook and Norris 1998: 85). The loss of revenue from railroad construction led to an economic decline in Seward as many of the activities associated with the railroad made up the economic foundation for many of Seward's businesses (Cook and Norris 1998: 85). In 1915, the Alaska Engineering Commission recommended that the government purchase the bankrupt Alaska Northern Railroad to secure a link between the Matanuska Valley and an ice free port (Cook and Norris 1998: 86-87). Headquarters for the Alaska Railroad moved from Seward to Anchorage in 1917, initiating an economic downturn that was exacerbated by WWI (City of Seward 2017: 15).

Seward Between Wars (1919-1940)

The United States' entry into WWI in 1919 impacted statewide and local economies through rationing and the loss of available work force, which slowed the development of roads, mining operations, railroads, and farms (Seward Historic Preservation Plan (SHPP) 2017: 15; Johnson and Stanton 1955). Despite this, work on the railroad and local roads continued and provided seasonal work for local men. The growth many Sewardites hoped would accompany the government takeover and the eventual completion of the railroad in 1921 did not materialize in terms of the number of new residents, which only increased from 652 to 949 between 1920 and 1940 (Barry 1995: 15). Increased freight and tourism from both railway and shipping lines created a local economic driver that has continued through the depression era to the present. During the period from 1923 to 1940 Seward's tourist economy gradually coalesced around a downtown core that began to feature restaurants and souvenir shops as well as new facilities built on the wharf to support the fuel and repair needs of ships and railroad yards (Barry 1995: 92-119).

The early 1920 was also a time when the use of aircraft in Alaska provided easier access to remote communities and played a significant role in the development of the state (Municipality of Anchorage ND). One of the first pilots to offer commercial freight and passenger service in Alaska was Roy Jones who had flights between Seattle and Ketchikan using a military surplus flying boat in 1922. Between 1924 and 1926, regular service airlines for freight and passengers emerged out of Fairbanks and Anchorage, as well as some of the first experimental airmail flights between Fairbanks and McGrath (Alaska Humanities Forum 2018). The Alaska Territorial legislature allocated $40,000 in 1925 for the Alaska Road Commission (ARC) to begin building airfields throughout Alaska (Alaska History 2018). In 1927 alone, the Alaska Road Commission (ARC) built over 30 airfields across Alaska (ARC 1928). ARC constructed a primitive 200 by 1000 foot-long airfield at the head of Resurrection Bay in Seward. A few small companies in Seward provided infrequent freight and passenger service from Seward to local landmarks, other Alaskan communities, and mining districts. A range of factors like cost, geography, and competition with the railroad limited the potential of flight out of Seward—especially when compared to the rapid development of airfields in Anchorage and Fairbanks (see Timeline of Aviation and Airport Improvements in Seward below for more detailed discussion of flight in Seward).

Although Seward's position at the head of Resurrection Bay near the railroad and docks made it seem like a prime location for fish canning operations, overfishing led to sporadic economic returns and fish plants scaled back operations during this time (City of Seward 2017: 18). Through the 1940s, the halibut and cod industries of Alaska declined.

Seward's Wartime Growth (1940-1964)

Seward's relatively small maritime industry expanded rapidly after 1940 when construction supplies related to military fortifications for other parts of Alaska arrived in Seward's port (Barry 1995: 150). The increase in shipping traffic prompted construction work on Seward's waterfront. Barry quotes John Paulsteiner who described Seward as the stronghold of the whole Pacific north of Seattle with freight arriving from Seattle, Portland, San Francisco, and Russia (Barry 1995: 151). Hundreds of planes were shipped through Seward to be assembled in Fairbanks before being flown to Russia via Nome. Paulsteiner estimated the number of dockworkers increased from 30 to 165 men who worked in shifts around the clock (Barry 1995: 151).

On June 30, 1941, Seward's first garrison of 25 officers and 677 soldiers arrived and assisted with erecting the camp site at the northern end of Seward near the Jesse Lee Home that would become Fort Raymond (Barry 1995: 152). Their duties included dynamiting and leveling ground for barracks and facilities at Fort Raymond in preparation for the arrival of several thousand more soldiers who would help build and man military fortifications throughout Resurrection Bay to protect the port from enemy attack (Barry 1995: 153-159).

While shipping through Seward increased exponentially during World War II, constant use of the rails severely degraded their overall utility and, by the end of the war, there was discussion to discontinue the Seward to Portage section of the railroad (Barry 1995: 190). Compounding this problem was the unintended consequence of the military integrating a second deep water port at Whittier into the Alaskan rail system. Attempts by Sewardites to fight the discontinuation of the Seward line were partially successful: funds to upgrade the railway were received in 1945 but the Seward line remained a low priority of Alaska Railroad officials who steered most of the freight traffic from Anchorage to Whittier (Barry 1995: 190, 328).

Although military involvement in Alaska after World War II still contributed to Seward's overall economy, the loss of Fort Raymond and construction-related activities for the war plus increased competition from a new port in Whittier and a port and airfreight services in Anchorage caused an economic downturn starting in the mid-1950s (Barry 1995: 226). . This continued with varying degrees of intensity until the 1964 Earthquake Seward's economic stability came to depend on its burgeoning fish-packing industry and upgrades to its port facilities helped attract new shipping businesses while simultaneously elevating its identify as a sightseeing destination (Barry 1995:210-212, 270-271). The opening of the Seward Highway between Seward and Anchorage in 1951 provided new opportunities for people to travel through the area, ship goods, and recreate and led to a minor population boom. Seward's population rose to 2,114 from 949 between 1940 and 1950 but dropped to 1,891 by 1960.

Modern Seward (1964-1993)

The earthquake and tsunami that struck Alaska on March 27, 1964, caused widespread destruction throughout Seward. A large portion of the ground that supported the wharf and dock facilities broke from the mainland and slid into Resurrection Bay, spilling and igniting thousands of gallons of oil and fuel into the water; additional infrastructure related to the railroad and highway were severely damaged first by tremors and subsidence then the series of massive seismic waves that swept far inland; 86 buildings were totally destroyed and 269 were heavily damaged (Lemke 1967: E1). Because of the damage caused to the roads and railroad, relief supplies began arriving into the minimally-damaged Seward airport within a day of the earthquake and continued for several weeks until repairs to other transportation networks could be made (Eckel 1967; Lemke 1967: E24).

Despite the property losses experienced by many people and businesses in Seward, reconstruction of the dock facilities, railroad yards, roads, airport, utilities, and housing market provided a lifeline to the overall viability of its primary economic drivers. However, improvements to infrastructure were not accompanied by any substantial diversification or amplification in local industries: dock upgrades allowed Seward to become a base for the Alaska Marine Highway System in addition to the recovering fish-processing industry, which provided much of Seward's economic stability for the 1970s (Barry 1995: 360).

Increased shipping demands for materials to build the Trans-Alaska oil pipeline increased shipping through Seward and 1975 was the first year since 1954 cargo tonnage shipped through Seward since 1954 (Barry 1995: 297). Tonnage through the port of Seward increased by over 300% between 1970 and 1980 and spurred a building boom with the Spring Creek Correctional Facility, the remodel of the Alaska Vocational Technical Center and an expanded industrial park as examples of some of the larger projects (Barry 1995: 360-362). However, when oil prices fell in 1986, these construction projects plus increased freight service by the Alaska Railroad (with regular passenger service on Saturdays between Seward and Anchorage) helped buffer the local economy (Barry 1995: 328, 360-361). The establishment of Kenai Fjords National Park in 1978 and the immense popularity of the railroad passenger service among tourists quickly led to daily trips during the summer, which effectively started Seward's contemporary identity as a well-known and easily-accessed tourist destination (Barry 1995: 329; City of Seward 2017: 22).

Timeline of Aviation and Airport Improvements in Seward (1922-1991)

1922-1940

After World War I, people began experimenting with using aircraft to aid in the transport of freight and people across Alaska. Initially, pilots used floatplanes and tide flats for places to land before roughing out primitive airfields (Alaska History 2018). With long distance flights becoming more possible after 1920, many Sewardites saw the potential for aircraft to replace dogsleds in carrying mail and freight (Barry 1993: 206). A *Gateway* editor encouraged people in October 1922 to contact government officials to set up airmail service and an airfield (Barry 1993: 206). In 1923, the owner of the Farthest-North Airplane Company, Carl Ben Eielson, visited Seward and identified a suitable landing spot near the Naval Radio Station at the head of Resurrection Bay (Barry 1993: 207).

The first airplanes that landed in Seward were two Curtiss F Model seaplanes flown by Russell Merrill and Roy J. Davis who landed there in August 1925 and offered $10 rides to locals (Barry 1993: 210). The Alaska Territorial legislature allocated $40,000 in 1925 for the Alaska Road Commission (ARC) to build airfields throughout Alaska (Alaska History 2018). In 1927, Merrill made flights to map out small landing fields for the Alaska Road Commission at places like Eklutna Lake, Tustemena Lake, Seldovia, Curry, and Seward (Alaska History ND). Later that year, the ARC in cooperation with the City of Seward scraped out a 200 by 1000 feet airfield one mile north of Seward on the grounds of the naval radio station (ARC 1928: 65; Barry 1993: 210; Cook and Norris 1998: 103). In 1927, over 30 airfields were built at locations across the state (ARC 1928). On May 9, 1928, Russell Merrill returned to Seward and was the first aviator to land at the airfield (Barry 1993: 211).

A September 7, 1929, article from *the Gateway* reported that a local businessman, Harry Hoben, donated 12 acres of land north of Radio Station Road for enlarging the airport, which was cleared of trees and leveled by ARC and the City of Seward. Construction concluded in spring 1930 and the improved airstrip had an L shape with a north-south landing strip measuring 200x1400 feet and an east-west landing strip measuring 200x1200 feet (ARC 1930: 63; Gateway Oct 30 1929) (Figure 4).

1931- 1940

The first pilot to land at the improved Seward airfield was Harvey Barnhill of Pacific International Airways (PIA) on March 2, 1931 (Gateway March 3, 1931). In exchange for PIA making Seward its headquarters, the city raised funds, cleared more land, and finished constructing a hangar by February 6, 1932 (Figure 5). Shortly thereafter, Barnhill left Alaska for Africa and PIA was renamed McGee Airways after the second partner of the company—Mac McGee. In the first few years of the Seward airport's history, McGee Airways, Alaskan Airways, Northern Air Transport, two separate companies by the name of Seward Airways, as well as independent pilots used the airfield to take people on flights to communities throughout Alaska in addition to short sightseeing flights over local landmarks (Barry 1993:214-216; Cook and Norris 1998: 104). None of these resulted in a permanent operation (Barry 1993: 216). Part of this was due to the cost of flying, which was prohibitively expensive for most people, and regularly scheduled flights to and from the Kenai Peninsula did not occur until after World War II (Cook and Norris 1998: 104).

In 1933 volunteer Sewardites tripled the size of the airfield by blowing up stumps and using caterpillar tractors and scrapers (Barry 1993: 215). Seward's inclusion on a list of appropriations approved by Congress in 1935 provided funds to extend the runway to the beach (Barry 1993: 215). Later in the same year, the city council returned the land Harry Hoben had donated in 1929; Hoben then donated to the territory three times the original amount for the construction of a larger airfield in the future (Barry 1993: 215). Henry Leirer also donated eight adjoining acres of land to the airport (Barry 1993: 215).

1940-1964

In response to Germany's invasion of Scandinavian countries in the spring of 1940, the Civil Aeronautics Authority (CAA) provided resources to build and improve airfields throughout the state of Alaska. Some of these improvements went towards improving the Seward airfield to accommodate military aircraft, which was later repeated by the military during the construction of Fort Raymond and other military installations throughout Resurrection Bay (Barry 1986: 153; Barry 1993: 216) (Figure 6).

Between 1945 and 1949, Kenai Air Service, Safeway Airlines, and Alaska Airlines offered flights that connected Seward to the rest of the Kenai Peninsula and other points in Alaska (Cook and Norris: 1998: 104). Although the use of aircraft to carry mail and freight continued, air travel by locals was limited due to the cost of tickets and the ability of people to take the train (and later road) to Anchorage—both of which hampered the economic potential of using aircraft from Seward.

An aerial photo from 1950 shows that people were using Radio Station Road to get to the airport and that airplane parking and storage occurred at the southern end of runway 16-34 (figure 7). This pattern was consistent up through 1966 when Radio Station Road was finally closed to public access due to how flooding from high tides compromised its structural integrity (DOT&PF Progress Report 1966). Figure 7 also shows that at some point the two runways had been merged into one. A 1950-1951 publication by the CAA described the Seward airport as having a single 2800-3000 foot-long runway made of loose gravel with limited local services and storage (CAA 1950: 22).

After CAA hearings in 1950, Christensen Air Service had a scheduled run between Anchorage and Seward; likewise, Safeway Airlines received a three-year exemption for non-scheduled flights (Barry 1995: 247). Cordova Air Lines purchased Christensen Air Service in July 1952.

The second runway (today's 13-31) was built in 1952 and measured 3800 feet in length on a northwest-southeast axis (Barry 1995: 247). Internal memos housed in DOT&PF archives that date to 1961 indicate this became the primary runway. Runway 16-34 was also extended 600' to the north and connected with runway 13-31 (DOT&PF 1961). Based on an aerial photo from 1961, it appears likely that taxiway A, the strip connecting both runways, was built at this time—likely to shorten the distance pilots had to taxi from the parking area to the primary runway (Figure 8).

In 1962, a new parking apron was established on the northern end of runway 16-34 (Figure 9-10). The entire strip along the west side of Runway 16-34 was then used for aircraft parking and storage. This project also built an access road that connected the new apron to the southern section of the airfield, extended Runway 16-34 past Radio Station Road, and established today's taxiways B, C, and D on the new apron.

Between 1961 and 1962, the Seward airport housed the Seward Composite Squadron of the Civil Air Patrol, which received a grant in 1964 to cover the costs of a new plane, communications system, hangar, and office space (Barry 1995: 264, 289).

1964 – Current Day

In a review of damages to the Seward Airport after the 1964 earthquake and tsunami, the National Research Council (NRC) in 1973 described the airport as having two gravel runways, a gravel-surfaced parking apron, and several private aircraft shelters adjacent these facilities (NRC 1973: 1017). The airfield sustained little damage with some fissuring. The majority of the fissures occurred on the north end of the airfield and few of the cracks were more than 6" wide (NRC 1973: 1017). As part of its reconstruction duties, the Army Corps of Engineers (ACOE) re-established the runway, apron, and taxiway grades above the high-tide elevation with additional modifications made to the drainage system (NRC 1973: 1017). As built drawings of the work conducted by the ACOE show that approximately 900 feet at the southern end of runway 13-31 was not reconstructed at that time and that a Condor Air hut and tool shed in the northwest corner of the parking apron were the only (depicted) buildings (Figure 1965 as built from 1970). The ACOE also installed runway lights along both runways and taxiways (Figures 1 & 2 from 1970).

A project in 1966 extended Runway 16-34 an additional 950 feet to its current position with its southern terminus just opposite the remains of the Seward Naval Radio Station (SEW-00835) and re-compacted each runway and all the taxiways (Figure 11, 13). After 1966, access to the airport on Radio Station Road was cut off and storage and hangar facilities were shifted to the parking apron built in 1962 on the northern end of the airfield (Figure 12).

In July 1975 a surfacing and marking project with the Airport Development Aid Program (Project # 8-02-0259-01) surfaced both runways, taxiways A – D, and the parking apron for the first time with bituminous prime coat, repainted runway and taxiway markings, and installed medium intensity marker lights along Runway 16-34 (Figures 14-19). The only structures shown on the as built drawings for the airport at this time include an old hangar near Taxiway A and an unlabeled building, the current DOT&PF maintenance shed, approximately opposite the northwest tip of the depressed island between Taxiway C and D. The southern end of Runway 16-34 that the ACOE did not rehabilitate in 1965 was re-established and surfaced during this project.

In 1983, DOT&PF initiated a runway resurfacing project (project #D39622) that resurfaced the runways, taxiways, and apron with bituminous sealcoat (Figure 20). In addition to this, runway and taxiway markings were repainted, tie down anchors installed on the southern section of the apron, and a sand storage shed was built in front of the DOT&PF maintenance building (the same unlabeled building from 1975) near Taxiway C.

In 1991, DOT&PF initiated an apron expansion project (project #58156) that increased the western boundary of the airport, extended the apron built in 1962 to the south by 1100 feet to its current extent, created Taxiways E and F, and created new lease lots 5-9 (Figure 2, Figure 21). In addition to extending the access road along the western edge of the apron to its current terminus past Taxiway F, DOT&PF also installed the existing flood lights and chain link fence along the western edge of the new apron extension.

In 1995, DOT&PF initiated an erosion control project (project #5129) that replaced culverts on runway 13-31 and taxiway A in addition to placing riprap along the east side of runway 13-31 to prevent further erosion from the Resurrection River (Figure 22).

Currently, there are 12 primary structures on lease lots 1a-9 that consist of trailers, hangars, and commercial tour guide offices with an array of storage sheds, fuel tanks, surface weather station, and regulator buildings (Figure 3). The oldest of these structures include the DOT&PF snow removal equipment building (SREB) and sand shed on Lot 3 (Figure 23). The former was built between 1971 and 1973. It consists of a prefabricated corrugated metal-sheathed structure with roll-up doors on its south and north elevations. It was not featured on as built drawings or archival photos from 1970 but appeared in a DOT&PF archival photo from 1973. The sand shed was built by DOT&PF in 1983. It consists of a simple 16x42x15 foot structure of post and board construction with a slightly pitched roof. Both buildings are scheduled to be replaced in 2019.

Evaluation of Significance

Criterion A

Properties may be eligible for the NRHP if they are associated with events that have made a significant contribution to the broad patterns of our history

Over the course of the 20th and 21st centuries, the airport at Seward has expanded from a primitive single runway carved out of the floodplain at the head of Resurrection Bay to a paved airstrip used primarily by medevac flights and tour operators. Although the airport has not played a significant role in historic events and processes that shaped early or later Seward and surrounding areas, it was among one of many airfields built with funds provided by the Territorial legislature during the late 1920s throughout Alaska. Its construction was part of a larger project intended to use aviation to expand economic opportunities throughout the state. For that reason, the airport at Seward is significant under criterion A at the state level for its association with early aviation history in-between world wars (1919-1940).

Criterion B

Properties may be eligible for the NRHP if they are associated with the lives of significant persons in our past

Initial construction of the airport at Seward was the collaborative result of efforts by newspaper editors, local business people like Harry Hoben, and pioneering bush pilots like Carl Eielson and Russell Merrill. However, none of these people's lives or others were intractably linked to the founding or continuation of the Seward airport. For example, although Eielson consulted on location and Merrill was among the first to land at the Seward airport, such occasions were common for them given their early participation in flight throughout Alaska (and the arctic)—and what was for Merrill effectively a part of his job. According to the NRHP nomination form for Hoben Park (SEW-00662), Harry Hoben, prominent businessman and former mayor of Seward, is more closely associated with his ownership of the local newspaper, being a partner in the Alaska Transfer Company, and overseeing maintenance of the eponymous park between 1923 and 1948, among other things. As there is no documentation that shows how the Seward airport illustrates these or another person's important achievements, it is not significant under Criterion B.

Criterion C

Properties may be eligible for the NRHP if they embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

The Seward airport has undergone profound changes over the last century. Its current appearance with paved surfaces, electric landing lights, striping, and array of modern safety features was first established in 1975 and has been updated since in accordance with Federal Aviation Agency guidelines for airport design and engineering standards. Because the Seward airport's method of construction, like most small airports in Alaska, embodies federal requirements, it does not represent a unique style of design or construction. Additionally, it does not represent the work of a master, possess high artistic value, or serve as a significant or distinguishable entity among Alaskan airports. As such, the Seward airport is not significant under Criterion C.

Criterion D
Properties may be eligible for the NRHP if they have yielded, or may be likely to yield, information important in prehistory or history.

The Seward airport lacks both a built environment and history of human activity where future archaeologists or historians could hope to conduct research in order to better understand the history of aviation in Seward. The airport currently lacks historic buildings and does not have a history that would indicate significant subsurface deposits would have been created. For these reasons, the Seward airport is not eligible for the NRHP under Criterion D.

Evaluation of Integrity

To be listed in the National Register of Historic Places, a property must not only be shown to be significant under the National Register criteria, but it also must have integrity; a property must possess several, and usually most, of the aspects of integrity that include: location, design, setting, materials, workmanship, feeling, and association (National Park Service 2002).

The Seward airport's potential to be listed to the National Register of Historic Places is based on its significance under Criterion A for its association with early aviation history in Alaska from 1927 to 1940. Despite being one of many airfields built in the late 1920's as a statewide effort to improve access and promote development throughout Alaska, it no longer retains any of the historic physical features and characteristics associated with its period of significance.

Although the location of the Seward airport today is similar to that of its original construction, aspects of the airport's design, setting, materials, workmanship, feeling, and association have been irrevocably compromised by subsequent improvements to keep the facilities in compliance with FAA specifications.

In the late 1920's, the Seward airport had two different stages of design. The original 1927 design of the airport consisted of single 200 x 1000 foot long airstrip carved out of the vegetation at a remote location near the naval radio station at the head of Resurrection Bay nearly a mile from Seward. Between 1929 and 1930, the Alaska Road Commission and the City of Seward shifted the airfield north of Radio Station Road and built two runways: one on an east-west axis and the second on a north-south axis (Figure 4). Work for both airfields required clearing existing forested areas and leveling them using local road construction equipment, dynamite, and hand tools. These design qualities unique to early airport construction in rural Alaska have been supplanted by a fully modern airport with two runways, parking aprons, taxiways, and support facilities built to FAA specifications.

The airport's original setting was characterized by its remote wooded location and its roughed-out nature of construction. Over time this setting has been altered by Seward's development and with improvements to the airport itself. Today, the airport itself is partially surrounded by the City of Seward and is bordered on its west side by an Alaska railroad yard and the Seward Highway. To its north are residential neighborhoods and commercial properties. To its south are docks and waterfront associated with support of tour lines and shipping companies. To its east, one of the channels of the Resurrection River has replaced forest land and now abuts runway 13-31. Likewise, the relatively primitive nature of both the original 1927 airfield and the 1930 airfield has been lost in the installation of flood lighting, radio communication systems, landing strip lights, storage and support facilities, and the construction of fully modern runways featuring asphalt and striping. Little of the airport's original setting remains to depict the difficulty, danger, and dirtiness associated with early air travel to Alaska's first airfields nor the physical environment of the first airfields which had far fewer amenities than those today (Figure 24 provides a glimpse of on the ground conditions in 1964).

Modernization of the airport over the last 80 years, including its significantly larger footprint, paved surfaces, lighting, fencing, safety zones, expanded parking and storage areas, access roads, and array of specialized buildings have compromised aspects of the original airport's materials and workmanship. The sum of these changes are such that the Seward airport today no longer retains sufficient historic physical features to convey a feeling and association with the first years of aviation in Seward. Therefore, DOT&PF finds the Seward airport (SEW-01625) not eligible for the NRHP.

References

Alaska History
ND Merrill, Russel Hyde. Electronic resource accessed on April 18, 2018, http://www.alaskahistory.org/biographies/merrill-russel-hyde/

Alaska Humanities Forum
2018 Alaska's Heritage, Chapter 4-12: Air Transportation. Alaska Humanities Forum. Electronic document accessed on April 18, 2018, at http://www.akhistorycourse.org/americas-territory/alaskas-heritage/chapter-4-12-air-transportation

Barry, Mary
1986 Seward, Alaska: A History of the Gateway City. MJP Barry, Anchorage.

1993 Seward, Alaska: A History of the Gateway City – Vol II: 1914-1913 the Railroad Construction Years. MJP Barry, Anchorage.

1995 Seward, Alaska: A History – Vol III: Growth, Tragedy, Recovery, Adaptation 1924-1993. MJP Barry, Anchorage.

City of Seward
2017 Seward Historic Preservation Plan. Electronic document accessed on March 14, 2018. http://www.cityofseward.us/DocumentCenter/View/3993

Civil Aeronautics Administration
1950 Alaska Flight Information Manual, 3(3). U.S. Department of Commerce. Electronic document accessed on April 25, 2018. https://babel.hathitrust.org/cgi/pt?id=uc1.b3031761;view=1up;seq=24

Clark, Don.
1984 Pacific Eskimo: Historical Ethnography. In Handbook of North American Indians, Volume 5: Arctic, David Dumas, volume editor. Smithsonian Institute, Washington D.C..

Cook, Linda and Frank Norris
1998 A Stern and Rock-Bound Coast: Kenai Fjords National Park Historic Resource Study. National Park Service Support Office, Anchorage.

DOT&PF
1966 June 20-26 Construction Progress Report on Runway Extension Project (FAA 9-50-003-03). File at DOT&PF archives.

Eckel, Edwin
1967 Effects of the Earthquake of March 27, 1964, on Air and Water Transport, Communications, and Utilities Systems in South-Central Alaska. Geological Survey Professional Paper 545-B. United States Government Printing Office, Washington. Electronic document accessed on April 25, 2018. https://pubs.usgs.gov/pp/0545b/

Kriz, Peter and Catherine Williams
2005 *Cultural Resource Survey of the Seward Airport Improvements Project, Seward, Alaska.* Report prepared for DOWL Engineers. Electronic document accessed from the Alaska Heritage Resources Survey database on February 15, 2018.

Lemke, Richard
1967 *The Alaska Earthquake, March 27, 1964, Effects on Communities: Seward.* Geological Survey Professional Paper 542-E. United States Department of the Interior, Washington D.C. Electronic document accessed on April 25, 2018. https://pubs.usgs.gov/pp/0542/

Municipality of Anchorage
ND Anchorage Aviation History and Development. Electronic resource accessed on April 18, 2018, at https://www.muni.org/Departments/merrill_field/Pages/History.aspx

National Park Service
2002 How to Apply the National Register Criteria for Evaluation. National Register Bulletin 15, U.S. Department of the Interior.

National Research Council
1973 *The Great Alaska Earthquake of 1964*. Committee on the Alaska Earthquake of the Division of Earth Sciences, National Research Council. National Academy of Sciences, Washington, D.C. Electronic document accessed on April 25, 2018.

Pierce, Richard
1984 *The Russian American Company: Correspondence of the Governors, Communications Sent, 1818.* Limestone Press, Kingston, Ontario.

Trepal, Dan
2013 A Slice of Early Seward: How Archaeology Provides a Glimpse into Daily Life in this Frontier Town. National Park Service.

Workman, William
1998 Archaeology of the Southern Kenai Peninsula. *Arctic Anthropology* 35(1): 146-159.

Figures

Figure 1. Location and Vicinity Map

Figure 4: Aerial photo of the expanded Seward airfield circa 1930. Image #2410.1.1 courtesy of the Resurrection Bay Historical Society.

Figure 5. Teacher Lurline Wilkins with students at airport with biplane taking off in background. May 10, 1943. Image #2410.1.7 courtesy of the Resurrection Bay Historical Society.

Figure 6. Map showing military land and the landing field at the head of Resurrection Bay.

Figure 7: August 8, 1950, aerial photo of Seward Airport. Photo from United States Geologic Service Earth Explorer aerial imagery viewer. Photo ID BM03710200353. https://earthexplorer.usgs.gov/

Figure 8: 1961 Aerial photo overview of Seward Airport. Note parked airplanes along Runway 16-34. Photo from DOT&PF archives.

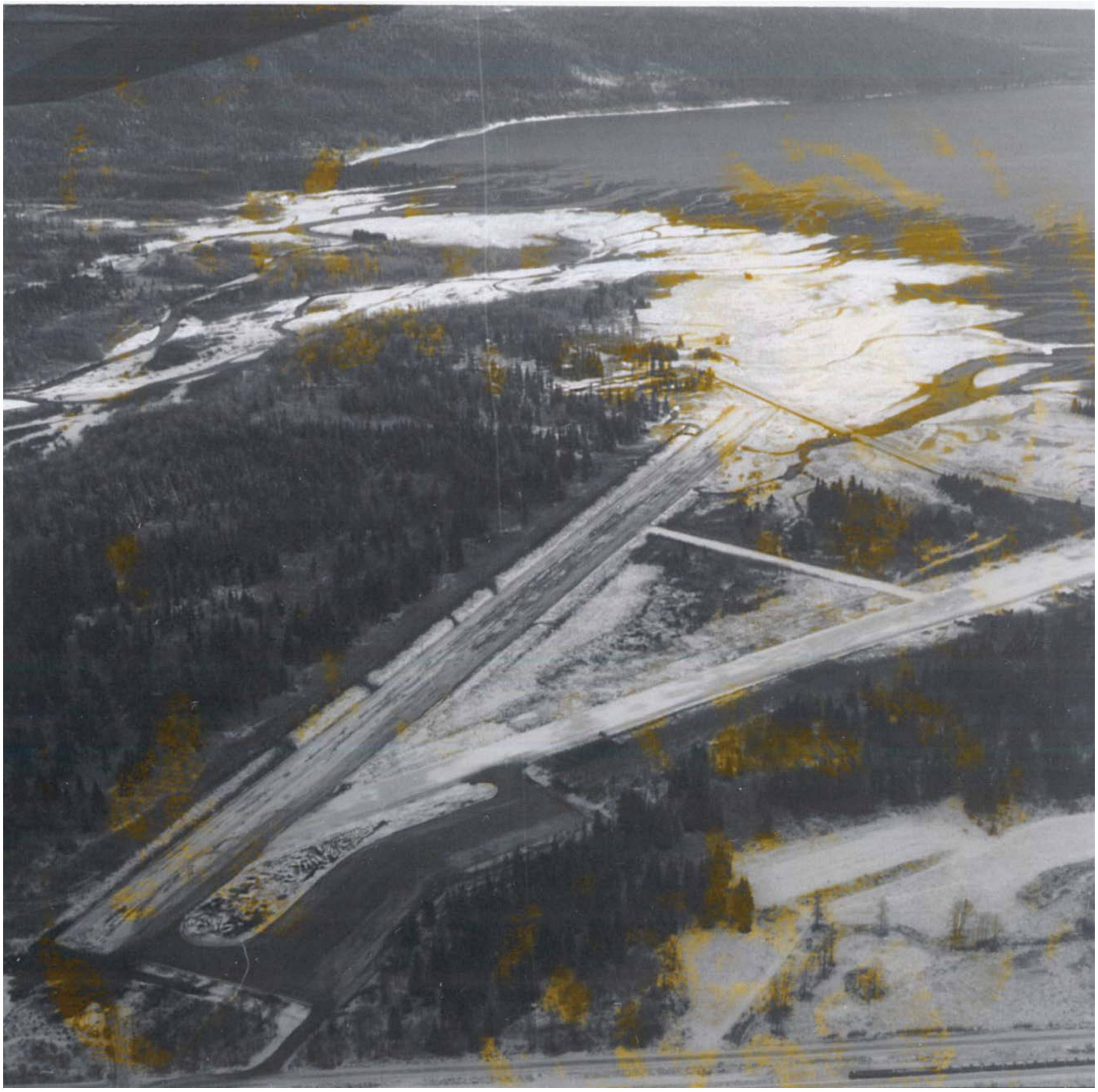

Figure 9: 1962 Aerial of Seward Airport following the construction of parking apron in the lower left quarter the photo. Photo from DOT&PF archives.

Figure 10: Overview of buildings on west side of Runway 16-34 on November 29, 1962. Photo from DOT&PF archives.

Figure 11. Overview of southern end of runway 13-31 after DOT&PF had 75% compaction from contractor in July 1966, facing southeast. Photo from DOT&PF archives.

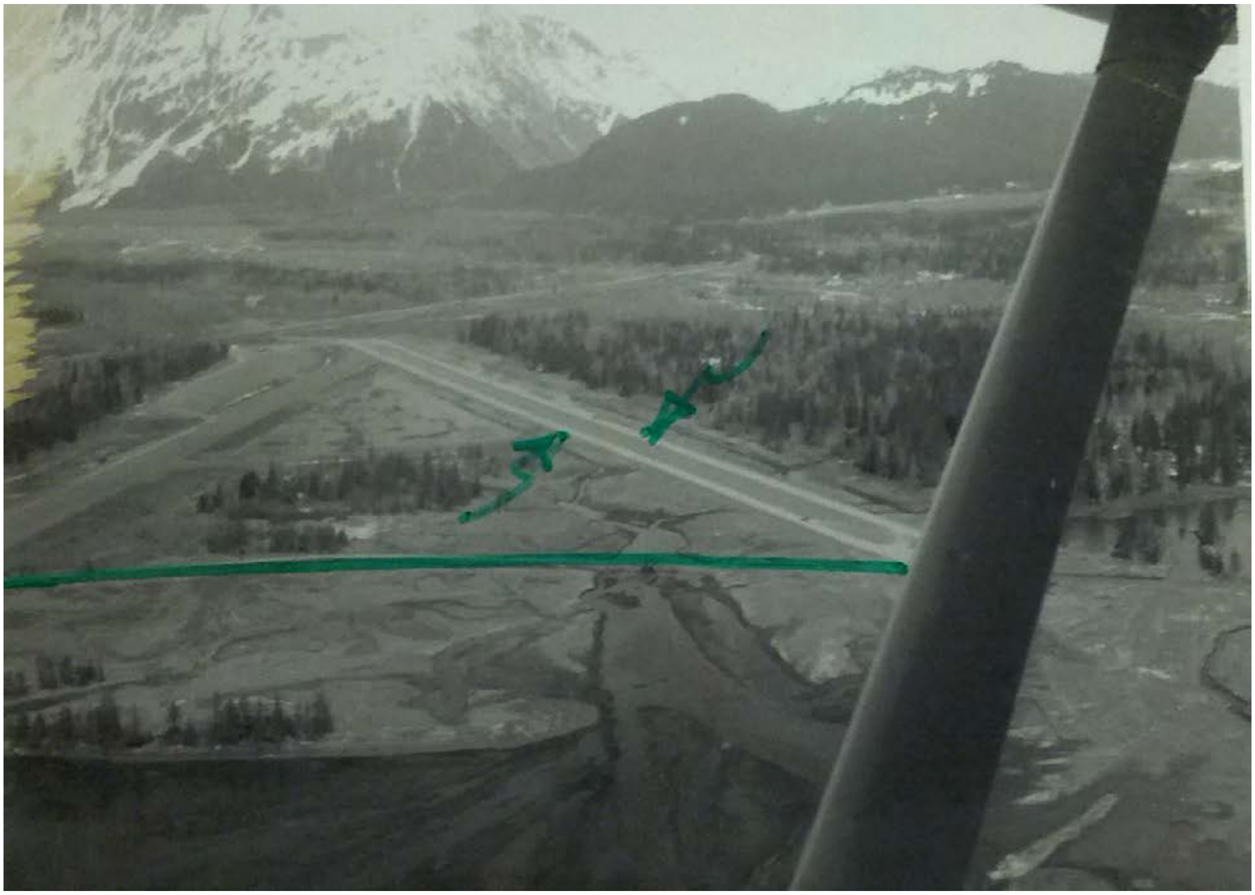

Figure 12: 1966 Aerial photo showing abandoned public road (line) and proposed haul routes (arrows) for extending runway 16-30. Photo from DOT&PF archives.

Figure 13. Location of Seward Naval Radio Station (SEW-00835) in relation to the southern end of runway 13-31 in May 1966. Note construction work to extend runway at left edge of photo. Photo from DOT&PF archives.

Figure 16: July 8, 1975, Overview of Seward Airport prior to runways, taxiways, and apron being surfaced with bituminous sealcoat. Photo from DOT&PF archives.

Figure 17: July 1975, top course seal operation in progress. Photo from DOT&PF archives.

Figure 18: July 21, 1975, work crew painting ‘33’ on runway 15-33 (today’s 16-34). Photo from DOT&PF archives.

Figure 19: July 1975, Overview of Seward Airport after runways, taxiways, and apron being surfaced with bituminous sealcoat. Photo from DOT&PF archives.

Figure 23. April 20, 2017 Photo of Seward airport SREB and sand shed.

Figure 24. Seward Airport. Cordova Airlines plane on runway. 1964. Image #2600.1.33 courtesy of Resurrection Bay Historic Society.

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Natural Resources
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June 14, 2018

File No.: 3130-1R FAA/2018-00112

Subject: Seward Airport Improvements, TBD/Z548570000

Michael Wanzenried
Department of Transportation & Public Facilities
PO Box 196900
Anchorage, AK 99519-6900

Dear Mr. Wanzenried,

The Alaska State Historic Preservation Office (AK SHPO) received your letter (dated June 5, 2018) on June 5, 2018. Following our review of your letter and the report titled *Determination of Eligibility Seward Airport (SEW-01625) Seward, Alaska,* our office provides the following comments on the determinations of eligibility for listing on the National Register of Historic Places (Table 1).

Table 1. Determinations of Eligibility

No.	AHRS#	Site Name	DOT&PF Determination	SHPO Comment
1	SEW-1625	Seward Airport	Not Eligible	Concur
2	SEW-0007	Russian Trail	Not Eligible	There is no need to evaluate the segment of trail from the south shore of the Resurrection River to Port Avenue because it is evident from your research that this segment, as shown in the AHRS mapper, has been destroyed or possibly followed a different route outside of the airport boundary. We will update the condition of the trail segment on the AHRS card as destroyed, with a note that the historic location description is unclear.

Additionally, we reviewed the subject undertaking pursuant to Section 106 of the National Historic Preservation Act. Following our review, we concur with your finding of no historic properties affected for the subject undertaking.

Please note that as stipulated in *36 CFR § 800.3*, other consulting parties such as the local government and Tribes are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations. Please note that our comment letter does not end the 30-day review period provided to other consulting parties. Should unidentified cultural resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the NRHP eligibility criteria (*36 CFR § 60.4*) in consultation with our office.

Thank you for the opportunity to review and comment on the subject undertaking. Please contact Mark Rollins at 269-8722 or mark.rollins@alaska.gov if you have any questions or if we can be of further assistance.

Sincerely,

Joan M. Antonson

Judith E. Bittner
Deputy State Historic Preservation Officer

JEB:mwr

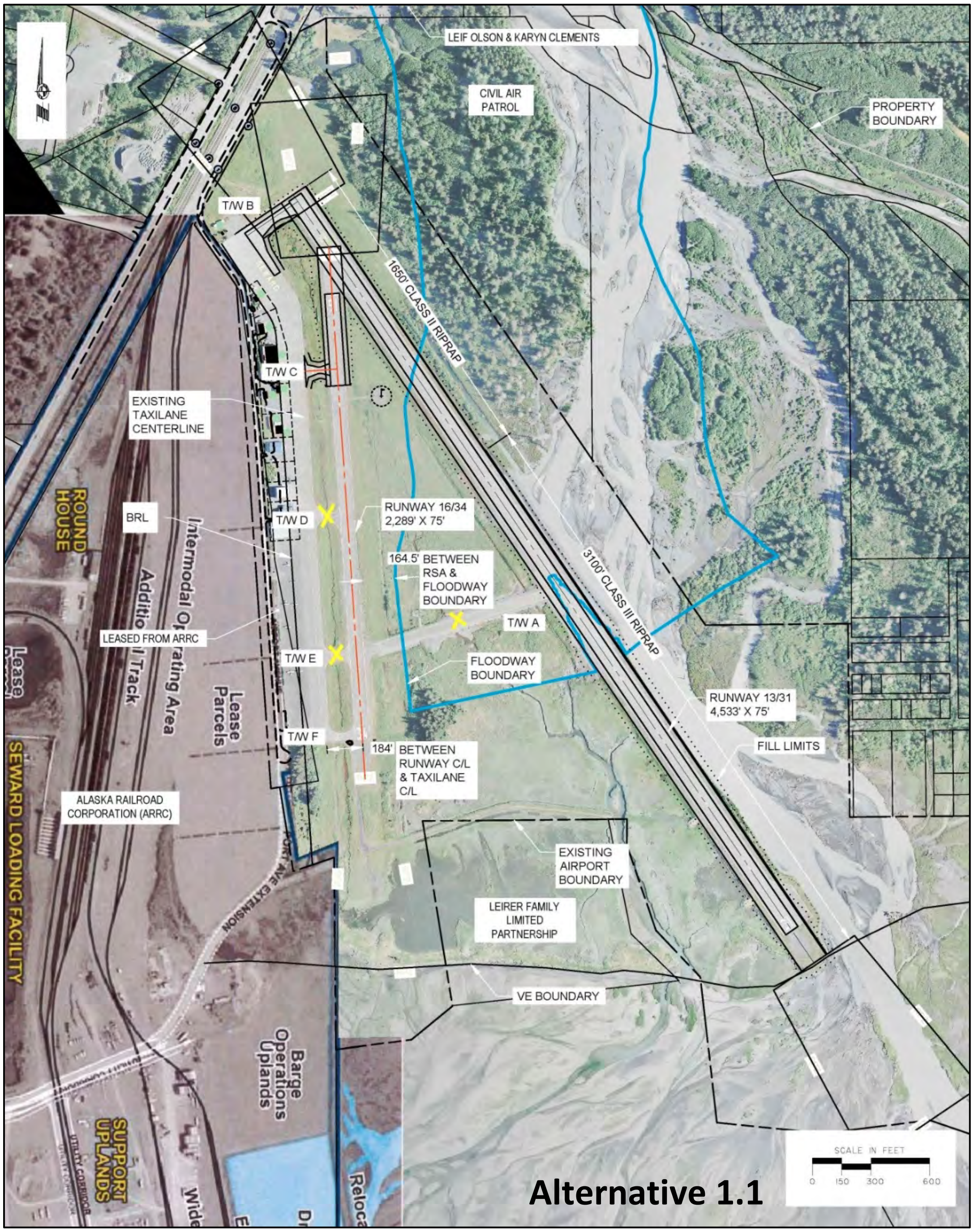
APPENDIX B

ALTERNATIVES DROPPED FROM FURTHER CONSIDERATION

APPENDIX B

Alternatives Dropped from Further Consideration

Alternatives Dropped from Further Consideration are described in Section 4.1 of this Environmental Assessment (EA). A description of preliminary alternatives dropped during the scoping phase of the project can be found in the Scoping Report (available at http://www.dot.alaska.gov/creg/sewardairport/documents.shtml). This appendix provides further explanation for the elimination of Alternative 1.1 as described in Section 4.1.1 of this EA.



Alternative 1.1 would reconstruct and raise Runway 13-31 above the 100-year flood level with 2 feet of freeboard (per Executive Order, dated January 30, 2015). The existing runway would remain at its current length of 4,533 feet. Riprap would have been installed within the Resurrection River to protect Runway 13-31. Taxiways B and C would have been reconstructed to match into Runway 13-31 raised profile and entrance Taxiways A, D, and E would have been reconfigured or eliminated to comply with new FAA guidance.

Runway 13-31 is located adjacent to the Resurrection River. Modeling, using 2 feet of freeboard above the 100-year flood level, showed up to a 4-foot increase in the base flood elevation (BFE) over portions of the upstream floodplain. The runway embankment was raised over 6 feet in some areas with an overall average rise of 4.4 feet. This additional fill would result in a backing up of floodwaters onto an additional 159 acres of private, state, and native allotments along the Resurrection River as compared to the No Build option or Alternative 2.2 (Alternative 2.2 would increase flooding on 22 acres, while reducing flooding on another 44 acres). Higher floodwater velocities produced by the river could result in increased erosion and scour over time of the proposed reinforced embankment.

Since this option produces fill into the regulatory floodway, a modification to the effective Flood Insurance Rate Map (FIRM) and Floodway Map would be required. The associated Letter of Map Revision (LOMR) would require extensive hydraulic analysis, would need to meet regulatory requirements, and will require mitigation for affected property owners. This would increase the cost of the project as well as the ultimate timeline for completion. The existing runway is currently under weight restrictions, due to past flood damage, limiting the type of aircraft that can access the airport.

Executive Order 11988 “requires federal agencies to avoid to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of the 100-year floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative”. Alternative 1.1 maintains the portion of the existing airport which lies within the regulatory floodway (sections of Runway 13-31 and Taxiway A). The location of Runway 13-31 to the Resurrection River puts the runway at a greater risk of overtopping during a major flood event, even after it is raised. At the very least, future maintenance and operation costs associated with higher than expected flood levels would be a burden. The airport’s use for emergency services is crucial during flood events which could also impair highway travel.

To raise and reinforce Runway 13-31 would require placing riprap below the ordinary high water mark of the Resurrection River. This has implications for fish habitat within the river as well as navigability concerns for this braided river channel. These potential impacts would require further analysis if this alternative were carried forward into the EA.

DOT Order 5650 states “that DOT agencies should ensure that proper consideration is given to avoid and mitigate adverse floodplain impacts in agency actions….” Alternative 1.1 has a much greater impact to the floodplain than the No Build or Alternative 2.2.

Taken together, these considerations qualify the floodplain impacts associated with Alternative 1.1 as a significant encroachment on the floodplain, as defined in the following excerpt from Section 14.2.1.1 of the 1015.1F Desk Reference:

> *As defined in DOT Order 5650.2, significant encroachment is an encroachment in a floodplain that results in one or more of the following construction or flood-related*

> *impacts: 1) considerable probability of loss of human life, 2) likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility, and 3) a notable adverse impact on "natural and beneficial floodplain values."*

This guidance states that an alternative with a significant floodplain encroachment should not be selected if a practicable alternative exists. Alternative 2.2 does not qualify as a significant floodplain encroachment and would also allow for the eventual breaching of Runway 13-31, thereby restoring part of the original floodplain.

Furthermore, FAA Order 1050.1F provides the following Significance Threshold for Floodplains:

> *The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.*

Proposed actions that would result in impacts at or above these defined Significance Thresholds require preparation of an EIS.

DOT Order 5650.2, paragraph 4.k states that natural and beneficial floodplain values include, but are not limited to: natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, and forestry. The 1050.1F Desk Reference also references factors to consider when assessing impacts on a floodplain's natural and beneficial values. Most notably, "would the proposed action or alternative(s) cause flow alterations that would result in unacceptable upstream or downstream flooding?"

The selection of Alternative 1.1 as the proposed action could therefore result in the need to prepare an EIS for this project as the potential floodplain impacts meet or exceed the Significance Threshold set for floodplains.

APPENDIX C

ENVIRONMENTAL IMPACT CATEGORIES: NON-ISSUES

Appendix C

Environmental Impact Categories: Non-issues

The following categories have been determined to be non-issues for this project. These categories do not warrant discussion because there is no potential for impact.

1. Air Quality
2. Climate
3. Coastal Resources
4. Department of Transportation Act: Section 4(f)
5. Farmlands
6. Visual Effects
7. Groundwater
8. Wild and Scenic Rivers

1. Air Quality

FAA Order 1050.1F sets the significance threshold for air quality as whether, “the action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations. The EPA designates those areas not in attainment of the NAAQS as “nonattainment areas”. A review of the EPA’s list of Nonattainment Areas for All Criteria Pollutants and the ADEC Division of Air Quality’s Non-Point Mobile Source Program websites indicate that the Seward Airport does not fall within a nonattainment area. According to the FAA’s *Airport Environmental Handbook*, no air quality analysis is needed if the annual levels of activity at a commercial service airport area are fewer than 1.3 million passengers and fewer than 180,000 operations, or if it is a general aviation airport with fewer than 180,000 annual operations forecast. Current activity at Seward and activity forecasted in the Scoping Report are well below 180,000 operations; therefore no air quality analysis was necessary during the AMP process. The proposed action will not cause an increase in aviation activity and therefore will have no potential for impacting air quality permanently. An Erosion and Sediment Control Plan will be developed for this project which will detail measures to reduce temporary air quality impacts due to construction such as watering for dust control and covering truck loads and stockpiles.

2. Climate

Via the Trump administration’s Executive Order titled “Presidential Executive Order on Promoting Energy Independence and Economic Growth” the Trump administration stated:

(c) The Council on Environmental Quality shall rescind its final guidance entitled "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," which is referred to in "Notice of Availability," 81 Fed. Reg. 51866 (August 5, 2016).

3. Coastal Resources

The Alaska Coastal Management Program (ACMP) expired by operation of Alaska Statutes 44.66.020 and 44.66.030 on June 30, 2011. As a result, the ACMP was withdrawn from the National Coastal Management Program on July 1, 2011, and Alaska no longer has a Coastal Zone Management Act (CZMA) program. Because a federally approved coastal management program must be administered by a state agency, no other entity may develop or implement a federally approved coastal management program for the state.

As of July 1, 2011, the CZMA Federal consistency provision no longer applies in Alaska. Federal agencies no longer provide Consistency Determinations or Negative Determinations to the State of Alaska CZMA pursuant to 16 U.S.C. 1456(c)(1) and (2), and 15 CFR part 930, subpart C. Persons or applicant agencies for Federal authorizations or funding no longer provide Consistency Certifications to the State of Alaska CZMA pursuant to 16 U.S.C. 1456(c)(3)(A), (B) and (d), and 15 CFR part 930, subparts D, E and F.

4. Department of Transportation Act: Section 4(f)

Based on a review of state and federal agency protected areas in Alaska and City of Seward park locations, the proposed project would not affect any publicly owned park, recreation area, or significant historic site. No legislatively designated special areas, such as state game refugees, sanctuaries, or critical habitat areas are located in the project vicinity.

5. Farmlands

No prime or unique farmlands or farmlands of statewide importance have been designated in Alaska. No farmland or soil of local importance has been identified in the project area (https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ak/soils/surveys/?cid=nrcs142p2_035988).

6. Visual Effects

New lighting is proposed as part of this project. This will consist of adding lights to the new runway 16-34 while removing those on runway 13-31. Therefore no significant change to the amount of light emanating from the airport is anticipated as a result of this project. The proposed action will alter the location of Runway 16-34 but the overall visual characteristics of the existing airport will not be significantly altered.

7. Groundwater

A review of the ADEC Drinking Water Protection Mapper on December 15, 2016 revealed many groundwater sources and associated drinking water protection areas established along the project corridor. The proposes action is not anticipated to impact local aquifers or established drinking water sources.

8. Wild and Scenic Rivers

No Wild and Scenic Rivers are located near the project area (https://www.rivers.gov/alaska.php).

APPENDIX D

BIOLOGICAL RESOURCES

Appendix D. Birds of Conservation Concern (BCC) and Bird Species of Conservation Need (SCN)/ Greatest Conservation Need (SGCN) Documented at the Seward Airport

Bird species were documented in the project area through the U.S. Fish and Wildlife Service (USFWS) IPaC (USFWS 2017), eBird (eBird 2017), and resident observations (Griswold 2017), as presented in this appendix.

These birds were then compared with the USFWS 2008 Birds of Conservation Concern (BCC) lists for areas that include Seward (Bird Conservation Regions (BCRs) 4 and 5), Alaska (USFWS Region 7), and the U.S. (National BCCs) (USFWS 2008)). Documented bird species were also compared with the Species of Conservation Need (SCN) and Species of Greatest Conservation Need (SGCN) listed in the 2015 Alaska Wildlife Action Plan (WAP) for the southcentral bioregion (ADF&G 2015).

BCCs and SCN and SGCN Bird Species Documented at the Seward Airport

Bird Species	**Documentation/ Observation Source**	**BCC Listing**			**WAP Listing**	
		BCR Region	***USFWS Region***	***Nat'l. BCC***	***SCN***	***SGCN***
Greater White-fronted Goose (*Anser albifrons frontalis)*	eBird	*None*[1]			SCN	SGCN
Pacific Black Brant (*Branta bernicula nigricans)*	eBird	*None*			SCN	SGCN
Cackling Goose (*Branta hutchinsii minima)*	eBird	*None*			SCN	SGCN
Dusky Canada Goose (*Branta canadensis occidentalis)*	eBird	*None*			SCN	SGCN
Trumpeter Swan (*Cygnus buccinator)*	eBird	*None*			SCN	SGCN
King Eider (*Somateria spectablis)*	eBird	*None*			SCN	SGCN
Common Eider (*Somateria mollissima)*	eBird	*None*			SCN	SGCN
Pacific Black Scoter (*Melanitta americana)*	eBird	*None*			SCN	SGCN
Long-tailed Duck (*Clangula hyemalis)*	eBird	*None*			SCN	SGCN
Rufous Hummingbird (*selasphorus rufus)*	USFWS IPaC; ebird	*None*	Region 7	National	SCN	SGCN
Sandhill Crane (*Grus canadensis)*	eBird	*None*			SCN	SGCN
Black Oystercatcher (*Haematopus bachmani)*	USFWS IPaC; ebird	*None*	Region 7	National	SCN	SGCN
Black-bellied Plover (*Pluvialis squatarola)*	eBird	*None*			SCN	SGCN
American Golden-Plover (*Pluvialis dominica)*	eBird	*None*			SCN	SGCN
Upland Sandpiper (*Bartramia longicauda)*	Griswold	Region 4	*None*	National	*None*	
Whimbrel (*Numenius phaeopus)*	Griswold; ebird	Regions 4, 5	Region 7	National	SCN	SGCN
Hudsonian Godwit (*Limosa haemastica)*	Griswold; ebird	4, 5	Region 7	National	SCN	SGCN
Bar-tailed Godwit (*Limosa lapponica)*	Griswold	*None*	Region 7	National	SCN	*None*
Marbled Godwit *(Limosa fedoa)*	USFWS IPaC	Region 5	Region 7	National	SCN	SGCN
Black Turnstone (*Arenaria melanocephala)*	eBird	*None*			SCN	SGCN
Red Knot (*Calidris canutus roselaari)*	eBird	*None*	Region 7	National	SCN	SGCN

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[1] Not listed within a region/list that includes Seward, Alaska.

Bird Species	**Documentation/ Observation Source**	**BCC Listing**			**WAP Listing**	
		BCR Region	***USFWS Region***	***Nat'l. BCC***	***SCN***	***SGCN***
Surfbird (*Calidris virgate)*	eBird	*None*			SCN	SGCN
Dunlin (*Calidris alpine)*	Griswold	*None*	Region 7	National	SCN	SGCN
Rock Sandpiper (*Calidris ptilocnemis ptilocnemis)*	USFWS IPaC; Griswold	Region 4	Region 7	National	SCN	SGCN
Pectoral Sandpiper (*Calidris melanotos)*	eBird	*None*			SCN	SGCN
Semipalmated Sandpiper (*Calidris pusilla)*	Griswold; ebird	*None*		National	SCN	SGCN
Western Sandpiper (*Calidris mauri)*	eBird	*None*			SCN	SGCN
Short-billed Dowitcher (*Limnodromus griseus)*	USFWS IPaC; ebird; Griswold	Regions 4, 5	Region 7	National	SCN	SGCN
Long-billed Dowitcher (*Limnodromus scolopaceus)*	eBird	*None*			SCN	SGCN
Spotted Sandpiper (*Actitus macularius)*	eBird	*None*			SCN	SGCN
Solitary Sandpiper (*Tringa solitaria)*	Griswold; ebird	Regions 4, 5	Region 7	National	SCN	SGCN
Wandering Tattler (*Tringa incana)*	eBird	*None*			SCN	SGCN
Lesser Yellowlegs (*Tringa flavipes)*	USFWS IPaC; ebird; Griswold	*None*	Region 7	National	SCN	SGCN
Common Murre (*Uria aalge inornata)*	eBird	*None*			SCN	SGCN
Pigeon Guillemot (*Cepphus columba columba)*	eBird	*None*			SCN	SGCN
Marbled Murrelet (*Brachyramphus marmoratus)*	USFWS IPaC; ebird	*None*	Region 7	National	SCN	SGCN
Kittlitz's Murrelet (*Brachyramphus brevirostris)*	USFWS IPaC; ebird	*None*	Region 7	National	SCN	SGCN
Cassin's Auklet (*Ptychoramphus aleuticus aleuticus*)	eBird	*None*			SCN	SGCN
Horned Puffin (*Fratercula corniculata)*	eBird	*None*			SCN	SGCN
Tufted Puffin (*Fratercula cirrhata)*	eBird	*None*			SCN	SGCN
Black-legged Kittiwake (*Rissa tridactyla)*	eBird	*None*			SCN	SGCN
Mew Gull (*Larus canus brachyrhynchus)*	eBird	*None*			SCN	SGCN
Herring Gull (*Larus smithsonianus)*	eBird	*None*			SCN	SGCN
Glaucous-winged Gull (*Larus glaucescens)*	eBird	*None*			SCN	SGCN
Aleutian Tern (*Onychoprion aleuticus)*	eBird	*None*	Region 7	National	SCN	SGCN
Caspian Tern (*Hydroprogne caspia)*	Griswold	Region 5	*None*		*None*	
Arctic Tern (*Sterna paradisaea)*	Griswold; ebird	Region 5	Region 7	*None*	SCN	SGCN
Red-throated Loon (*Gavia stellate)*	eBird	*None*			SCN	SGCN
Yellow-billed Loon (*Gavia adamsii)*	eBird	*None*	Region 7	National	SCN	SGCN
Fork-tailed Storm-Petrel (*Oceanodroma furcata furcate)*	eBird	*None*			SCN	SGCN
Red-faced Cormorant (*Phalacrocorax urile)*	eBird	*None*	Region 7	*None*	SCN	SGCN
Pelagic Cormorant (*Phalacrocorax pelagicus pelagicus)*	USFWS IPaC; ebird	*None*	Region 7	*None*	SCN	SGCN
Bald Eagle (*Haliaeetus leucocephalus)*	USFWS IPaC; ebird; Griswold	Region 5	*None*	National	SCN	SGCN
Northern Harrier (*Circus cyaneus)*	eBird	*None*			SCN	SGCN
Northern Goshawk *(Accipiter gentilis)*	Griswold	Region 5	Region 7	*None*	*None*	
Rough-legged Hawk (*Buteo lagopus)*	eBird	*None*			SCN	SGCN
Golden Eagle (*Aquila chrysaetos canadensis)*	eBird	*None*			SCN	SGCN
Short-eared Owl (*Asio flammeus)*	USFWS IPaC; ebird; Griswold	*None*		National	SCN	SGCN
Belted Kingfisher (*Megaceryle alcyon)*	eBird	*None*			SCN	SGCN

Bird Species	**Documentation/ Observation Source**	**BCC Listing**			**WAP Listing**	
		BCR Region	***USFWS Region***	***Nat'l. BCC***	***SCN***	***SGCN***
Peregrine Falcon (*Falco peregrinus)*[2]	Griswold	Regions 4, 5	Region 7	National	SCN	SGCN
Olive-sided Flycatcher (*Contopus cooperi)*	USFWS IPaC	*None*	Region 7	National	*None*	
Alder Flycatcher (*Empidonax alnorum)*	eBird	*None*			SCN	SGCN
Northern Shrike (*Lanius excubitor)*	eBird	*None*			SCN	SGCN
Steller's Jay (*Cyanocitta stelleri)*	eBird	*None*			SCN	SGCN
Common Raven (*Corvus corax kamtschaticus)*	eBird	*None*			SCN	SGCN
Bank Swallow (*Riparia riparia)*	eBird	*None*			SCN	SGCN
Barn Swallow (*Hirundo rustica)*	eBird	*None*			SCN	SGCN
Black-capped Chickadee (*Poecile atricapillus)*	eBird; Griswold	*None*			SCN	SGCN
Chestnut-backed Chickadee (*Poecile rufescens)*	eBird	*None*			SCN	SGCN
Boreal Chickadee (*Poecile hudsonicus)*	eBird	*None*			SCN	SGCN
Brown Creeper (*Certhia americana alascensis)*	eBird	*None*			SCN	SGCN
Golden-crowned Kinglet (*Regulus satrapa)*	eBird	*None*			SCN	SGCN
Ruby-crowned Kinglet (*Regulus calendula grinnelli)*	eBird	*None*			SCN	SGCN
Varied Thrush (*Ixoreus naevius)*	eBird	*None*			SCN	SGCN
Bohemian Waxwing (*Bombycilla garrulous)*	eBird	*None*			SCN	SGCN
American Pipit (*Anthus rubescens)*	eBird	*None*			SCN	SGCN
Pine Grosbeak (*Pinicola enucleator flammula)*	eBird	*None*			SCN	SGCN
White-winged Crossbill (*Loxia leucoptera)*	eBird	*None*			SCN	SGCN
Common Redpoll (*Acanthis flammea)*	eBird	*None*			SCN	SGCN
Pine Siskin (*Spinus pinus)*	eBird	*None*			SCN	SGCN
Lapland Longspur (*Calcarius lapponicus alascensis)*	eBird	*None*			SCN	SGCN
Smith’s Longspur (*Calcarius pictus)*	Griswold	Region 4	Region 7	National	*None*	
Snow Bunting (*Plectrophenax nivalis nivalis)*	eBird	*None*			SCN	SGCN
McKay’s Bunting (*Plectrophenax hyperboreus)*	Griswold; ebird	*None*	Region 7	National	SCN	SGCN
Orange-crowned Warbler (*Oreothlypis celata)*	eBird	*None*			SCN	SGCN
Townsend’s Warbler (*Setophaga townsendi)*	eBird	*None*			SCN	SGCN
Wilson's Warbler (*Cardellina pusilla pileolata)*	eBird	*None*			SCN	SGCN
American Tree Sparrow (*Spizella arborea)*	eBird	*None*			SCN	*None*
Savannah Sparrow (*Passerculus sandwichensis)*	eBird	*None*			SCN	SGCN
Fox Sparrow (*Passerella iliaca)*	USFWS IPaC; ebird	*None*			SCN	SGCN
Song Sparrow (*Melospiza melodia)*	eBird; Griswold	*None*			SCN	SGCN
Lincoln's Sparrow (*Melospiza lincolnii)*	eBird	*None*			SCN	SGCN
White-crowned Sparrow (*Zonotrichia leucophrys)*	eBird	*None*			SCN	SGCN
Dark-eyed Junco (*Junco hyemalis oreganus)*	eBird	*None*			SCN	SGCN
Rusty Blackbird (*Euphagus carolinus)*	Griswold; ebird	Region 4	Region 7	National	SCN	SGCN

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[2] The Peregrine Falcon was delisted from the Endangered Species Act and Migratory Bird Treaty Act.

APPENDIX E

WETLANDS

Seward Airport Improvements Project
(Project No. Z548570000)

Wetlands Delineation and Field Check Update and Report

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2004 Wetlands Delineation

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Date: 9,14,06
Proj. # 56525

Preliminary Design & Environmental	PAPER	PDF
Section Chief		
Project Manager Mayo		X
Env. Coordinator	①	
Env. Team Leader DG		X
Env. Analyst		
Project File	②	
Central File	X	

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

SEP 13 2006

Regulatory Branch
POA-1989-672-9

Mr. Dan Golden
Alaska Department of Transportation and Public Facilities
P.O. Box 196900
Anchorage, Alaska 99519-6900

Dear Mr. Golden:

This is in response to your request that we review the preliminary wetlands delineation prepared for your proposed improvements to the Seward Airport. The wetlands delineation was conducted by ABR, Inc. during the summer of 2004 and is detailed in their "Preliminary Wetlands Assessment for Proposed Seward Airport Improvements Draft Report" dated August 2005. The airport is located within sections 34 and 35, T. 1 N., R. 1 W., Seward Meridian; latitude 60.1309° N., longitude 149.4193° W.; USGS Quad Seward A-7.

Based on our review of the Draft Report, we concur with your preliminary delineation and mapping of the wetlands that occur on the airport property. Therefore, Department of the Army (DA) authorization may be required if you propose to place dredged and/or fill material into waters of the U.S., including wetlands and/or perform work in navigable waters of the U.S.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

Please note that our concurrence applies only to the wetlands delineation portion of the Draft Report. At this time, we have made no determination as to the suitability of the functional assessment portion of the report.

Please be aware that land clearing operations involving vegetation removal in wetlands with mechanized equipment and other soil disturbances are considered placement of fill material under our jurisdiction.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

You may contact me at (907) 753-2712, toll free from within Alaska at (800) 478-2712, by email at don.p.kuhle@poa02.usace.army.mil, or by mail at the letterhead address, ATTN: CEPOA-CO-R-S, if you have any questions. Additional information about our Regulatory Program is available on our web site at www.poa.usace.army.mil/reg.

Sincerely,

for Gilbert Lenz Phillips

Don P. Kuhle
Project Manager

DRAFT REPORT

PRELIMINARY WETLANDS ASSESSMENT FOR PROPOSED SEWARD AIRPORT IMPROVEMENTS

ERIK R. PULLMAN
AND
WENDY DAVIS

PREPARED FOR

DOWL ENGINEERS
ANCHORAGE, ALASKA

PREPARED BY

ABR, INC.
FAIRBANKS, ALASKA

AND

ABR, INC.
ANCHORAGE, ALASKA

PRELIMINARY WETLANDS ASSESSMENT FOR PROPOSED SEWARD AIRPORT IMPROVEMENTS

Draft Report

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August 2005

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INTRODUCTION

A wetlands delineation and functional assessment for the Seward Airport was requested in support of airport expansion needs. A full survey of the area was completed in 1995 by Shannon & Wilson and ABR, Inc. (Shannon & Wilson 1996). ABR, Inc. was requested by DOWL Engineers to assess the adequacy of existing information and make revisions accordingly. During the 10 years since the previous survey significant changes have been made to the landscape, including urban development and clearing, riparian changes due to at least two floods on the Resurrection River, and tidal changes. A new field survey was conducted and the area was remapped using new photography.

STUDY AREA

The study area consists of the existing runway and areas immediately surrounding the runway, a proposed taxiway, tie-down area, and access road. The Seward Airport is bounded on the east side by Resurrection River, on the north and west by the town of Seward Alaska, on the south by Resurrection Bay.

The Seward Airport is located in south-central Alaska on Resurrection Bay at the western end of Prince William Sound. The climate is considered maritime with high annual precipitation, cool summers, and mild winters. Summer temperatures range from 44°F to 63°F and winter temperatures range from 18°F to 46°F. Mean tidal range is 8.3 feet (Shannon & Wilson 1996). The plant communities in the area include well-developed coastal needleleaf forests, riverine mixed forests, lowland marshes, salt and mud flats, and various shrub communities.

METHODS

WETLANDS MAPPING

Wetland types were classified and mapped using true-color aerial photography flown in September 2004 at a nominal scale of 1:1200. The entire study area was remapped in 2005 with the 1995 mapping layer used as background reference.

Wetlands were delineated based on color photo-signature, plant canopy, terrain breaks, and hydrological indicators, such as drainage patterns and surface water connections. Boundaries were mapped digitally on-screen with *ArcGIS* software, using imagery described above. For each map polygon a National Wetlands Inventory (NWI) wetland type was determined. Wetland coding followed Cowardin et al. (1979).

Boundary delineation was performed at a scale of 1:2000. Minimum mapping areas were approximately 500 m² (0.1 acres) for waterbodies and aquatic habitats with emergent vegetation, and 1000 m² (0.2 acres) for other habitats. The map projection used in all mapping and GIS analyses was Alaska State Plane, zone 4, NAD83 (feet).

FIELD SURVEY

Since the field survey conducted by ABR in 1995 significant changes to the landscape have occurred due to land management activities, at least two major floods on the Resurrection River (1995, 1997), and tidal changes. Sections of the project area were resurveyed for wetlands in October 2004. Wetland determinations were completed at 10 sites and vegetation verification was done at 1 site.

Wetland determinations were made using the three-parameter approach described in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987). Digital photographs also were taken of each site and of soils where applicable (Appendix A). At each determination site, a U.S. Army Corp of Engineers (USACE) routine wetland determination data sheet was completed to document vegetation, soils, and hydrology (Appendix B).

At each of the 10 wetland determination sites, we recorded dominant plant species for each vegetation layer (tree, shrub, or herbaceous) and visually estimated percent live cover for each dominant species. The wetland status of the vegetation at each field site was determined by visually estimating the percent live cover and determining the wetland indicator status of dominant plants. Wetland indicator status of a plant was determined by referring to the *National List of Plant Species that Occur in Wetlands: Alaska (Region A)* (Reed 1988). Taxonomic nomenclature for most plant species followed *Flora of Alaska and Neighboring Territories* (Hultén 1968). For willows, we used *Alaska Trees and Shrubs* (Viereck and Little 1972).

At each wetland determination site, a soil pit at least 18 inches deep was dug to examine soils for hydric soil indicators. Hydric soils typically have low matrix chroma (gley features), mottles (redoximorphic features), or thick organic deposits (histosols). The soil profile was described and key characteristics including color and presence of mottles or oxidized root channels were recorded. Soil colors were determined using *Munsell Soil Color Charts* (2000), following standard guidelines for wetland determinations (USACE 1987).

Wetland hydrologic indicators also were assessed at each site, including the presence of standing water, soil saturation within 12 inches of the surface, and/or evidence suggesting episodes of past inundation such as watermarks, drift lines, or surficial water-borne sediment deposits on vegetation.

At the vegetation verification site (Appendix B), we visually estimated percent live cover of dominant and associated plant species and assigned a wetland/upland class and a Level IV vegetation class (Viereck et. al. 1992) to the stand. Vegetation verification plots provide additional field data to assist in the wildlife habitat classifications and the photointerpretation of wetlands and vegetation types. At all field survey sites, any evidence of wildlife use (browsed vegetation, scat piles, trails and dens etc.) also was noted.

WETLAND FUNCTIONAL ASSESMENT

The functional importance of wetlands in the study area was evaluated using criteria outlined in the *Literature Review and Evaluation Rationale* of the Wetland Evaluation Technique (Adamus et al. 1991). The field data were recorded on forms adapted from the *Rapid Procedure for Assessing Wetland Functional Capacity* (Magee 1998). This procedure is based on the Hydrogeomorphic (HGM) Classification System (Brinson 1993), but provides a template that allows for a more rapid assessment of the many functions that wetlands (depending on type) can perform. HGM models have not been developed for all of the wetlands found in study area, so we used this modified approach so that all wetlands would be evaluated using the same method. The relative importance of 10 processes or attributes, encompassing hydrological, water quality, ecological, and social functions of wetlands in the project area were qualitatively ranked into categories of low, medium, and high importance. Many of these attributes are not exclusive to wetlands in the area.

Most wetland functional assessment rankings were based on landscape position, wetland size, relative abundance, and current knowledge of the study area. Additional information used in the evaluation included local topography, signs of animal use, and plant community structure. To simplify the number of wetland types evaluated, wetlands that are similar in function and vegetation structure were grouped into broader categories.

HYDROLOGY

Hydrology functions were determined from the topographic relation of the wetland surface to the local water table. For basins, the presence of an inlet or outlet (or both) was determined from aerial photography. Three specific processes were considered.

Ground water discharge—Movement (vertical or lateral) of water from the subsurface to the surface.

Ground water recharge—Downward movement of water from a wetland into the subsurface.

Erosion control and flow regulation—Various mechanisms that slow or impede the movement of water downslope and thus reduce its erosive force and moderate local stream flows.

WATER QUALITY

Water quality functions are wetland processes that can remove sediments, nutrients, and anthropogenic contaminants from the water while contributing important material to the invertebrate food web. Three general processes are considered.

Sediment/toxicant retention—A combination of physical and biological processes that result in the reduction of suspended sediment of water moving across or through a wetland.

Nutrient retention—Biological processes that result in the incorporation of dissolved nutrients (mainly N and P) into plant tissue and organic sediments. Also includes the process of denitrification in wetland soils.

Production export—The movement of relatively large amounts of organic material derived from primary production to adjacent areas. This process can include a wide range of secondary production exports such as insect emergence.

ECOLOGY

Ecological values are based on the relative ability of a wetland to support animal populations and provide local habitat diversity. Three general characteristics of a wetland are considered.

Aquatic habitat—The potential of a wetland to support a viable fish or invertebrate population.

Wildlife habitat—The potential of a wetland to support wetland-dependent birds; other locally abundant animals such as moose will be considered.

Regional ecological diversity—An index to how much a given wetland contributes to the overall landscape diversity of the watershed within which it is located. Wetland types that are regionally rare receive higher scores.

SOCIAL

Social values considered for this analysis include subsistence and recreational uses. These values include the importance of a wetland for hunting and gathering activities (e.g., fishing, waterfowl and mammal hunting, berry picking, and firewood and edible plant gathering), and transportation (boating or winter travel).

RESULTS AND DISCUSSION

WETLANDS

A total of 21 NWI wetland types were identified within the Seward Airport study area. To summarize and discuss the results, these 21 types were aggregated into 12 wetland habitats that shared similar vegetation and wetland functions (Table 1, Figure 1). The 338.7 acre study area is composed of 69.3% wetlands. The most common wetland habitat is Lowland Sedge-Shrub/Land Management Areas (107.6 acres, 31.8%), followed by Coastal Barrens (37.5 acres, 11.1%) and Salt Marsh (28.5 acres, 8.4%). Aside from the Resurrection River (R2UBH) which accounts for 6.3% of the study area, other habitats account for less than 5% each of the total mapped area.

Lowland Sedge-Shrub/Land Management Areas are cleared areas where the former undisturbed habitat has been cleared or filled for the airport. This habitat class is composed of two shrubby NWI wetland types (PSS1/EM1B, PEM1/SS1B) and one emergent vegetation class (PEM1B). Common emergent vegetation consists of invasive graminoid species such as bluejoint (*Calamagrostis canadensis*), polar grass (*Arctagrostis latifolia*), tufted hair grass (*Deschampsia caespitosa*) and glaucous bluegrass (*Poa glauca*). Shrubs are of low height because of repeated cutting and include American green alder (*Alnus crispa*), pacific red elder (*Sambucus racemosa*) and diamond-leaf willow (*Salix pulchra*). Coastal Barrens include sand or gravel beaches (E2US2N), mud tidal flats (E2US3N), subtidal flooded ponds (E1UBL), and salt-killed meadows bordering tidal streams (R1SB7R). These types generally consist of unconsolidated mud, silts, sands, or gravels or occasionally salt-killed emergent vegetation. Salt Marshes occur adjacent to the mud tidal flats, they support emergent vegetation and the hydrologic regime is either regularly or irregularly flooded (E2EM1N, E2EM1P, respectively) due to tides. No Salt Marsh areas were sampled for dominant vegetation in the 2004 survey but Shannon & Wilson (1996) lists Lyngby's sedge (*Carex lyngbyei*), several flowered sedge (*C. plurifora*) and sea arrow-grass (*Triglochin maritimum*) as dominants in those wetland types. The remainder of the 12 aggregated habitats include 4 unvegetated types (Rivers, Streams, Ponds, and Riverbars) and 5 undisturbed types (Riverine Broadleaf Forest, Riverine Tall Scrub, Tall Shrub Riverbar, Lowland Sedge Meadow, and Lowland Tall Scrub) (Table 1).

Uplands within the study area were divided into Uplands and Pavement/Fill. The Uplands were un-cleared areas of mixed or needleleaf forest where the dominant tree and shrub species are Sitka spruce (*Picea sitchensis*), black cottonwood (*Populus trichocarpa*) and American green alder (*Alnus crispa*). Pavement/Fill uplands are all airport-related developments.

Soils throughout the area have little or no organic matter accumulation at the surface and consist mainly of riverine and marine silts, sands, and gravels. At the time of the 2004 field survey the area had received large amounts of precipitation, which affected the hydrology observations in many cases. Many of the soils pits were either inundated or saturated above 12 inches and they may not display these characteristics throughout the growing season.

WETLAND FUNCTIONAL ASSESSMENT

Wetland habitats within the Seward Airport study area can be split into three major systems, riverine, lowland, and coastal. Most wetland habitats within these systems are commonly found throughout Alaska. However, on a local scale, the Resurrection River system (riverine habitat types) was rated as moderately important ecological diversity because Seward is located in a rugged mountainous area with relatively few well-developed floodplain systems. Although this area is not within a permafrost zone, the cooler climate limits the groundwater recharge and discharge functions except in the riverine system. Riverine wetland habitats were rated high for groundwater discharge due to permeable soils, high flood frequency, and wetland system (riverine). Discharge ratings are low for all wetland habitats in the study area. Functional ratings for erosion control/flow regulation and sediment/toxicant retention are rated as moderate to high in the some of the riverine and lowland wetland habitats. Vegetated types, Riverine Tall Scrub, Riverine Broadleaf Forest, and Riverine Needleleaf Forest, were rated high for erosion control because taller, shrubby or forested types have greater capacity to absorb flood waters and increase frictional drag. Lowland depression types, such as Ponds and Lowland Sedge Meadow, were rated moderate because they may serve as containment for some flood waters. Moderate values for erosion control were assigned to the forested and shrubby riverine types because of their potential to increase drag and to anchor shorelines. All habitat types within the study area were rated low in the areas of nutrient retention and production export because no highly productive systems occur upstream from the study area (Table 2).

Rivers, Streams, and Coastal Barrens are considered moderate to high value for the aquatic habitat function. The Resurrection River is known to have rearing and spawning habitat for coho and sockeye salmon (*Onchorynchus kisutch* and *O. nerka*). Chum and pink salmon (*O. keta* and *O. gorbuscha*) use two small streams within the airport property (Shannon & Wilson 1996). Because Coastal Barrens encompasses some marine aquatic wetland types it is rated as moderate for anadromous fish habitat. Coastal Barrens and Salt Marsh receive a high wildlife habitat value because of use by shorebirds, waterfowl, and bald eagles (*Haliaeetus leucocephalus*). Moose (*Alces alces*) also use the coastal and lowland areas within the study area. Subsistence and recreation are rated high for the River wetland habitat because of use by boaters and fishermen. Other wetland habitats in the study area receive low functional values due to the proximity to the airport (Table 2).

LITERATURE CITED

Adamus, P. R., L. T. Stockwell, E. J. Clairain, Jr., M. E. Morrow, L. P. Rozas, R. D. Smith. 1991. Wetland Evaluation Technique (WET); Vol. I: Literature Review and Evaluation Rationale. Technical Report WRP-DE-2. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

Brinson, M. M. 1993. A hrdrogeomorphic classification for wetlands. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.. Wetlands Research Program Tech Rep. WRP-DE-4. 101 pp.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. 103 pp.

Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press. Stanford, CA. 1008 pp.

Magee, D. W. 1998. A rapid procedure for assessing wetland functional capacity based on hydrogeomorphic classification. Normendeau Associates, Bedford, NH. 190 pp.

Munsell Soil Color Charts. 2000. Revised edition. Kollmorgen Instruments Corporation, Baltimore, MD.

Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: national summary. U.S. Fish and Wildlife Service, Washington, D.C. Biological Report 88 (24). 244 pp.

Shannon & Wilson, Inc. 1996. Wetland Delineation and Site Characterization for FAA Stations, Seward, Alaska. Prepared for U.S. Army Corps of Engineers, Alaska District, Anchorage AK. 26 pp. + Appendices.

U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers wetlands delineation manual. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. Tech. Rep. Y-87-1. 100 pp. + appendices.

Viereck, L. A., C. T. Dyrness, A. R. Batten, and K. J. Wenzlick. 1992. The Alaska Vegetation Classification. Pacific Northwest Research Station, U.S. Forest Service, Portland, OR. 278 pp.

Viereck, L. A., and E. L. Little. 1972. Alaska Trees and Shrubs. Agriculture Handbook No. 410. U.S. Dept. Agric., Washington, D.C. 265 pp.

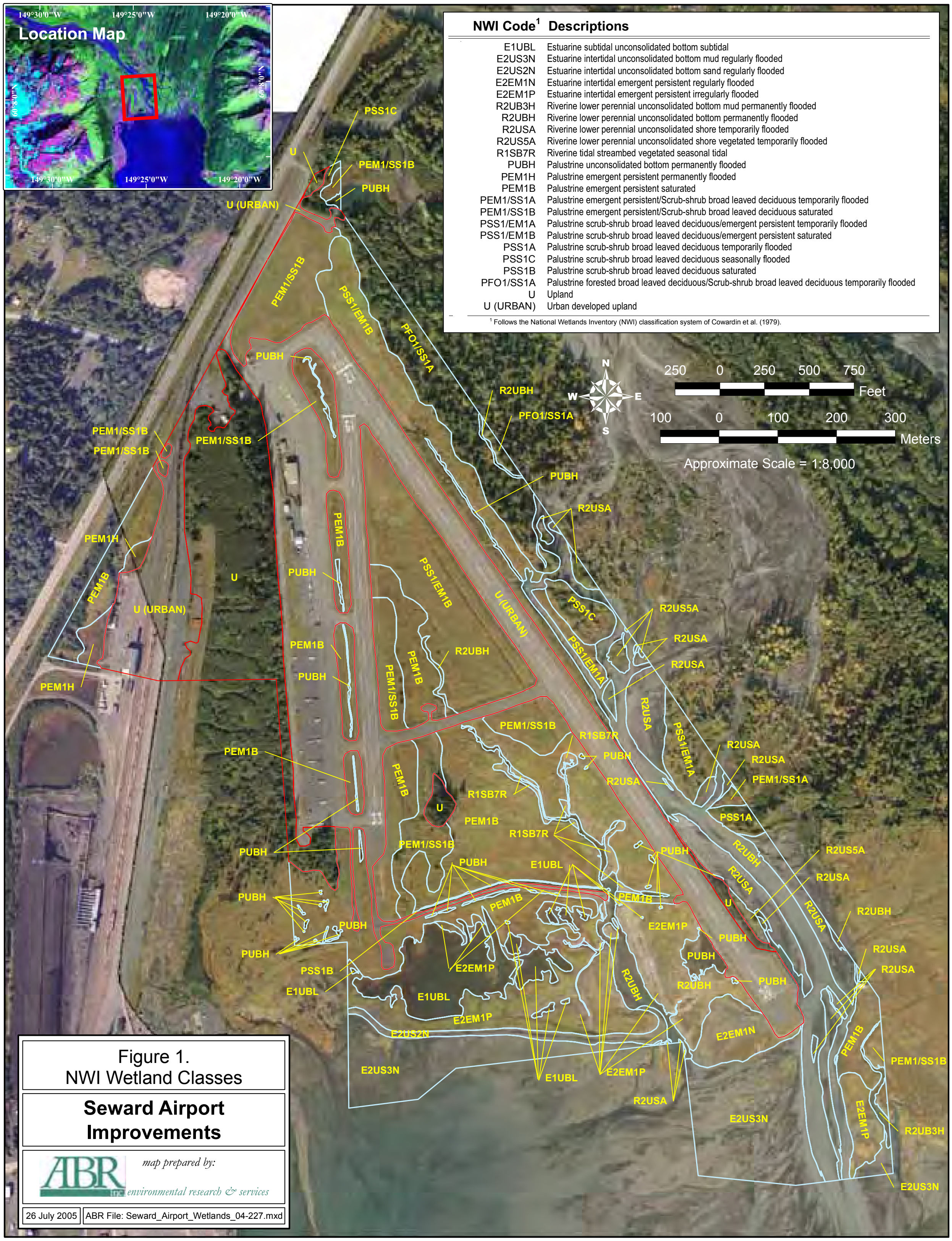
Table 1. Acreages and percentages of National Wetland Inventory classes and aggregate wetland habitat types in the Seward Airport proposed development area, Alaska, 2004.

NWI Codes [a]	Wetland Habitat	Acres	% of Study Area
PUBH	Pond	2.7	0.8
R2UBH	River	21.2	6.3
R2UB3H	Stream	0.5	0.2
R2US5A, R2USA	Riverbar	14.3	4.2
PFO1/SS1A	Riverine Broadleaf Forest	11.8	3.5
PSS1/EM1A, PEM1/SS1A, PSS1A	Tall Shrub Riverbar	5.7	1.7
PSS1C	Riverine Tall Scrub	3.0	0.9
E2US2N, E2US3N, R1SB7R, E1UBL	Coastal Barrens	37.5	11.1
E2EM1N, E2EM1P	Salt Marsh	28.5	8.4
PEM1H	Lowland Sedge Meadow	1.5	0.4
PSS1B	Lowland Tall Scrub	0.5	0.1
PEM1/SS1B, PEM1B, PSS1/EM1B	Lowland Sedge-Shrub/Land Management Areas	107.6	31.8
Total Wetlands		**234.8**	**69.3**
U	Uplands	27.7	8.2
U (URBAN)	Pavement/Fill	76.2	22.5
Total		**338.7**	**100.0**

[a] NWI = National Wetland Inventory.

Table 2. Ranking of functions and values of wetland types in the Seward airport proposed development area, Alaska, 2004.

	Wetland Habitat Type											
	Pond	River	Stream	Riverbar	Riverine Broadleaf Forest	Tall Shrub Riverbar	Riverine Tall Scrub	Coastal Barrens	Salt Marsh	Lowland Sedge Meadow	Lowland Tall Scrub	Lowland Sedge-Shrub/Land Management Areas
	Wetland Type											
	PUBH	R2UBH	R2UB3H	R2US5A, R2USA	PFO1/SS1A	PEM1/SS1A, PSS1/EM1A, PSS1A	PSS1C	E1UBL, E2US2N, E2US3N, R1SB7R	E2EM1N, E2EM1P	PEM1H	PSS1B	PEM1/SS1B, PSS1/EM1B, PEM1B,
Functions and Values												
Groundwater Discharge	Low	High	High	High	High	High	High	Low	Low	Low	Low	Low
Groundwater Recharge	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Erosion Control/Flow Regulation	Moderate	Low	Low	Low	High	High	High	Low	Low	Moderate	Low	Low
Sediment/Toxicant Retention	Low	Low	Low	Moderate	Moderate	Moderate	Moderate	Low	Low	Low	Low	Low
Nutrient Retention	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Production Export	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Aquatic Habitat	Low	High	High	Low	Low	Low	Low	Moderate	Low	Low	Low	Low
Wildlife Habitat	Low	Low	Low	High	High	Low	Low	High	High	Moderate	Moderate	Low
Regional Ecological Diversity	Low	Moderate	Low	Moderate	Moderate	Moderate	Low	Low	Low	Low	Low	Low
Subsistence/Recreation Use	Low	High	Moderate	Low	Low	Low	Low	Low	Low	Low	Low	Low



NWI Code[1]	Descriptions
E1UBL	Estuarine subtidal unconsolidated bottom subtidal
E2US3N	Estuarine intertidal unconsolidated bottom mud regularly flooded
E2US2N	Estuarine intertidal unconsolidated bottom sand regularly flooded
E2EM1N	Estuarine intertidal emergent persistent regularly flooded
E2EM1P	Estuarine intertidal emergent persistent irregularly flooded
R2UB3H	Riverine lower perennial unconsolidated bottom mud permanently flooded
R2UBH	Riverine lower perennial unconsolidated bottom permanently flooded
R2USA	Riverine lower perennial unconsolidated shore temporarily flooded
R2US5A	Riverine lower perennial unconsolidated shore vegetated temporarily flooded
R1SB7R	Riverine tidal streambed vegetated seasonal tidal
PUBH	Palustrine unconsolidated bottom permanently flooded
PEM1H	Palustrine emergent persistent permanently flooded
PEM1B	Palustrine emergent persistent saturated
PEM1/SS1A	Palustrine emergent persistent/Scrub-shrub broad leaved deciduous temporarily flooded
PEM1/SS1B	Palustrine emergent persistent/Scrub-shrub broad leaved deciduous saturated
PSS1/EM1A	Palustrine scrub-shrub broad leaved deciduous/emergent persistent temporarily flooded
PSS1/EM1B	Palustrine scrub-shrub broad leaved deciduous/emergent persistent saturated
PSS1A	Palustrine scrub-shrub broad leaved deciduous temporarily flooded
PSS1C	Palustrine scrub-shrub broad leaved deciduous seasonally flooded
PSS1B	Palustrine scrub-shrub broad leaved deciduous saturated
PFO1/SS1A	Palustrine forested broad leaved deciduous/Scrub-shrub broad leaved deciduous temporarily flooded
U	Upland
U (URBAN)	Urban developed upland

[1] Follows the National Wetlands Inventory (NWI) classification system of Cowardin et al. (1979).

Figure 1. NWI wetland classes.

APPENDIX A: PHOTOGRAPHIC LOG OF FIELD SURVEY SITES.

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SW01: Lowland Sedge Meadow
NWI Class: PEM1H

Hydrology: Innundated
Soils: No soil photo available

SW02: Lowland Sedge Shrub/Land Management
NWI Class: PEM1B

Hydrology: Saturated
Soils: No soil photo available

SW03: Open Broadleaf Forest
NWI Class: Upland

Hydrology: Saturated
Soils: Silt and gravel

SW04: Open Needleleaf Forest
NWI Class: Upland

Hydrology: Saturated
Soils: Silt and Sand.

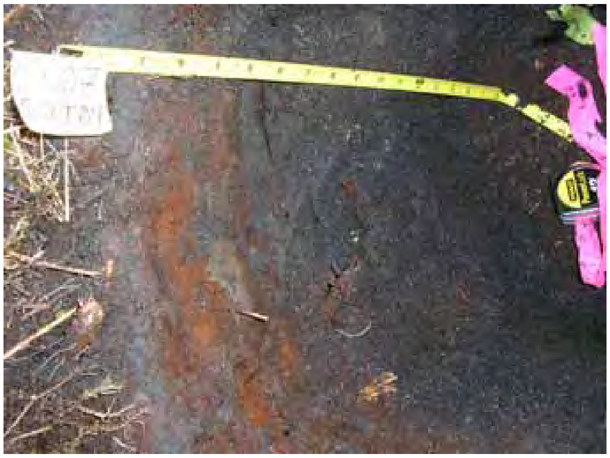
SW05: Lowland Sedge Shrub/Land Management
NWI Class: PEM1B

Hydrology: Saturated
Soils: Silt loam.

SW06: Lowland Sedge Shrub/Land Management
NWI Class: PEM1/SS1B

Hydrology: Saturated
Soils: Gravelly sandy loam

SW07: Open Needleleaf Forest
NWI Class: Upland



Hydrology: Saturated
Soils: Silt and Sand

SW08: Tall Closed Alder Shrub
NWI Class: Upland

Hydrology: Saturated
Soils: Unconsolidated Sand

SW09: Lowland Sedge Shrub/Land Managment
NWI Class: PSS1/EM1B

Hydrology: Saturated
Soils: Silt with gravel

SW10: Lowland Sedge Shrub/Land Management
NWI Class: PEM1/SS1B

Hydrology: Saturated
Soils: Loam with 20% rocks

SV01: Subarctic Lowland Bog
NWI Class: PEM1/SS1H

Hydrology: Innundated
Soils: No soil photo available

APPENDIX B: WETLAND DETERMINATION AND VEGETATION VERIFICATION FIELD DATA FORMS.

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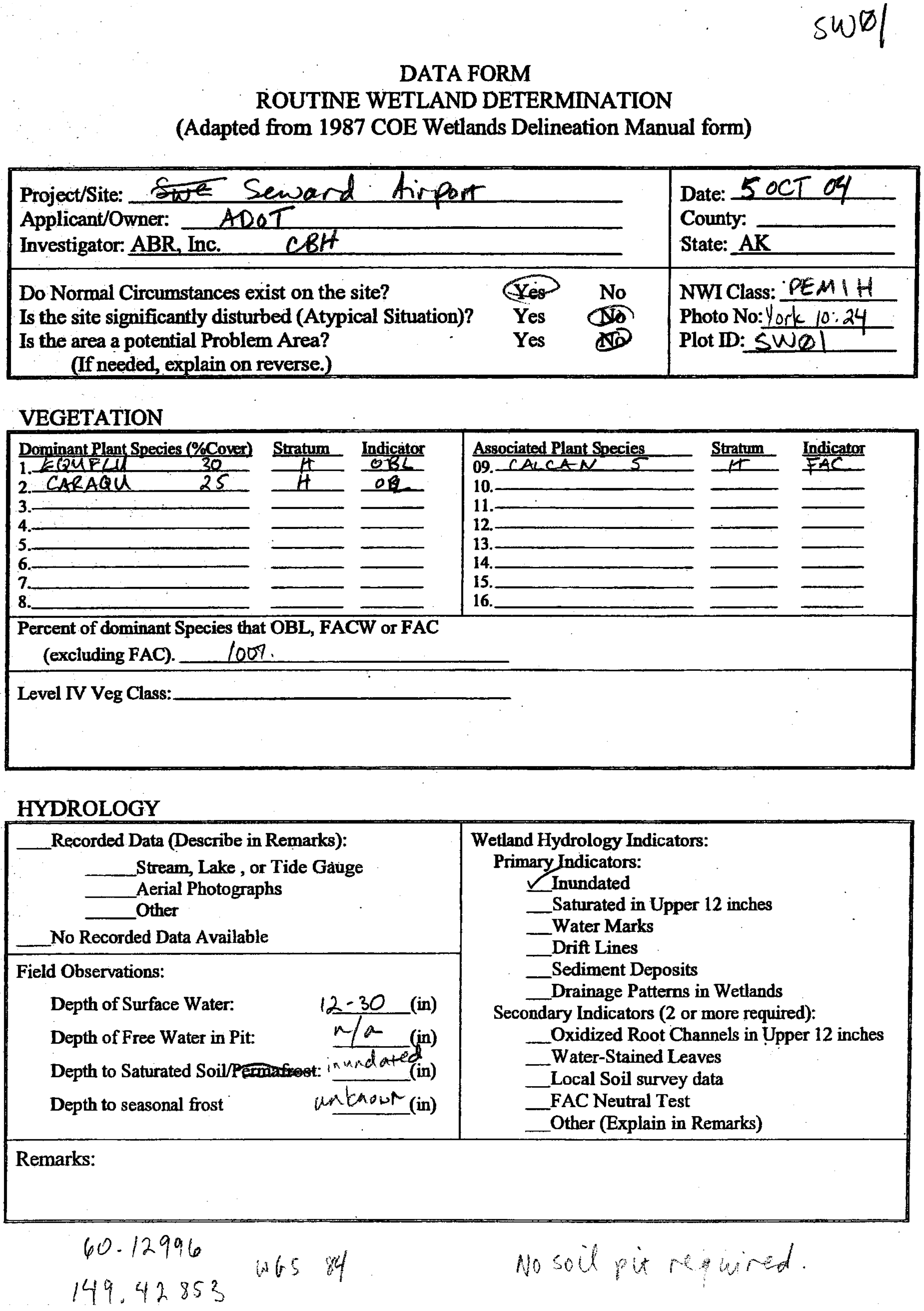


SW01

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: ~~SWE~~ Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CBH

Date: 5 OCT 04
County: ____
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: PEM1H
Photo No: York 10:24
Plot ID: SW01

VEGETATION

Dominant Plant Species (%Cover)	Stratum	Indicator	Associated Plant Species	Stratum	Indicator
1. EQUFLU 30	H	OBL	09. CALCAN 5	H	FAC
2. CARAQU 25	H	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of dominant Species that OBL, FACW or FAC
(excluding FAC). 100%.

Level IV Veg Class: ____

HYDROLOGY

___Recorded Data (Describe in Remarks):
- ______Stream, Lake , or Tide Gauge
- ______Aerial Photographs
- ______Other

___No Recorded Data Available

Field Observations:
- Depth of Surface Water: 12-30 (in)
- Depth of Free Water in Pit: n/a (in)
- Depth to Saturated Soil/~~Permafrost~~: inundated (in)
- Depth to seasonal frost unknown (in)

Wetland Hydrology Indicators:
- Primary Indicators:
  - ✓ Inundated
  - ___Saturated in Upper 12 inches
  - ___Water Marks
  - ___Drift Lines
  - ___Sediment Deposits
  - ___Drainage Patterns in Wetlands
- Secondary Indicators (2 or more required):
  - ___Oxidized Root Channels in Upper 12 inches
  - ___Water-Stained Leaves
  - ___Local Soil survey data
  - ___FAC Neutral Test
  - ___Other (Explain in Remarks)

Remarks:

60.12996
149.42853
WGS 84

No soil pit required.

SW02

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CBH

Date: 5 OCT 04
County: ______
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: PEM1B/E
Photo No: York 10:37
Plot ID: SW02

VEGETATION

Dominant Plant Species (%Cover)	Stratum	Indicator
1. CALCAN 40	H	FAC
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Associated Plant Species	Stratum	Indicator
09. ANGLUC 4	H	
10. EQUFLU 5	H	
11. EQUARV 5	H	
12.		
13.		
14.		
15.		
16.		

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). ______

Level IV Veg Class: Hgmbh

HYDROLOGY

___Recorded Data (Describe in Remarks):
    ______Stream, Lake , or Tide Gauge
    ______Aerial Photographs
    ______Other
___No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-15 (in)
Depth of Free Water in Pit: n/a (in)
Depth to Saturated Soil/~~Permafrost~~: surface (in)
Depth to seasonal frost unknown (in)

Wetland Hydrology Indicators:
Primary Indicators:
_✓_Inundated
_✓_Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil survey data
___FAC Neutral Test
___Other (Explain in Remarks)

Remarks:
Standing water may be partially due to recent heavy rains and lack of transpiration. Area is low-lying between road and developed railyard.

60.13108
149.42798 WGS 84

SW03

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport Applicant/Owner: ADOT Investigator: ABR, Inc. CBH	Date: 5 OCT 04 County: State: AK
Do Normal Circumstances exist on the site? [✓ Yes] No Is the site significantly disturbed (Atypical Situation)? Yes [✓ No] Is the area a potential Problem Area? Yes [✓ No] (If needed, explain on reverse.)	NWI Class: U Photo No: York 11 44 Plot ID: SW03

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species		Stratum	Indicator
1. PICSIT	15	T	FACU	09. ARUSYL	<1	H	
2. POPTRI	10	T	FACU	10. EQUPRA	1	H	
3. ALNCRI	20	S	FAC	11. ANGLUC	<1	H	
4. ECHHOR	15	S	FACU	12. SAMRAC	2	S	
5.				13. SALALA	3	S	
6.				14. ~~POPTRI~~	~~10~~		
7. ATHFIL	15	H	FAC	15. VIBEDU	10		
8.				16. CALCAN	5		

oplopanax horridus

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 2/5 = 40% (0)

EPIANG 5

Level IV Veg Class: Fmosb

TOTAL T 25
S 45
H 27

HYDROLOGY

___Recorded Data (Describe in Remarks): _____Stream, Lake, or Tide Gauge _____Aerial Photographs _____Other ___No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___Inundated ✓ Saturated in Upper 12 inches ___Water Marks ___Drift Lines ___Sediment Deposits ___Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___Oxidized Root Channels in Upper 12 inches ___Water-Stained Leaves ___Local Soil survey data ___FAC Neutral Test ___Other (Explain in Remarks)
Field Observations: Depth of Surface Water: none (in) Depth of Free Water in Pit: 10.5 (in) Depth to Saturated Soil/Permafrost: 4 (in)+ Depth to seasonal frost >14 (in)	

Remarks:
Recent heavy rains affecting hydrology indicators.

SW03

SOILS

Map Unit Name
(Series and Phase): ____________________

Taxonomy (Subgroup): ____________________

Drainage Class: ____________________
Field Observations
Confirm mapped Group? Yes No

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-.5	Oi				
.5-4		25Y 3/1	10YR3/1	C/F	Si
4-8	C1	2.5Y4/2			very gravelly Si
8-13	C2	n/a	n/a		gravels

Hydric Soil Indicators

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- (☐ Gleyed or Low-Chroma Colors*)
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:
Marginal! 3.5 inches with chroma ≤ 1 w/ mottles

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes [✓ No]
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? Yes [✓ No]

Is this Sampling Point within a Wetland? Yes [✓ No]

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60.13344 149.42358 (circle one) NAD83 NAD27 WGS 84
Location is approximate but still in type.

Air Photo ID: ____________________

Cow moose w/ 2 calves made appearance, quite close.

SW04

SOILS

Map Unit Name
(Series and Phase): ____________

Taxonomy (Subgroup): ____________

Drainage Class: ____________
Field Observations
Confirm mapped Group? Yes No

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-3	Oi				
3-14		5Y3/1	10YR4/3	C/D	Si with Sa inclusions
14-18	C	5Y 2.5/1			sand

Hydric Soil Indicators

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors*
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes [✓ No]
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? Yes [✓ No]

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60.12680 149.42210 (circle one) NAD83 NAD27 WGS 84

Air Photo ID: ____________

SW04

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CBH

Date: 5 Oct 04
County:
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: U
Photo No: York 12:37, 12:39
Plot ID: SW04

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species	Stratum	Indicator
1. PICSIT	40	T	FACU	09.		
2. ALNCRI	40	S	FAC	10.		
3. = EQUPRA	2	H	(FACU)	11.		
4. CALCAN	1	H	(FAC)	12.		
5. ANGLUC	2	H	(FACU)	13.		
6.				14.		
7.				15.		
8.				16.		

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 1/2 = 50% (0)

Level IV Veg Class: Fnosw

TOTAL T 40
S 40
*(H 5)

→ total <10%; not considered domina stratum

HYDROLOGY

___ Recorded Data (Describe in Remarks):
 ___ Stream, Lake, or Tide Gauge
 ___ Aerial Photographs
 ___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in)
Depth of Free Water in Pit: 11 (in)
Depth to Saturated Soil/Permafrost: 5 (in)
Depth to seasonal frost: >18 (in)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil survey data
- ___ FAC Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SW05

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: **ABR, Inc.** CBH

Date: 5 OCT 04
County:
State: **AK**

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: PEM1B
Photo No: York 13:28, 13:29
Plot ID: SW05

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator
1. CALCAN	25	H	FAC
2. [illegible]			
3. ≈CARLEN	15	H	OBL
4.			
5.			
6.			
7.			
8.			

Associated Plant Species		Stratum	Indicator
09. ACHMIL	1	H	FACU
10. RUMARC	<1	H	FACW
11. ARCLAT	10	H	FACW
12. EQUPRA	10	H	FACW
13.			
14.			
15.			
16.			

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 2/2 = 100 (50%)

Level IV Veg Class: Hgmsg

TOTAL H 61

Few small patches of ALNCRI

HYDROLOGY

___Recorded Data (Describe in Remarks):
- _____Stream, Lake, or Tide Gauge
- _____Aerial Photographs
- _____Other

___No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-5 (in)
Depth of Free Water in Pit: 9 (in)
Depth to Saturated Soil/Permafrost: Surface (in)
Depth to seasonal frost >18 (in)

Wetland Hydrology Indicators:

Primary Indicators:
- ___Inundated
- ✓ Saturated in Upper 12 inches
- ___Water Marks
- ___Drift Lines
- ___Sediment Deposits
- ___Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___Oxidized Root Channels in Upper 12 inches
- ___Water-Stained Leaves
- ___Local Soil survey data
- ___FAC Neutral Test
- ___Other (Explain in Remarks)

Remarks:

SW05

SOILS

Map Unit Name (Series and Phase): __________

Taxonomy (Subgroup): __________

Drainage Class: __________

Field Observations Confirm mapped Group? Yes No

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-1	Oi				
1-18	C	2.5Y3/1	10YR3/3	C/D	SiL

Hydric Soil Indicators

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors*
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [✓ Yes] No

Wetland Hydrology Present? [✓ Yes] No

Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? [✓ Yes] No

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60. 12775 149. 41913 (circle one) [✓ WGS 84] NAD83 NAD27

Air Photo ID: __________

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

SW06

Project/Site: Seward Airpot **Applicant/Owner:** ADOT **Investigator:** ABR, Inc. CBH	**Date:** 5 Oct 04 **County:** **State:** AK
Do Normal Circumstances exist on the site? [✓ Yes] No **Is the site significantly disturbed (Atypical Situation)?** Yes [✓ No] **Is the area a potential Problem Area?** Yes [✓ No] **(If needed, explain on reverse.)**	**NWI Class:** PEM1/SS1B **Photo No:** York 13:57 (3 photz **Plot ID:** SW06

VEGETATION

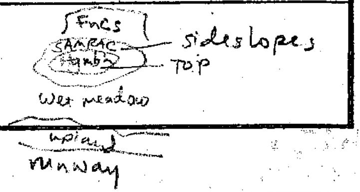
Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species		Stratum	Indicator
1. CALCAN	8	H	FAC	09. RUMARC	1	H	
2. ARCLAT	15	H	FACW	10. ARTTIL	<1	H	
3. ANGLUC	17	H	FACU	11. PLA	1	H	
4. ALCRI	5	S	FAC	12. GEU	<1	H	
5. SAMRAC	8	S	FACU	13. ACHMIL	<1	H	
6.				14. ~~EPIANG~~	1	H	
7.				15.		H	
8.				16. /			

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 3/5 = 60% (20%)

TOTAL 445

5/13

Level IV Veg Class: Hgmgh



plantago

HYDROLOGY

___Recorded Data (Describe in Remarks):

______Stream, Lake , or Tide Gauge

______Aerial Photographs

______Other

___No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in)

Depth of Free Water in Pit: none (in)

Depth to Saturated Soil/Permafrost: 8 (in) *

Depth to seasonal frost >18 (in)

Wetland Hydrology Indicators:

Primary Indicators:

___Inundated

✓ Saturated in Upper 12 inches

___Water Marks

___Drift Lines

___Sediment Deposits

___Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

___Oxidized Root Channels in Upper 12 inches

___Water-Stained Leaves

___Local Soil survey data

___FAC Neutral Test

___Other (Explain in Remarks)

Remarks:

* may be abnormally shallow due to recent heavy rains

SW06

SOILS

Map Unit Name
(Series and Phase): ____________________

Drainage Class: ____________________
Field Observations
Confirm mapped Group? Yes No

Taxonomy (Subgroup): ____________________

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-9		5Y2.5/1	10YR3/3	C/D	SaL
9-18		"	"	M/D	gravelly SaL

Hydric Soil Indicators

- ____ **Histosol**
- ____ **Histic Epipedon**
- ____ **Sulfidic Odor**
- ____ **Aquic Moisture Regime**
- ____ **Reducing Conditions**
- ✓ **Gleyed or Low-Chroma Colors***
- ____ **Concretions**
- ____ **High Organic Content in Surface Layer in Sandy soils**
- ____ **Organic Streaking in Sandy Soils**
- ____ **Listed on Local Hydric Soils List**
- ____ **Listed on National Hydric Soils List**
- ____ **Other (Explain in Remarks)**

***(Chroma ≤ 2 with mottles, ≤1 without mottles)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [✓ Yes] No
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? Yes No

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60. 12803 149.41859 (circle one) NAD83 NAD27 WGS 84

Air Photo ID: ____________________

SW07

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CBH

Date: 5 OCT 04
County: ___
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: U
Photo No: York H:33, H:34
Plot ID: SW07

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species		Stratum	Indicator
1. PICSIT	70	T	FACU	09. ACHMIL	<1	H	FACU
2. ALNCRI	10	S	FAC	10. GYMDRY	1	H	
3. ANGLUC	10	H	FACU	11. IRISET	tr	H	FAC
4. EQUARV	10	H	FACU	12. CALCAN	5	H	FAC
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 1/4 = 25% (0)

Level IV Veg Class: FnCSS

TOTAL T 70
S 10
H 26

HYDROLOGY

___**Recorded Data (Describe in Remarks):**
- _____**Stream, Lake, or Tide Gauge**
- _____**Aerial Photographs**
- _____**Other**

___**No Recorded Data Available**

Field Observations:

Depth of Surface Water: none (in)
Depth of Free Water in Pit: none (in)
Depth to Saturated Soil/Permafrost: 3 (in)*
Depth to seasonal frost >19 (in)

Wetland Hydrology Indicators:

Primary Indicators:
- ___**Inundated**
- (✓**Saturated in Upper 12 inches**)
- ___**Water Marks**
- ___**Drift Lines**
- ___**Sediment Deposits**
- ___**Drainage Patterns in Wetlands**

Secondary Indicators (2 or more required):
- ___**Oxidized Root Channels in Upper 12 inches**
- ___**Water-Stained Leaves**
- ___**Local Soil survey data**
- ___**FAC Neutral Test**
- ___**Other (Explain in Remarks)**

Remarks:
Recent heavy rains; Not sure would normally be saturated in upper 12.

SW07

SOILS

Map Unit Name (Series and Phase): ______

Drainage Class: ______

Field Observations

Confirm mapped Group? Yes No

Taxonomy (Subgroup): ______

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-2	Oi				
2-6		10YR2/1	5YR3/4	M/P	SiL and SaL, distinct, mixed
6-19		n/a - Sand			coarse black sand & gravel-stones, unconsolidated

Hydric Soil Indicators

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors*
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:
2-6 Horizon mixed, large bright mottle areas. Pockets of SiL and SaL, about even proportions. Marginal - only 4 inches meet low chroma requirement

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes [✓ No]

Wetland Hydrology Present? [✓ Yes] No

Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? Yes [✓ No]

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60, 12797 149.41823 (circle one) WGS 84 ~~NAD83~~ ~~NAD27~~

Air Photo ID: ______

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

SW08.

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CRH

Date: 5 Oct 04
County: ____
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [✓ No]
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: U
Photo No: York 15.24
Plot ID: R SW08

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species		Stratum	Indicator
1. ALNCRI	65	S	FAC	09. ANGLUC	<1	H	FACU
2. (PICSIT	7	S)	→	10. VIBEDU	3	S	
3. ≈ SAMRAC	35	S	FACU	11.			
4. (CALCAN	2	H	FAC) →	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 1/2 = 50% (0)

Level IV Veg Class: StCa

TOTAL S 103
+(H 3)

HYDROLOGY

___**Recorded Data (Describe in Remarks):**
_____**Stream, Lake, or Tide Gauge**
_____**Aerial Photographs**
_____**Other**
___**No Recorded Data Available**

Field Observations:

Depth of Surface Water: none (in)
Depth of Free Water in Pit: none (in)
Depth to Saturated Soil/Permafrost: (6) (in)*
Depth to seasonal frost ____ (in)

Wetland Hydrology Indicators:
Primary Indicators:
__**Inundated**
(✓**Saturated in Upper 12 inches**)*
__**Water Marks**
__**Drift Lines**
__**Sediment Deposits**
__**Drainage Patterns in Wetlands**
Secondary Indicators (2 or more required):
__**Oxidized Root Channels in Upper 12 inches**
__**Water-Stained Leaves**
__**Local Soil survey data**
__**FAC Neutral Test**
__**Other (Explain in Remarks)**

Remarks:
Believe saturation due to recent heavy rains

SW08

SOILS

Map Unit Name
(Series and Phase): ______________________

Taxonomy (Subgroup): ______________________

Drainage Class: ______________
Field Observations
Confirm mapped Group? Yes No

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-1	Oi				
1-8		5Y2.5/1	10YR3/2	C/ D	
8-17		n/a			unconsolidated sand & coarse frags (river-rounded stones)

Hydric Soil Indicators

______ Histosol
______ Histic Epipedon
______ Sulfidic Odor
______ Aquic Moisture Regime
______ Reducing Conditions
______ Gleyed or Low-Chroma Colors*

______ Concretions
______ High Organic Content in Surface Layer in Sandy soils
______ Organic Streaking in Sandy Soils
______ Listed on Local Hydric Soils List
______ Listed on National Hydric Soils List
______ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes [✓ No]
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? Yes [✓ No]

Remarks:

GEOGRAPHIC INFORMATION

GPS Location: 60. 13316 149.42447 WGS84 (circle one) NAD83 NAD27

Air Photo ID: ______________________

SW09

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner:
Investigator: ABR, Inc.

Date: 5 Oct 04
County:
State: AK

Do Normal Circumstances exist on the site? [✓ Yes] No
Is the site significantly disturbed (Atypical Situation)? [✓ Yes] No
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: PSS/EM1B
Photo No: York 16:06 16:07
Plot ID: SW09

VEGETATION

Dominant Plant Species (%Cover)		Stratum	Indicator	Associated Plant Species		Stratum	Indicator
1. ALNCRI	25	H	FAC	09. ANGLUC	tr	H	
2. DESCAE	20		FAC	10. SALPUL	10		FACW
3. POAGLA	15		NI	11. SALALA	10		FAC
4.				12. EQUPRA	8		FACW
5.				13. ACHMIL	5		FACU
6.				14.			
7.				15.			
8.				16.			

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 2/3 = 66% (0)

Level IV Veg Class: SIOaW

Site has been cleared and perhaps seeded w/ grasses. Thick D. caespitosa, P. glauca.

HYDROLOGY

___**Recorded Data (Describe in Remarks):**
- ______**Stream, Lake, or Tide Gauge**
- ______**Aerial Photographs**
- ______**Other**

___**No Recorded Data Available**

Field Observations:

Depth of Surface Water: none (in)
Depth of Free Water in Pit: 10 (in)
Depth to Saturated Soil/Permafrost: Surface (in)
Depth to seasonal frost >16 (in)

Wetland Hydrology Indicators:
Primary Indicators:
- ___**Inundated**
- ✓**Saturated in Upper 12 inches**
- ___**Water Marks**
- ___**Drift Lines**
- ___**Sediment Deposits**
- ___**Drainage Patterns in Wetlands**

Secondary Indicators (2 or more required):
- ___**Oxidized Root Channels in Upper 12 inches**
- ___**Water-Stained Leaves**
- ___**Local Soil survey data**
- ___**FAC Neutral Test**
- ___**Other (Explain in Remarks)**

Remarks:

SW09

SOILS

Map Unit Name
(Series and Phase): ______________________

Drainage Class: ______________________
Field Observations
Confirm mapped Group? Yes No

Taxonomy (Subgroup): ______________________

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-0.5	Oi				
0.5-16		5Y4/1	10YR4/4	C/D	Si 25% gravel-stone

Hydric Soil Indicators

_____ Histosol
_____ Histic Epipedon
_____ Sulfidic Odor
_____ Aquic Moisture Regime
_____ Reducing Conditions
✓ Gleyed or Low-Chroma Colors*

_____ Concretions
_____ High Organic Content in Surface Layer in Sandy soils
_____ Organic Streaking in Sandy Soils
_____ Listed on Local Hydric Soils List
_____ Listed on National Hydric Soils List
_____ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [✓ Yes] No
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? [✓ Yes] No

Remarks:
Safety area adjacent runway, regularly cleared.

GEOGRAPHIC INFORMATION

GPS Location: 60.13505 149.42084 (circle one) NAD83 NAD27 WGS 84

Air Photo ID: ______________________

SW10

DATA FORM
ROUTINE WETLAND DETERMINATION
(Adapted from 1987 COE Wetlands Delineation Manual form)

Project/Site: Seward Airport
Applicant/Owner: ADOT
Investigator: ABR, Inc. CBH

Date: 5 Oct 04
County:
State: AK

† Do Normal Circumstances exist on the site? [✓ Yes] No
* Is the site significantly disturbed (Atypical Situation)? [✓ Yes] No
Is the area a potential Problem Area? Yes [✓ No]
(If needed, explain on reverse.)

NWI Class: PEM1/SS1B
Photo No: York 16:34
Plot ID: SW10

VEGETATION

Dominant Plant Species (%Cover)	Stratum	Indicator	Associated Plant Species	Stratum	Indicator
** 1. grass 3 POAALP ~~30~~ 25	H	FACU	09. grass 4 5 (HORBRA)	H	FACW
2. GEUMAC 10	|		10.		
3. ACHMIL 15	|	FACU	11. GEUMAC 10	H	FACW
4. ICISET 5			12. ICISET 5	|	FAC
5. [illegible] <1 →			13. LUPNOO <1	|	FAC
6. SALPUL 15	|	FACW	14. PLAMAJ 7	|	FAC
7. PLAMAJ 7	|		15.		
8.			16.		

Percent of dominant Species that OBL, FACW or FAC (excluding FAC). 1/3 = 33% (33%)

Level IV Veg Class: Hgmgh

TOTAL H 77

* End of runways - cleared area. Obvious areas of PSS1B remain. Weedy invasives dominate herbaceous.

** Grass 3 collected; keyed to Poa alpigena (Hulten) Grass 4 collected; Hordeum brachyantherum (Hulten)

HYDROLOGY

___Recorded Data (Describe in Remarks):
______Stream, Lake , or Tide Gauge
______Aerial Photographs
______Other
___No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in)
Depth of Free Water in Pit: none ~~6~~ (in)
Depth to [✓ Saturated] Soil/Permafrost: 6 (in)
Depth to seasonal frost >18 (in)

Wetland Hydrology Indicators:
Primary Indicators:
___Inundated
✓ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil survey data
___FAC Neutral Test
___Other (Explain in Remarks)

Remarks:

SW10

SOILS

Map Unit Name
(Series and Phase): __________

Taxonomy (Subgroup): __________

Drainage Class: __________
Field Observations
Confirm mapped Group? Yes No

Profile Description:

Depth (in)	Horizon	Matrix Color (Munsoil Moist)	Mottle Colors (Munsoil Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-0.5	Oi				
0.5-15		5Y2.5/1	2.5YR2.5/4 and 10YR3/3	C/P	20% rocks; L

Hydric Soil Indicators

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors*
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

*(Chroma ≤ 2 with mottles, ≤1 without mottles)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes [✓ No]
Wetland Hydrology Present? [✓ Yes] No
Hydric Soils Present? [✓ Yes] No

Is this Sampling Point within a Wetland? Yes No

Remarks:

End of runway in cleared area. Pockets of standing water w/ Salix planifolia and Carex spp mixed with grass-herb areas. Many weedy species.

GEOGRAPHIC INFORMATION

GPS Location: 60.13548 149.42242 (circle one) WGS 84 NAD83 NAD27

Air Photo ID: __________

VEGETATION VERIFICATION FORM

(Rapid Vegetation and Hydrology assessment for photointerpretation)

Project/Site:	Seward Airport	Date:	5 Oct 04
Applicant/Owner:	ADOT	County:	
Investigator:	ARR Inc. CBH	State:	Alaska
Do normal circumstances exist on the site?	N	NWI Class:	PEM1/SS1H
Is the site significantly disturbed (Atypical situation)	Y	Photo No.:	York 11-16
Is the area a potential problem area?	N	Plot ID:	SV01

VEGETATION

Dominant Species (%Cover)	Stratum	Indicator	Associated Plant Species	Stratum	Indicator
1.AGRSCA 10	H	FAC	9.ALNCRI 1	H	
2.EPILAT 10	H	FAC	10.GEUMAC <1	H	
3.CALCAN 20	H	FAC	11.SALGLA 1	H	
4.			12.EQUPRA 5	H	
5.			13.ANGLUC 7	H	
6.			14.CARAQU 5	H	
7.			15.		
8.			16.		

Percent of dominant species that are OBL, FACW or FAC: 100% (0)

Level IV Veg Class and Notes: Hgmbh- disturbed

HYDROLOGY

Depth of Surface Water: 0-6

Wetland Hydrology Indicators:

Primary Indicators:

X Innundated
Water marks
Drift lines
Sediment deposits
Drainage patterns in wetlands

Secondary Indicators:

Water stained leaves
Local soil survey data
FAC neutral test
Other

Hydrology Notes:

OTHER NOTES: Area was formerly shrub (likely Stcaw, has been cleared. Regrowth dominated by herbaceous, some small shrubs returning. Troughs of standing water. Area probably includes some upland areas transitioning to road berm and developed ares.

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2004 Wetlands Delineation Field Check
Update and Report

Prepared September 30, 2016

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FIELD TRIP REPORT

State of Alaska
Department of Transportation and Public Facilities
Central Region Design and Engineering Services
Preliminary Design and Environmental

Date:	September 30, 2016	Time	10:30 am to 1:30 pm
Project Name:	Seward Airport Improvements	Project No:	54857
Noted By	Mark Boydston Environmental Impact Analyst	Present:	Drew von Lindern, Environmental Impact Analyst Mark Boydston, Environmental Impact Analyst
Subject:	2004 Wetlands delineation field check update and report		

On September 30, 2016, from approximately 10:30 am to 1:30 pm, DOT&PF environmental analysts (analysts) conducted a field check for Seward Airport wetlands delineated in 2004 and reported in 2005 (see attached report). The purpose of the field check was to confirm the findings and any changes to the 2004 wetlands delineation for the proposed Seward Airport Improvements project. The proposed project would impact wetlands depending on which alternative becomes the preferred alternative and proposed action.

I. Field methodology

Analysts on this field trip were both qualified to conduct wetlands delineation according to current U.S. Army Corp of Engineers Alaska Region wetlands delineation procedures. The analysts looked at the major wetland and upland areas within the Seward Airport property boundary based on 2004 mapping and updated for wetlands boundary changes using 2014 aerial imagery and ArcGIS 10.3 software (see attached Figures 1 through 3). Analysts did visual checks on existing vegetation comparing field photos taken in 2004 and using the aerial imagery from the 2005 wetlands delineation report. Other than changes to vegetated and unvegetated wetlands islands in the Resurrection River, personnel did not observe any significant changes to vegetation to the 2004 delineated wetlands.

Analysts tested 2004 delineated wetlands for hydrology by using a shovel. Wetness on the shovel indicated depth to saturation. Except for the two PEM1/SS1B wetlands at the north end of the two runways, all other delineated wetland had saturation to the surface or had standing water from 1 to 12 inches.

Analysts did not check hydric soils since as stated above, the majority of wetlands have saturation to the surface or standing water year round (see further discussion below).

II. Field results

A. Wetland boundary changes since 2004

Since 2004, islands and shore wetlands in the Resurrection River to the west of the main runway have changed location, size, and vegetation status. Most wetland islands are now unvegetated compared to 2004 likely from gradual increase in the rate of flood events since 1995 (pers. comm with DOT&PF Central Region hydrologic engineer). For example, flooding overtopped the main runway 11 times in 2010. Also, minor changes to 2004 wetlands boundaries occurred along the mean high tide line where a main estuary is located on the west side and southern end of the main runway (Runway 31).

B. Wetlands vegetation changes since 2004

Other than changes to vegetated and unvegetated wetlands islands in the Resurrection River, personnel did not observe any significant changes to vegetation to the 2004 delineated wetlands.

C. Wetlands hydrology changes since 2004

Except for the two PEM1/SS1B wetlands at the north end of the two runways 9 marked by SW09 and SW10 on the attached Figure 4), all wetlands were saturated to the surface or had standing water from 1 to 12 inches. The PEM1/SS1B wetlands at the north end of the airport had saturation within 10 inches from the surface. These two wetlands areas have been graded to remove obstructions in the runway safety area and direct drainage so the hydrology is probably altered.

D. Hydric soil changes since 2004

According to Western Regional Climate Center data for monthly precipitation records from 1983 through 2014 (see http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak8377) for the Seward Airport and vicinity, precipitation average and standard deviation precipitation have remained about the same compared to the period from 2004 to 2014 (based on annual amounts). See table below. Therefore, analysts did not dig soil test pits to test for hydric soils because except for the PEM1/SS1B wetlands marked by SW09 and SW10 on the Google map (see attached Figure 4), all other wetlands within the Seward Airport boundary are generally saturated to surface or have standing water throughout the year.

Year range	Average (inches)	Standard Deviation (inches)
1983 - 2014	10.65	6.14
2004 - 2014	11.96	8.90

III. 2004 Wetlands ArcGIS shapefile updating

Before the September 30, 2016 field trip, the analysts re-digitized the 2004 wetlands shapefile boundaries overlaid on 2014 aerial imagery with one-foot resolution. The wetlands that changed the most between 2004 are the island and shoreline wetlands in the Resurrection River along the east side of the main runway. Since floodwaters have overtopped the main runway numerous times since 2004 and the week before this field trip, the Resurrection River shoreline and island wetlands along the main runway are in constant flux from floodwaters and changing braided channels.

A few wetlands boundaries in the estuarine/tidal zone experienced minor changes to their 2004 delineated boundaries. Personnel updated the boundary changes on the 2014 aerial imagery. See attached Figure 1 - 2004 wetlands delineation map, Figure 2 - 2005 wetlands layer on imagery, and Figure 3 - Wetlands layer update to 2014 imagery for comparison of wetlands boundary changes since the 2004 wetlands delineation.

IV. 2004 Wetlands delineation forms updated to Alaska Region Version 2.0 Wetlands Delineation Form

Mark Boydston updated the 2004 delineation forms to the Alaska Region Version 2.0 Wetlands Delineation Forms that are in accord with the 2006 Alaska Region Supplement. The 2004 delineation used a dominance test for the hydrophytic vegetation test. The updated forms use the prescribed prevalence index. The prevalence index update did not change any of the hydrophytic vegetation tests from the 2004 delineation.

Likewise, wetlands hydrology indicators also did not change updating from the 2004 from to the current form as all wetlands had saturation or high water tables within 12 inches from the surface or standing water. As explained above, since the hydrology regime has remained the same since 2004, 2004 hydric soil tests were used for the updated form. Note soils classified in the 2004 delineation as gleyed also had mottled soil. Mottled soil in the 1987 Manual is now the 2006 Regional Supplement hydric soil Indicator A14 – Alaska Redox.

V. Conclusions

The 2004 wetlands delineation for hydrophytic vegetation, hydric soils and wetlands hydrology remains valid except for changes to island and shoreline wetlands on the Resurrection River on the main runway west side

Attachments:
Figure 1 - Seward Airport 2005 NWI wetlands classes
Figure 2 - 2005 wetlands layer on 2014 imagery
Figure 3 - Wetlands layer update to 2014 imagery
Figure 4 - Google Earth w updated sample point placemarks
Updated 2004 Wetlands delineation forms SW1 - SW10
2005 Wetlands Delineation Report

cc:
Barbara Beaton, Project Manager, Aviation Design, DOT&PF Central Region

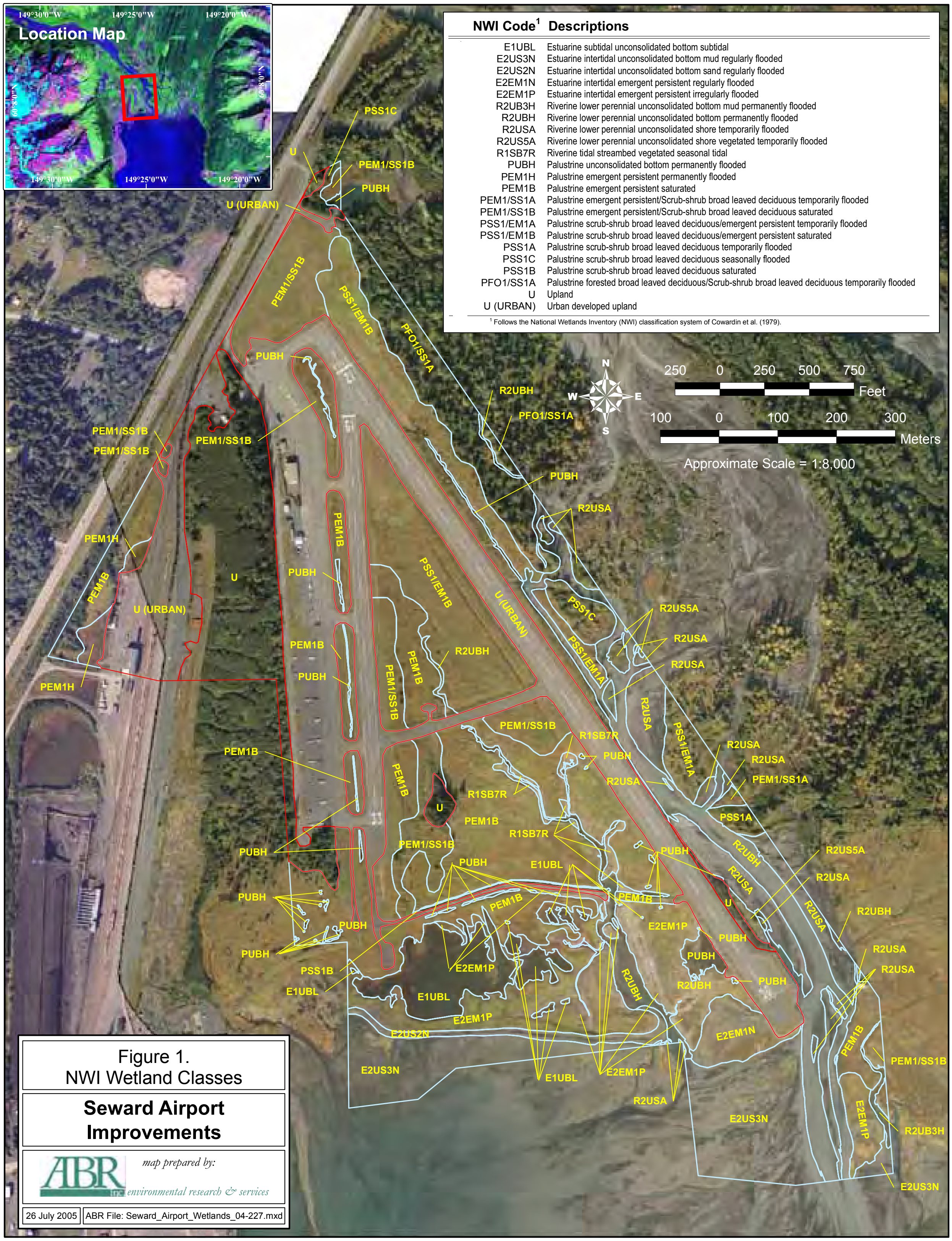
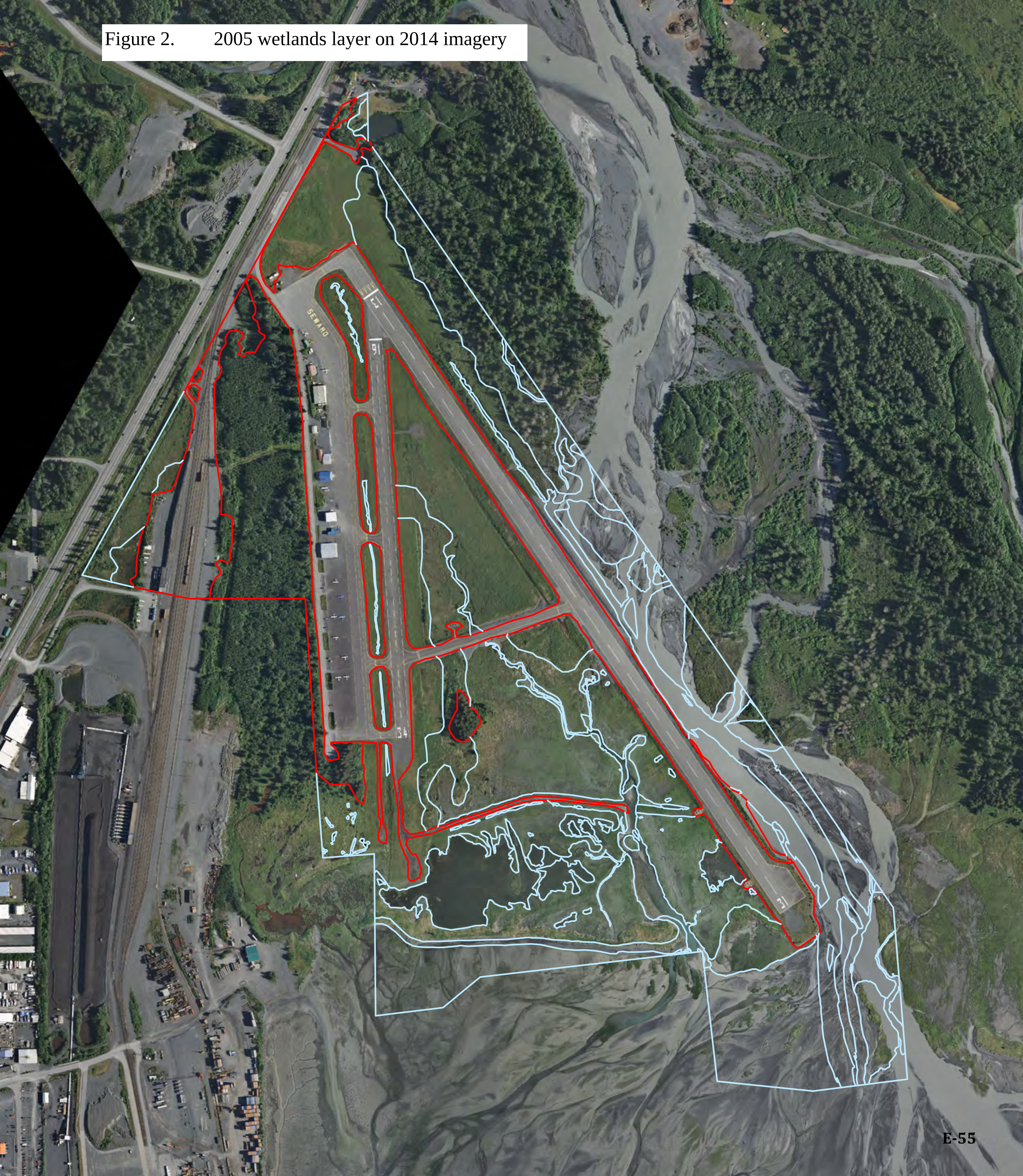
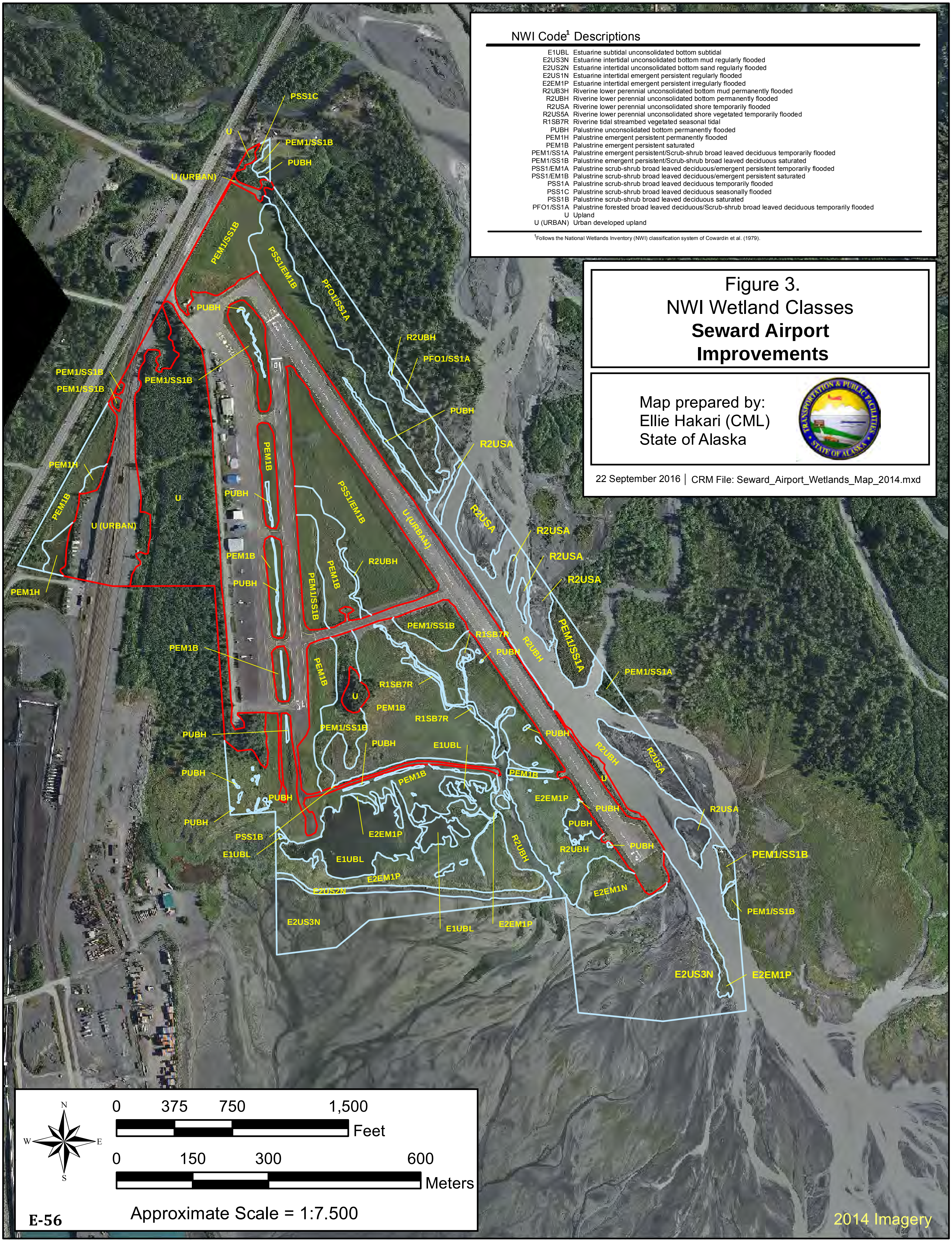


Figure 1. NWI wetland classes.

Figure 2.   2005 wetlands layer on 2014 imagery





NWI Code[1] Descriptions

E1UBL	Estuarine subtidal unconsolidated bottom subtidal
E2US3N	Estuarine intertidal unconsolidated bottom mud regularly flooded
E2US2N	Estuarine intertidal unconsolidated bottom sand regularly flooded
E2US1N	Estuarine intertidal emergent persistent regularly flooded
E2EM1P	Estuarine intertidal emergent persistent irregularly flooded
R2UB3H	Riverine lower perennial unconsolidated bottom mud permanently flooded
R2UBH	Riverine lower perennial unconsolidated bottom permanently flooded
R2USA	Riverine lower perennial unconsolidated shore temporarily flooded
R2US5A	Riverine lower perennial unconsolidated shore vegetated temporarily flooded
R1SB7R	Riverine tidal streambed vegetated seasonal tidal
PUBH	Palustrine unconsolidated bottom permanently flooded
PEM1H	Palustrine emergent persistent permanently flooded
PEM1B	Palustrine emergent persistent saturated
PEM1/SS1A	Palustrine emergent persistent/Scrub-shrub broad leaved deciduous temporarily flooded
PEM1/SS1B	Palustrine emergent persistent/Scrub-shrub broad leaved deciduous saturated
PSS1/EM1A	Palustrine scrub-shrub broad leaved deciduous/emergent persistent temporarily flooded
PSS1/EM1B	Palustrine scrub-shrub broad leaved deciduous/emergent persistent saturated
PSS1A	Palustrine scrub-shrub broad leaved deciduous temporarily flooded
PSS1C	Palustrine scrub-shrub broad leaved deciduous seasonally flooded
PSS1B	Palustrine scrub-shrub broad leaved deciduous saturated
PFO1/SS1A	Palustrine forested broad leaved deciduous/Scrub-shrub broad leaved deciduous temporarily flooded
U	Upland
U (URBAN)	Urban developed upland

---

[1] Follows the National Wetlands Inventory (NWI) classification system of Cowardin et al. (1979).

Figure 3.
NWI Wetland Classes
Seward Airport Improvements

Map prepared by:
Ellie Hakari (CML)
State of Alaska

22 September 2016 | CRM File: Seward_Airport_Wetlands_Map_2014.mxd

Approximate Scale = 1:7.500

Seward Airport Improvements

Updated 2004 Wetlands field delineation

Placemarks show 2004 delineation field sample points 1 through 10 which DOT&PF field checked on September 30, 2016

Figure 4

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW01
Investigator(s): Mark Boydston & Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): river delta
Local relief (concave, convex, none): none Slope (%): < 1%
Subregion: ______ Lat: 60.12996 Long: -149.42853 Datum: WGS 1984
Soil Map Unit Name: ______ NWI classification: PEM1H
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)
Are Vegetation mowed, Soil ______, or Hydrology ______ significantly disturbed? Yes Are "Normal Circumstances" present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ______ Hydric Soil Present? Yes ✓ No ______ Wetland Hydrology Present? Yes ✓ No ______	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** ______
Remarks:		

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			
Herb Stratum			
1. Equisetum palustre	30		FACW
2. Carex aquatilis	25		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			

Plot size (radius, or length x width) ______ % Bare Ground ______
% Cover of Wetland Bryophytes ______ (Where applicable) Total Cover of Bryophytes ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	30	x 2 =	60
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	55 (A)		85 (B)

Prevalence Index = B/A = 1.55

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ______

Remarks:

Visual check on vegetation

SOIL

Sampling Point: SW01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								soil pit not required

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

No soil test required -

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
✓ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___
Water Table Present? Yes ✓ No ___ Depth (inches): less than 12
Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): to surface

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW02
Investigator(s): Mark Boydston & Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): river delta
Local relief (concave, convex, none): none Slope (%): < 1%
Subregion: ______ Lat: 60.1308 Long: -149.42798 Datum: WGS 1984
Soil Map Unit Name: ______ NWI classification: PEM1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)
Are Vegetation mowed, Soil ______, or Hydrology ______ significantly disturbed? Yes Are “Normal Circumstances” present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ______	Is the Sampled Area within a Wetland?	Yes ✓ No ______
Hydric Soil Present?	Yes ✓ No ______		
Wetland Hydrology Present?	Yes ✓ No ______		

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			

Total Cover: ______
50% of total cover: ______ 20% of total cover: ______

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			

Total Cover: ______
50% of total cover: ______ 20% of total cover: ______

Herb Stratum			
1. Calamogrostis canadensis	40		FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Total Cover: ______
50% of total cover: ______ 20% of total cover: ______
Plot size (radius, or length x width) ______ % Bare Ground ______
% Cover of Wetland Bryophytes ______ Total Cover of Bryophytes ______
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	40	x 3 =	120
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	40 (A)		120 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ______

Remarks:

Visual check on vegetation

SOIL

Sampling Point: SW02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
								soil pit not required

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ____________________

Depth (inches): ____________________

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

No soil test included in 2005 wetlands report but location is in location with standing water present throughout the growing season and hydrophyte vegetation present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0-15

Water Table Present? Yes ✓ No _____ Depth (inches): less than 12

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): to surface

Wetland Hydrology Present? Yes _____ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW03
Investigator(s): Mark Boydston / Drew Vonlinder Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): Slope (%):
Subregion: Lat: 60.13349 Long: -149.42358 Datum: WGS 1984
Soil Map Unit Name: NWI classification: U
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ✓	**Is the Sampled Area within a Wetland?** Yes No ✓
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes	No ✓	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picnea sitchensis	15	Y	FACU
2. Populus tremuloides	10	Y	FACU
3. Alnus crispus (viridis)	20	Y	FAC
4. Oplopanax horridus	15	Y	FACU
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover:		20% of total cover:	

Plot size (radius, or length x width) % Bare Ground
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)
Total Number of Dominant Species Across All Strata: (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species	40	x 4 =	160
UPL species		x 5 =	
Column Totals:	60 (A)		220 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No ✓

Remarks:

SOIL

Sampling Point: SW03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4] Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes _____ No ✓

Remarks:

See comments 2004 delineation form - chroma less than or equal to 1

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): ________

Water Table Present? Yes ✓ No _____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016

Applicant/Owner: DOT&PF Sampling Point: SW04

Investigator(s): Mark Boydston & Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): river delta

Local relief (concave, convex, none): none Slope (%): < 1%

Subregion: ______ Lat: 60.12680 Long: -149.42210 Datum: WGS 1984

Soil Map Unit Name: ______ NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation mowed, Soil ____, or Hydrology ____ significantly disturbed? Yes Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soil Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	40	Y	FACU
2. Alnus crispus (also viridis)	40	Y	FAC
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1. Equisetum palustre	30		FACW
2. Carex aquatilis	25		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover:		20% of total cover:	

Plot size (radius, or length x width) ______ % Bare Ground ______

% Cover of Wetland Bryophytes ______ Total Cover of Bryophytes ______
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	40	x 3 = 120
FACU species	40	x 4 = 160
UPL species		x 5 =
Column Totals:	80 (A)	280 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

Visual check on vegetation

SOIL

Sampling Point: SW04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								soil pit not required

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4] Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ✓ No ___ Depth (inches): less than 12

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): to surface

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW05
Investigator(s): Mark Boydston / Drew Vonlinder Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): ______ Slope (%): ______
Subregion: ______ Lat: 60.12775 Long: -149.41913 Datum: WGS 1984
Soil Map Unit Name: ______ NWI classification: PEM1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)
Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ______	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ______
Hydric Soil Present?	Yes ✓ No ______	
Wetland Hydrology Present?	Yes ✓ No ______	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamogrostis canadensis	25	Y	FAC
2. Carex lenticularis	15	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover: ______ 20% of total cover: ______			

Plot size (radius, or length x width) ______ % Bare Ground ______
% Cover of Wetland Bryophytes ______ (Where applicable) Total Cover of Bryophytes ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species		x 2 =
FAC species	25	x 3 = 75
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	40 (A)	90 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ______

Remarks:

SOIL

Sampling Point: SW05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4] Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soil results from 2004 delineation

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0-5

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): surface

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW06
Investigator(s): Mark Boydston / Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): ______ Slope (%): ______
Subregion: ______ Lat: 60.12803 Long: -149.41859 Datum: WGS 1984
Soil Map Unit Name: ______ NWI classification: PEM1/SS1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)
Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ______
Hydric Soil Present?	Yes ✓	No ______
Wetland Hydrology Present?	Yes ✓	No ______

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ______

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis canadensis	8		FAC
2. Arctagrostis latifolia	15		FACW
3. Angelica lucida	17		FACU
4. Alnus crispus (also viridis)	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Plot size (radius, or length x width) ______ % Bare Ground ______
% Cover of Wetland Bryophytes ______ Total Cover of Bryophytes ______
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	15	x 2 =	30
FAC species	13	x 3 =	39
FACU species	17	x 4 =	68
UPL species		x 5 =	
Column Totals:	45	(A)	137 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ______

Remarks:

SOIL

Sampling Point: SW06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4] Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ___ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016

Applicant/Owner: DOT&PF Sampling Point: SW07

Investigator(s): Mark Boydston / Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): floodplain

Local relief (concave, convex, none): ________ Slope (%): ________

Subregion: ________ Lat: 60.12797 Long: -149.41823 Datum: WGS 1984

Soil Map Unit Name: ________ NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes ______ No ✓

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ______ No ✓

Hydric Soil Present? Yes ✓ No ______

Wetland Hydrology Present? Yes ✓ No ______

Is the Sampled Area within a Wetland? Yes ______ No ✓

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Pices sitchensis	70		FACU
2.			
3.			
4.			

Total Cover: ________

50% of total cover: ________ 20% of total cover: ________

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			

Total Cover: ________

50% of total cover: ________ 20% of total cover: ________

Herb Stratum			
1. Alnus viridis (aka crispus)	10		FAC
2. Angelica lucida	10		FACU
3. Equisetum arvense	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Total Cover: ________

50% of total cover: ________ 20% of total cover: ________

Plot size (radius, or length x width) ________ % Bare Ground ________

% Cover of Wetland Bryophytes ________ Total Cover of Bryophytes ________
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ________ (A)

Total Number of Dominant Species Across All Strata: ________ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ________ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species	80	x 4 =	320
UPL species		x 5 =	
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ✓

Remarks:

SOIL

Sampling Point: SW07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

2004 soil data notes marginal only 4 inches meets low chroma indicator

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent heavy flooding previous week overtopping main runway with 1 foot water

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016

Applicant/Owner: DOT&PF Sampling Point: SW08

Investigator(s): Mark Boydston / Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): floodplain

Local relief (concave, convex, none): ______ Slope (%): ______

Subregion: ______ Lat: 60.13316 Long: -149.42447 Datum: WGS 1984

Soil Map Unit Name: ______ NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soil Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	7		FAC
2.			
3.			
4.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. Alnus viridis (aka crispus)	65		FAC
2. Sambucus racemosa	35		FACU
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Deschampsia caespitosa	20		FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Plot size (radius, or length x width) ______ % Bare Ground ______

% Cover of Wetland Bryophytes ______ Total Cover of Bryophytes ______
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	72	x 3 =	216
FACU species	35	x 4 =	140
UPL species		x 5 =	
Column Totals:	107 (A)		356 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: SW08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Unconsolidated sand - no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): ________
Water Table Present? Yes _____ No ✓ Depth (inches): ________
Saturation Present? Yes ✓ No _____ Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation from recent heavy rain

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016

Applicant/Owner: DOT&PF Sampling Point: SW09

Investigator(s): Mark Boydston / Drew Vonlindern Landform (hillside, terrace, hummocks, etc.): floodplain

Local relief (concave, convex, none): ______ Slope (%): ______

Subregion: ______ Lat: 60.13305 Long: -149.42084 Datum: WGS 1984

Soil Map Unit Name: ______ NWI classification: PEM1/SS1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Yes Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ______

Hydric Soil Present? Yes ✓ No ______

Wetland Hydrology Present? Yes ✓ No ______

Is the Sampled Area within a Wetland? Yes ✓ **No** ______

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus viridis (aka crispus)	25		FAC
2. Salix pulchra	10		FACW
3. Salix alaxensis	10		FACW
4. Equisetum pratense	8		FACW
5.			
6.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia caespitosa	20		FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Plot size (radius, or length x width) ______ % Bare Ground ______

% Cover of Wetland Bryophytes ______ Total Cover of Bryophytes ______
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	28	x 2 =	56
FAC species	25	x 3 =	75
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	53 (A)		131 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ **No** ______

Remarks:

DOT&PF airport maintenance regularly clears this area for the Runway Safety Area and has planted native revegetation grasses

SOIL

Sampling Point: SW09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- _✓_ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? **Yes** _✓_ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _✓_ Depth (inches): ______

Water Table Present? Yes _✓_ No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes _✓_ No ___ Depth (inches): surface

Wetland Hydrology Present? **Yes** _✓_ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Seward Airport Borough/City: Kenai Peninsula Sampling Date: 9/30/2016
Applicant/Owner: DOT&PF Sampling Point: SW10
Investigator(s): Mark Boydston / Drew Vonlinder Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): ______ Slope (%): ______
Subregion: ______ Lat: 60.13548 Long: -149.42242 Datum: WGS 1984
Soil Map Unit Name: ______ NWI classification: PEM1/SS1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)
Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are “Normal Circumstances” present? Yes ______ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ______
Hydric Soil Present? Yes ✓ No ______
Wetland Hydrology Present? Yes ✓ No ______

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ______

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______

Herb Stratum			
1. Poa alpina	25		FAC
2. Geum macrophyllum	10		FAC
3.			
4. Achillea millefolium	15		FACU
5. Salix planifolia subsp pluchra	15		FACW
6.			
7.			
8.			
9.			
10.			
Total Cover:			

50% of total cover: ______ 20% of total cover: ______
Plot size (radius, or length x width) ______ % Bare Ground ______
% Cover of Wetland Bryophytes ______ (Where applicable) Total Cover of Bryophytes ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	15	x 2 =	30
FAC species	35	x 3 =	105
FACU species	15	x 4 =	60
UPL species		x 5 =	
Column Totals:	65 (A)		195 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ______

Remarks: Runway safety area cleared. Obvious areas of PSS1B remain. Weedy invasives dominate -

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
✓ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___________________________
Depth (inches): ___________________________

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): ___________
Water Table Present? Yes _____ No ✓ Depth (inches): ___________
Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): ___________

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shovel test

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