ENVIRONMENTAL ASSESSMENT

Right-of-Way Authorization to Upgrade Eroding Fort Rousseau Causeway

Causeway Segment between Sasedni and Kurshkin Islands. Photograph Taken by Deborah Lyons.

Prepared For:

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List of Acronyms

ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
AFO	Anchorage Field Office
AHRS	Alaska Heritage Resource Survey
AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
CBS	City and Borough of Sitka
EA	Environmental Assessment
EO	Executive Order
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
FRCSHP	Fort Rousseau Causeway State Historical Park
mm	millimeter
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
PRPA	Paleontological Resources Preservation Act
RMP	Resource Management Plan
SHPO	State Historic Preservation Office
SPCC Plan	Spill Prevention, Control, and Countermeasures Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code

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1.0 Introduction

Title:	Right-of-Way Authorization to Upgrade Eroding Fort Rousseau Causeway	
NEPA Document #:	DOI-BLM-AK-A020-2012-0026-EA	
Type of Action:	Right-of-Way Authorization	
Proposed Location:	Lot 84A, 75A, 78A, 80A, United States Survey 3926, Secs. , 3 T. 56S., R. 63 E. Copper Meridian	
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BLM Case File:	AA-093208	
Applicant:	Sitka Trail Works, Inc 801 Halibut Point Road Sitka, Alaska 99835	
Date Prepared:	October 1, 2012	

1.1 Summary of Proposed Project

Sitka Trail Works, Inc. has applied to the Bureau of Land Management (BLM) for a Right-of-Way authorization to restore four eroded segments connecting the central hub of the Fort Rousseau Causeway State Historical Park (FRCSHP) by repositioning existing rip rap boulders to their original position within the Causeway foundation footprint and resurfacing the road bed with imported rock and gravel.

The Proposed Action evaluated in this Environmental Assessment (EA) encompasses a total of approximately 2 acres.

1.2 Project Area Description and Land Status

The topography in the Sitka area is characterized by historic volcanic activity, with several major volcanoes dominating the landscape. The tallest of these volcanoes is Mount Edgecumbe at 3,200 feet in elevation. The coastline and surrounding islands are rocky and rugged. Sitka Sound contains many small islands including those that comprise the Causeway, which were formed as a result of the area's volcanic activity. Most of the areas on the islands are fairly level, with elevations ranging from 10 to 20 feet above sea level, except on Makhnati and Kirushkin where knobs of bedrock rise 40 feet or more.

Bedrock in the Sitka area is composed of Early Cretaceous and Late Jurassic greywacke, slate, conglomerate, and limestone. The layer of soil over the bedrock is thin and comprised mostly of decaying organics from understory vegetation. Soils in some areas of Sitka contain tephra, an ash layer deposited by past volcanic eruptions, and this layer also may be found in some soils on the

islands. The depth to groundwater is not known. No wells were identified on the island during the site visit. Groundwater, if present, would be shallow and perched on bedrock deposits or found in bedrock fractures and subject to intrusion from saltwater.

The Causeway itself is surrounded by the waters of Whiting Harbor and Eastern and Middle Channels.

The FRCSHP is located in Southeast Alaska within Sitka Sound, west of the community of Sitka, Alaska (**Figure 1-1**). The primary, defining feature of FRCSHP is the man-made causeway, which consists of a system of breakwater structures built by the military during World War II as part of U.S. coastal defense sites. The Causeway connects eight islands: Nevski, Reshimosti, Virublennoi, Gold, Sasedni, Kirushkin, Mogilnoi, and Makhnati. The five islands that would be joined by the repair project have some of the most significant World War II military features. They are Gold, Virublennoi, Sasedni, Mogilnoi, and Kirushkin islands.

Construction of the Causeway was a tremendous undertaking. The project spanned 8,100 feet in length and required fill to depths ranging from 12 feet to as much as 60 feet in some areas. The Causeway was completed in 1943 having been constructed from rock blasted from many of the islands west of Sitka that make up Whiting Harbor. Over time, areas of the Causeway have eroded due to high tides and severe storm events. The Causeway has been breached between Mogilnoi, Makhnati, Kirushkin, and Mogilnoi islands.

Ownership of the land and water within and adjacent to the Causeway is complex. The Sitka Naval Base, including Forts Ray and Rousseau were decommissioned in 1944 and the property was transferred to the BLM. The islands off shore of Sitka were selected and conveyed to the State of Alaska under the Alaska Statehood Act. The surface and surrounding submerged lands, filled tidelands, including the causeways themselves, and intertidal areas remain under the jurisdiction of the BLM. In order to distinguish between the project area where the Proposed Action would occur and the FRCSHP, the project area is referred to as the Causeway in this document. The Sitka Naval Operating Base and U.S. Army Coastal Defenses, including Fort Rousseau, was designated a National Historic Landmark on August 11, 1986.

The FRCSHP was established on April 2, 2008, when House Bill 176 was signed into law. The creation of the park is a testament to the park's importance to the local community of Sitka and its desire to preserve its historic structures and re-establish public access to the area. When the FRCSHP was established, the control, maintenance, and development of the state-owned or acquired lands and water within the park's legislatively designated boundary were assigned to the Alaska Department of Natural Resources (ADNR), Division of Parks and Outdoor Recreation. ADNR has applied to the BLM for conveyance of the filled tidelands within the park boundary under a recreation and public purposes transfer and is awaiting their decision.

1.3 Background

The FRCSHP provides a unique opportunity to interpret the story of World War II in Sitka and Fort Rousseau's relationship to other World War II sites in Alaska. The FRCSHP, in particular the Causeway segments that connect the eight islands, is an important recreational asset for Alaskans and visitors, where exploration and discovery are integral to the experience. FRCSHP has a storied history that began in September of 1939 when efforts to prepare the Alaskan coast for war began in earnest with military construction commencing in the Sitka, Alaska area (ADNR 2010). The Sitka Naval Air Station, located on Japonski Island and other small surrounding islands, was the first such installation in Alaska to become operational. The Sitka Naval Air Station became the Sitka Operating Base on July 20, 1942 (ADNR 2010).

Figure 1-1 Vicinity Map

The Army subsequently connected Japonski Island to Makhnati Island by means of the Causeway via eight other small islands to provide access to the naval installations in the event of an enemy attack during World War II (ADNR 2010). Extreme high tides and violent winter storms over the past 68 years have eroded several areas along the Causeway roadbed with some segments having been eroded to less than 24 inches in width. As a result, the Causeway is in need of repairs to restore it to its original condition (Sitka Trail Works, Inc. Right-of-Way Authorization Request 2012). Safety concerns related to the current condition of the Causeway have been raised by the community. Only very fit, able-bodied people can traverse the Causeway in its current, deteriorated condition. The FRCSHP is only accessible by boat.

1.4 Purpose and Need

The BLM action would consist of issuing a Right-of-Way authorization to Sitka Trail Works, Inc. for repair and maintenance of the Causeway during the term of the authorization. The need for action is established by the BLM's responsibility under the Federal Land Policy and Management Act (FLPMA) of 1976 to respond to requests for rights-of-way. The purpose of the BLM's action is to provide public access to the FRCSHP and preserve the Causeway for future generations. It is the BLM's objective to grant rights-of-way in a manner that protects natural resources, does not cause unnecessary or undue degradation to the public lands, and promotes rights-of-way in common, if applicable (43 Code of Federal Regulations § 2801.2).

Decision to be Made

The BLM will decide whether to grant a Right-of-Way authorization to Sitka Trail Works, Inc. for Causeway restoration and repairs and, if granted, what terms and conditions would apply.

1.5 Land Use Plan Conformance

The requested Right-of-Way is located within the Southeast Region of the Ring of Fire Resource Management Plan (RMP), which was approved by BLM in March of 2008. The RMP addresses various lands and realty actions in Section I. Section I-2n addresses rights-of-way. The issuance of the proposed Right-of-Way is not inconsistent with the RMP if stipulations developed during a proposal's evaluation include the following:

- Restoration, re-vegetation, and curtailment of erosion along the Right-of-Way route.
- Compliance with air and water quality standards.
- Control or prevention of damage to the environment, public and private property, and hazards to public health and safety.
- Protection of subsistence resources and the user's access to those resources.
- Protection of the natural resources associated with public lands.
- Utilization of rights-of-way in common with respect to engineering and technological compatibility will be promoted.
- Coordination with the state and local governments, Tribal entities and interested groups and individuals takes place to the fullest extent possible.

1.6 Other Applicable Laws, Regulations, and Policies

The Proposed Action conforms to all federal, state, and locally applicable laws, regulations, and policies. It also conforms to the management plan and restoration plan written by ADNR for the Causeway. The Proposed Action conforms and is tiered to the following laws, regulations, policies, decisions, and state management plans:

- U.S. Clean Water Act (33 United States Code [USC] 1251 et seq.), Sections 401 and 404
  - U.S. Army Corps of Engineers (USACE) Permit Number POA-2011-1175 issued to Sitka Trail Works, Inc. to authorize work within BLM lands.
  - Nationwide Permit 3 – Maintenance
  - Nationwide Permit General Condition 20 – Mitigation
- FLPMA (Public Law 94-579) of 1976
- National Historic Preservation Act (NHPA) (42 USC 470 et seq. of 1966, as amended)
- National Environmental Policy Act (NEPA) (42 USC 4321 et seq.)
- The Historic Sites Act (16 USC 461)
- Alaska Historic Preservation Act (AS 41.35)
- Archaeological Resources Protection Act (ARPA) (16 USC 470aa-470mm)
- Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 et seq.) of 1996
- American Indian Religious Freedom Act (AIRFA) (42 USC 1996)
- Antiquities Act (16 USC 431-433) of 1906
- Paleontological Resources Preservation Act (PRPA) (Public Law 111-011, Subtitle D, Sec 6301-6311)
- Endangered Species Act of 1973 (7 USC 1361, 16 USC 1531, as amended
- Alaska National Interest Lands Conservation Act of 1980, as amended
- Conservation and Resource Recovery Act as amended by Federal Facility Compliance Act of 1992 (42 USC 6901-6992)
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 USC 9601-9673)
- The Pollution Prevention Act of 1990 (42 USC 13101-13109)
- Executive Order (EO) 11990: Protection of Wetlands
- EO 12898: Environmental Justice
- Alaska Administrative Code Title 19 Chapter 75, Oil and Other Hazardous Pollution Control Regulations – Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances
- FRCSHP Management Plan, May 2012
- FRCSHP Preservation Plan, 2010
- Sitka Trail Plan, 2003 (Sitka Trail Works, Inc. 2003)
- BLM Alaska Invasive Species Management Policy, 2010
- U.S. BLM NEPA Handbook, 2008

1.7 Summary of Public Involvement and Scoping Activities

The Proposed Action was announced on the BLM Anchorage Field Office (AFO) NEPA Register website in January 2013 (http://www.blm.gov/ak/st/en/info/nepa/afo_nepa/afo_nepa_fy2012.html).

A copy of the letter addressed to Sitka Tribe of Alaska from U.S. BLM is included in this EA as **Appendix A**.

The BLM will make the EA available for public review and comment prior to signing a Decision Record on the action

1.8 Issues Identified for Further Analysis

Issues identified by the Interdisciplinary Team as potentially affecting resources were analyzed further. Each member of the Interdisciplinary Team, which included staff from the BLM, Sitka Trail Works, Inc., and AECOM provided input related to their resource area in order to develop the set of issues for which further analysis was recommended. These issues are summarized below:

Recreation

- Would issuance of Right-of-Way authorization change or contribute to a different recreational use pattern in the area?

Visual Resources

- Would the causeway repairs completed as a result of the BLM issuing Right-of-Way authorization contrast with or detract from the visual aesthetics of the surrounding area?

Cultural and Tribal Resources

- Would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect properties listed on, or eligible for listing on, the National Register of Historic Places (historic properties), or paleontological sites?
- Would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect resources of religious or cultural significance to Native Alaskan tribes?

Subsistence Use

- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect Pacific herring (*Clupea pallasii*) subsistence activities?
- Would issuance of the Right-of-Way authorization to allow for causeway repair work interfere or interrupt local subsistence activities during construction activities?

Hazardous Materials

- Would issuance of the Right-of-Way authorization allowing for repositioning of causeway materials cause existing hazardous materials in the area to be released or disturbed?
- Would issuance of the Right-of-Way authorization increase the risk of hazardous materials being released into the environment?

Vegetation Resources

- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect the distribution and abundance of vegetation?

- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect the distribution and abundance of noxious or invasive terrestrial plant species?

Water and Wetland Resources

- Would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect water quality of the surrounding marine environment?
- Would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect wetlands in the immediate and surrounding area?
- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect the distribution and abundance of noxious or invasive marine species, specifically colonial sea squirt (*Didemnum vexillum*)?

Wildlife and Fisheries

- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect Pacific herring (*Clupea pallasii*) spawning and other fish species' life stages?
- How would construction activities occurring as a result of issuing a Right-of-Way authorization to perform causeway repairs affect terrestrial and marine wildlife species?

1.9 Issues Eliminated from Further Analysis

The following list of issues and concerns were identified through the same means as those described in Section 1.8, but have been eliminated from further analysis for reasons detailed below:

Air Quality – Effects to the ambient air quality within the project area due to the Proposed Action would be minimal. Exhaust emissions and the generation of fugitive dust emissions from operating fuel-burning construction equipment would be temporary. Construction equipment would remain on site for less than 18 weeks annually for a period of 2 years (May 16 to September 30).

Public Health – Aside from providing safer access to the Causeway, the Proposed Action would have minimal effects to public health. The Proposed Action would not introduce any new public health hazards to the surrounding community.

Lands with Wilderness Characteristic – The proposed project area does not meet the size criterion (at least 5,000 acres) nor the Roadless definition required to conduct a Wilderness Characteristic Inventory (BLM 2011).

Wild and Scenic Rivers – There are no rivers designated or regulated under the National Wild and Scenic Rivers Act (1968) present within the project area.

Flood Plains/Riparian Zones – There are no flood plains or riparian zones within the project area; therefore, these resources would be minimally impacted by the Proposed Action. The Proposed Action is located within a marine area.

Threatened and Endangered Species – There are no known special status plants or threatened or endangered animal species in the project area; therefore, the Proposed Action would have no effect upon any threatened or endangered plant or animal species.

Environmental Justice – There are no known Environmental Justice concerns that would be affected by the Proposed Action. Environmental Justice protections are provided by EO 12898.

2.0 Proposed Action and Alternatives

2.1 Alternative 1 - No Action Alternative

Under the No Action Alternative, the BLM would deny the requested Right-of-Way authorization. Without a Right-of-Way authorization, Sitka Trail Works, Inc. would be unable to complete the restoration efforts at the Causeway. The Causeway would continue to deteriorate and limit access to the park.

2.2 Alternative 2 - Proposed Action

The Proposed Action is to grant Sitka Trail Works, Inc. a Right-of-Way authorization for two to five years to rehabilitate four eroded segments of the Causeway by repositioning existing rip rap boulders to their original position within the causeway foundation footprint and to resurface the roadbed with imported rock and gravel (**Figure 2-1**). Restoration and repairs would be completed seasonally by Sitka Trail Works, Inc. over a period of 2 years between May 16 and September 30 beginning in 2013. Sitka Trail Works, Inc. would use a front end loader, mini excavator, Caterpillar 950 loader, a Morooka MST 350 3 yard tracked gravel carrier/ dumper, saws, and a skiff. This construction equipment would be mobilized to the Causeway via landing craft at one of the three specified landing areas, where equipment would be unloaded and staged after May 15. The landing craft and rock barge would leave the landing area once all of the equipment and materials have been deployed and would not return until the end of the project prior to September 30. A total of 1,408 linear feet of Causeway would be rehabilitated as part of the Proposed Action. Figure 2-2 depicts a cross-section of the repair work being proposed for the four Causeway segments.

The rip rap and locally sourced shot rock would be placed as needed within the Causeway foundation footprint. Layered construction methods and equipment sanitization procedures are requirements listed in the USACE Section 404 permit issued to Sitka Trail Works, Inc. These procedures will be implemented in order to prevent the spread of the invasive species of colonial sea squirt, (*Didemnum vexillum*). This invasive species has infested southeast corner of Whiting Harbor and has been detected along Lots 86A, 85A and 84A of the Causeway (pers. comm. Figure 3-2 Tammy Davis, ADF&G). In order to minimize construction activities adjacent to the areas of known contamination the Causeway lots located east of Virublennoi Island are proposed for repair under the proposed action. Vessels associated with construction activities will observe a proposed closed area of Whiting Harbor and will not transit southeast of a line from the tip of Gold Island running west to the northernmost tip of Japonski Island, as depicted in Figure 3-2. The layered construction would consist of 6 inches of layered rock, followed by a layer of geo-textile fabric. An additional layer of 6-inch rock would be discharged on to the geo-textile fabric, followed by a layer of rip rap. The Causeway roadbed will be repaired with up to 60 cubic yards of 6-inch shot rock fill, topped with up to 70 cubic yards of compacted imported gravel. A total of 1,408 lineal feet of the Causeway would be repaired. The roadbed would be restored to an 8-foot width with 1- to 2-foot shoulders. **Figure 2-2** provides a typical cross section of the Causeway.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were considered but eliminated from further analysis. The rationale for elimination is provided below.

Grant a Right-of-Way authorization that would allow access to repair sites through ground transportation only – This alternative was considered, but not analyzed further because granting a Right-of-Way with the additional stipulation that it be accessed only via ground transportation is not feasible since there is no ground transportation currently available to the Causeway segments for which a right-of-way authorization is being sought. Limiting access would impact the proponent's ability to complete the project as proposed. This option would not allow all the equipment necessary for Causeway repairs to be mobilized. Access would need to be granted by the Alaska Department of Transportation and Public Facilities (ADOT&PF) Rocky Gutierrez Airport on Japonski Island and even then, access between the repair sites and the airport is very limited.

Grant a Right-of-Way authorization to complete only a portion of proposed Causeway repairs – Granting a Right-of-Way authorization for only a portion of the proposed Right-of-Way repairs would cause those segments not authorized for restoration access to continue to erode and would not eliminate the safety concerns associated with unrepaired segments.

Grant a Right-of-Way authorization to allow landing craft to be used to transfer heavy equipment to the repair sites, but restrict the landing craft from landing. Equipment would be offloaded from boom only – This alternative was considered, but was not analyzed in detail because it has the potential to cause unnecessary risk to the environment. The landing craft are equipped with decks that can be lowered onto the Causeway for unloading the equipment. No special docks or temporary structures are required to accommodate the decks. Allowing the landing craft to swing loads across the nearshore increases the likelihood that equipment or supplies could become unsecured and fall into the water. By connecting directly to the Causeway, this risk is minimized. Please consider eliminating this alternative. It does not make sense because all loading and unloading of equipment and materials will take place on lands owned by the State and will not occur on any lands owned by BLM.

Summary Comparison Impacts by Alternative

Table 2-1 provides a summary comparison of the impacts associated with the No Action and Proposed Action alternatives. These impacts are summarized by resource area. Detailed discussions of these impacts can be found in Chapter 3.0.

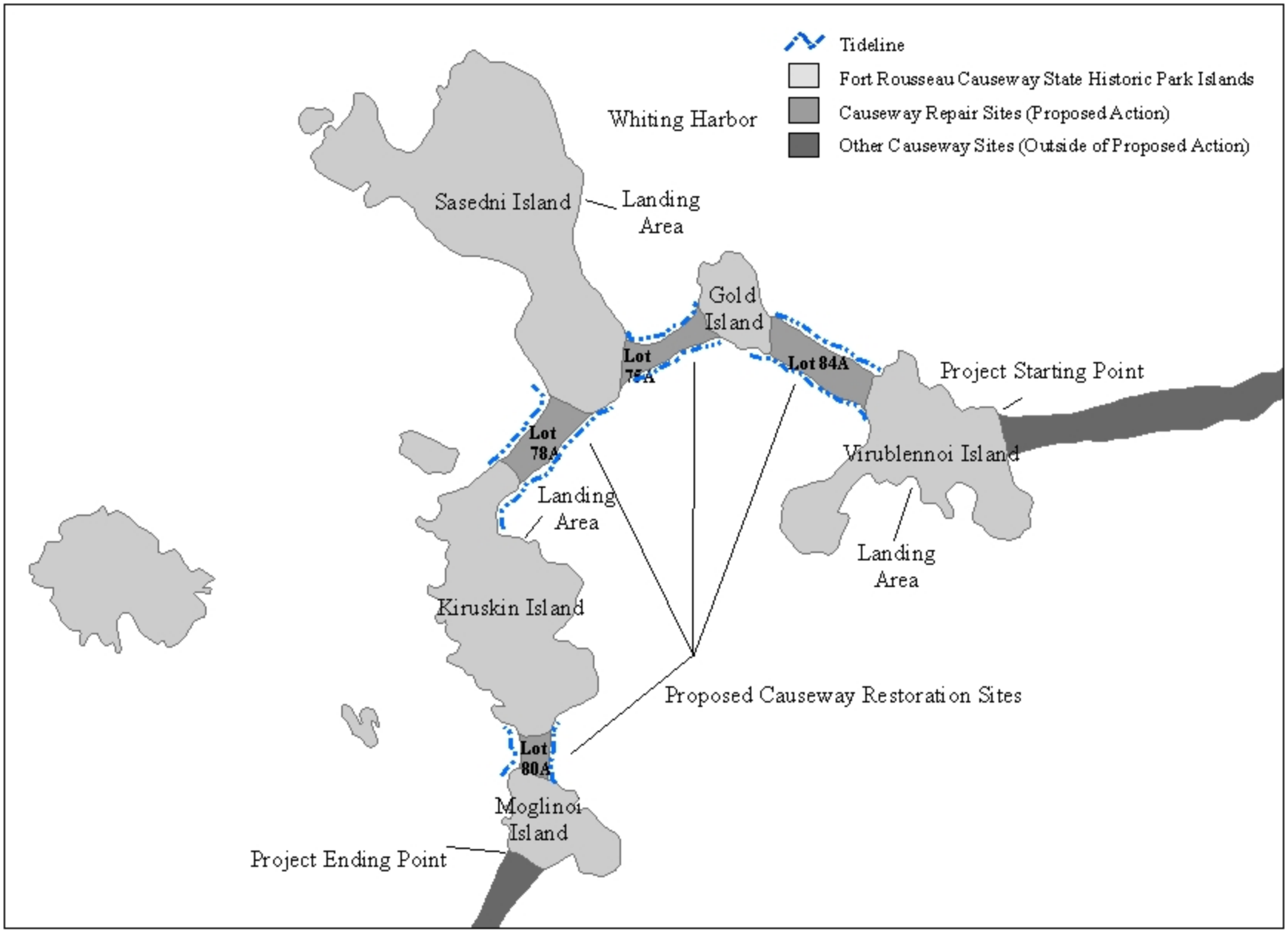

Figure 2-1 Proposed Action Depicting Causeway Repair Sites Within BLM Right-of-Way and Landing Area

Figure 2-2 Cross-section View of Causeway Repairs Proposed for the Causeway Segments. Geotextile Layer Depicted on the Right Side of Cross-section would be Added on North Side Where Colonial Sea Squirt is Present.

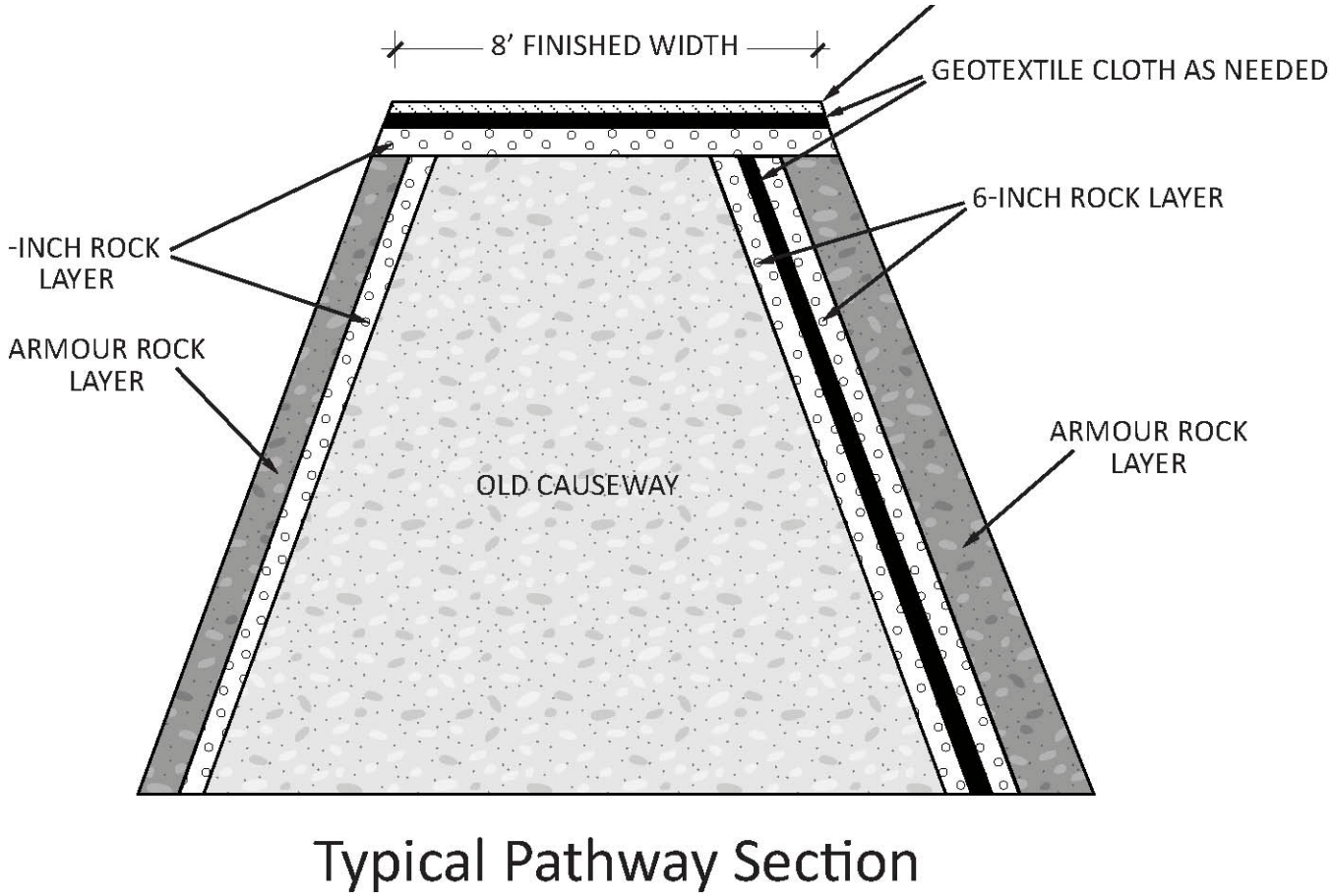

Table 2-1 Impacts Comparison By Alternative

Resource	No Action Alternative	Proposed Action
Land/Recreation	Access to the Causeway and associated islands would continue to be limited to boat access only.	1,408 linear feet of the Causeway would be restored, creating pedestrian access along these four repair segments. Visitors would still need to access the Causeway by watercraft.
Visual Resources	Historic aesthetic would continue to degrade visually as the Causeways disintegrate, creating less visual appeal to potential visitors and residents.	Historic aesthetic of the Causeway segments would be restored, improving visual resources.
Cultural Resources	Access to historic and cultural resources on the Causeway and associated islands would be limited to boat access only.	1,408 linear feet of foot traffic access would be restored along the Causeway, allowing improved access to cultural resources.
Subsistence	Subsistence activities would not be interrupted during the short term. Over time, as the Causeway erodes, use of the Causeway as a platform from which to harvest mollusks, seals, and otters would decrease, reducing favorable access points to subsistence resources.	Seal and mollusk harvest activities would be affected for 45 days from May 16 to September 30. Repair of the Causeway would provide continued favorable access points for subsistence users to hunt seals (*Phoca vitulina*), sea otters (*Enhydra lutris kenyoni*), Gumboot chitin (*Cryptochiton stelleri*), and pinto abalone (*Haliotis kamtschatkana*) (mollusks species harvested locally). The Proposed Action will not occur until after the Pacific Herring (*Clupea pallasii*) spawning season has ended. This season occurs between March 15th and May 15th. By incorporating this limit on the Proposed Action, the potential negative affects to the fish species will be avoided.
Hazardous Waste/ Contamination	Historic contamination would not be disturbed in the short term; however, over time as the Causeway erodes, continued erosion could expose contamination.	Potential exposure and release of contamination from ground disturbance of existing contaminated sites or could be caused by the release of fuel from accidental spills during restoration activities. Spills would be limited to volume of fuel in onboard fuel tanks of equipment (less than 250 gallons total) and the several 5 gallon refueling jugs that would

Table 2-1 Impacts Comparison By Alternative

Resource	No Action Alternative	Proposed Action
		remain at the staging areas, which are located on State of Alaska Department of Natural Resources property.
Vegetation	Area of overgrown vegetation would increase in size beyond 1 acre. Roots from vegetation would continue to break up Causeway substrate and contributing to further erosion.	Permanent removal of less than 1 acre of alder and elderberry brush would restore accessibility to the Causeway Lots.
Water /Wetlands	Under the No Action alternative the waters of Sitka Sound would retain current water quality over the near and long term.	Impacts to the waters of Sitka Sound are addressed by the tidelands discharge permit issued by the ACOE. A minimal amount of gravel fines will be washed into the waters of Sitka Sound during and after construction activities and will not measurably increase turbidity or decrease marine water quality.
Wildlife and Fisheries	In the short term the invasive colonial squirt would likely remain contained in Whiting Harbor on the north side of the Causeway. Long-term neglect of the Causeway maintenance could allow major breeches of the Causeway Lots to occur. The breeches would allow for an exchange of seawater between the north and south sides of the Causeway and could result in allowing D. Vex to colonize the south side of the Causeway and other parts of Sitka Sound.	Less than 1 acre of alder/elderberry brush would be permanently removed. Removal of this vegetation could affect passerine birds, which may utilize this habitat for cover and nesting. The Proposed Action would limit Right-of-Way development plans to the Causeway after the Pacific Herring (*Clupea pallasii*) spawning season has ended. This season occurs between March 15th and May 15th. By incorporating this limit on the Proposed Action, the potential negative affects to the fish species will be avoided. The Proposed Action would require the proponent to incorporate preventative actions to avoid the spread of invasive species, including; the colonial sea squirt (*Didemnum vexillum*), which has been detected in the southeast corner of Whiting Harbor.

3.0 Affected Environment and Environmental Effects

Chapter 3.0 describes the affected environment in which the Right-of-Way authorization is being requested. The anticipated environmental effects associated with each alternative, including the No Action Alternative are described in Chapter 3.0 as well. The chapter has been organized by resource.

Three types of effects are presented: direct, indirect, and cumulative. Direct impacts are those that are caused by the action and occur at the same time and place. Indirect impacts are those that are caused by the action, but occur later in time or are further removed in distance, but are still reasonably foreseeable. Cumulative effects result from the incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions. A discussion of the mitigation measures proposed to address adverse effects identified for a particular alternative also is included by resource.

3.1 Recreation

3.1.1 Affected Environment

Sitka is located on the outside of Baranof Island, along the outer coast of Alaska's Inside Passage. The majority of citizens participate in some form of outdoor recreation within the coastal area in the many sheltered bays, inlets, and other areas. Hiking, kayaking, boating, fishing, clam digging, and hunting are among the many outdoor recreational activities in which residents and visitors engage.

The Fort Rousseau Causeway State Historical Park (FRCSHP), which has as its primary feature the 8,100-foot rock Causeway linking eight islands, is an important historical site of cultural and scenic value to the State of Alaska and the U.S. All uplands, shorelands, and tideline areas that composed the original Fort Rousseau Military Reservation are within the park boundaries, except for Lot 86A on Japonski Island controlled by the Sitka Airport, and the submerged BLM lands occurring beyond the mean high tide level in the surrounding waters of Sitka Sound and Whiting Harbor. BLM uplands within the park boundaries, consist of the Causeway Lots 75A, 78A, 80A, 81A, 82A, 84A, 85A, 86A and were formed by placing fill over submerged lands. The island uplands within the park boundary are owned and managed by the State of Alaska. The causeway itself, and the intertidal area are under federal ownership by the BLM, and the entire park itself is within the airport property boundary (ADNR 2011). Residents and tourists are able to take their boats or kayaks to the islands and Causeway for a day trip or overnight camping trip. The rocky shoreline provides many interesting places for kayakers to paddle, explore the intertidal zone, and disembark to explore the Causeway and islands. Many visitors enjoy photography and wildlife viewing. During the summer, park visitors also harvest salmonberries (*Rubis spectabilis*), as well as a variety of different plants, including Goose Tongue (*Plantago juncoides*), Devil's Club (*Oplopanax horridus*), and Beach Asparagus (*Salicornia virginica)*.

All of the original concrete structures built by the military are located on the islands within the Park that belong to the State of Alaska DNR Division of Parks and Outdoor Recreation. The structures are still in fair to good condition. They include a tri-level command post, anti-aircraft gun batteries, three ammo magazines, and two bunkers. Pedestrian and vehicle access to the Causeway was all but eliminated when the Sitka Rocky Gutierrez Airport was constructed in the late 1960s. Today all access to the Park occurs by boat. Vehicle and pedestrian access to the Causeway made by crossing the airport runway has been restricted by ADOT&PF. For the past 30 years, prior to designation as a State Park in 2008, the islands and causeway lots had been passively managed as part of the airport property. During these years vandalism, trash

accumulation, tidal erosion, and the encroachment of thick brush occurred on both the Causeway Lots and the islands. Narrow brushy walking trails provide some access to some historic features within the FRCSHP. Due to its deteriorated condition, the Causeway itself currently provides very limited travel between the islands that comprise the FRCSHP for visitors arriving by boat to the park. Currently, only the very-fit and able-bodied can meet the physical challenge of scaling the eroded Causeway's entire length and this must be done at low tide to avoid the flooded and breached sections.

Interpretation related to the Causeway is limited due to accessibility of the park's recreational opportunities. Current recreational opportunities include both personal and non-personal interpretation about the park. Personal interpretation occurs when one person is interpreting to another, such as during a guided tour. Non-personal interpretation occurs when the person interpreting is removed and replaced with another type of media, such as an interpretive display, audio tour, or self-guided brochure.

3.1.2 Effects from No Action Alternative

The No Action Alternative would not allow the proponent to complete needed repairs to the Causeway. Access to the Causeway by recreational users would continue to be impaired. Access could become even more limited in the future as the Causeway becomes more degraded Access to the FRCSHP by State Park maintenance personnel would continue be limited and would diminish over time, , which would affect their ability perform maintenance to the park. Currently, staff must access the park by boat. By limiting access to the Causeway to boat travel, park personnel would be less able to restore historic and archaeological resources at FRCSHP and would be less able to bring in equipment to install planned interpretive signs within the park.

3.1.3 Effects from Proposed Action Alternative

Recreational opportunities would improve as a result the Proposed Action Alternative; the Proposed Action Alternative would allow the applicant to implement the proposed repairs to the Causeway, which in turn would restore access to FRCHSP. Visitors would be able to safely traverse the core segments of the FRCHSP, potentially resulting in an increase in visitor use of the area. Park maintenance personnel also would be able to more effectively access park areas via the repaired Causeway in order to enhance visitor's experiences within the park, potentially increasing use of the park. Improvements to the overall quality of visitor experiences of the Causeway and surrounding areas would be a beneficial effect. An increase in visitors to the Causeway could potentially have detrimental effects to recreational use of the Causeway and surrounding areas as well. Vandalism, littering, and abuse of the recreational resources offered by the Causeway, if repaired, are some of the foreseeable detrimental effects that could occur as an indirect effect of the Proposed Action.

3.1.4 Mitigation

No further mitigation has been identified for recreational resources, given the narrow window in which the proponent's activities are expected to occur (May 16 to September 30) and because construction activities will not restrict access, they are not expected to conflict greatly with current levels of recreational use of the islands and associated Causeway.

3.2 Visual Resources

3.2.1 Affected Environment

The Causeway, which connects eight islands within Sitka Sound, is part of larger World War II site set within majestic natural surroundings. The Causeway islands were originally higher in elevation

and unconnected prior to development by the U.S. military. During construction of the Harbor Defenses, a majority of the islands were blasted to obtain rocks for constructing the Causeway. In particular, Mogilnoi Island was almost entirely leveled, serving exclusively as a source for fill rock.

Large outcroppings of bedrock remain on Makhnati, Virublennoi, and Kirushkin islands, and were incorporated into the construction of the Command Center and Ammunition Magazines. The purpose of constructing the Causeway was to connect the islands allowing the U.S. military to transport equipment and troops along the island chain. Many of these bunkers, structures, and anti-aircraft and cannon mounts remain on islands connected by the Causeway. These World War II features contribute to the visual aesthetic of the Causeway fostering a sense of history to the area. The topographic and geological features of the islands prior to development would have been similar to those found in and around Sitka, Alaska.

Today, much of the Causeway and islands connected by it have been overgrown by native vegetation such as alders (*Alnus* spp.), dense elderberry (*Sambucus racemosa*) brush, and salmonberry (*Rubus spectabilis*) brush, reducing the visual aesthetics of the historic Causeway and surrounding park areas.

3.2.2 Direct and Indirect Effects from No Action Alternative

The historical resources that contribute to the visual aesthetic and value of the Causeway and surrounding areas would continue to diminish under the No Action Alternative. As indicated in other sections, the Causeway itself would continue to erode; which, in turn decreases the visual aesthetic of the historic Causeway. Vegetation on the Causeway would increase and continue to grow decreasing the aesthetic of the historic Causeway as well.

3.2.3 Direct and Indirect Effects from Proposed Action Alternative

Fugitive dust and diesel-fuel emissions from construction activities could impair visibility in the area where the Proposed Action would take place by creating hazy conditions. The potential for these detrimental effects on the visual landscape are expected to be low to non-existent given the construction activities are expected to occur during spring and summer months when meteorological conditions are expected to disperse and dissipate dust and diesel emissions quickly. The presence of construction equipment would affect the visual quality of the Causeway landscape by reducing the historic quality of the landscape; however, these effects on visual resources would be seasonal and temporary lasting between 2 to 5 years. These activities would not have indirect negative effects that would persist into the future. Upon completion of the repair work, the four Causeway segments would be returned to their historic appearance enhancing visual resources in the area.

Implementation of a fugitive dust measures would minimize the temporary, detrimental effects associated with construction activities related to the repair work proposed for the Causeway that would occur if BLM grants the Right-of-Way authorization.

No further mitigation has been identified for visual resources.

3.3 Cultural Resources

3.3.1 Affected Environment

Cultural resources include prehistoric and historic sites, structures, archaeological and historic districts, material remains, artifacts, or any other physical evidence of human activity considered important to culture or community for scientific, traditional, religious, or heritage reasons. To

facilitate discussion cultural resources have been divided into archaeological resources (both prehistoric and historic), historic buildings and structures, Native populations/traditional resources (e.g., Native Alaskan sacred or ceremonial sites), and paleontological resources.

Several laws stipulate that potential effects to cultural resources be considered during the planning and execution of federal undertakings. These laws require a process of consultation and compliance, defining the responsibilities of the federal agency proposing the action, and to delineate the relationship among other involved entities (e.g., State Historic Preservation Officer [SHPO], Tribes and Native organizations, and other interested parties). In addition to NEPA, laws pertinent to the treatment of cultural and paleontological resources during environmental analysis include: the NHPA; the NAGPRA; ARPA; the PRPA; the Antiquities Act; the Alaska Historic Preservation Act and the AIRFA.

Prehistoric and Historic Archaeological Resources

The Tlingit people have inhabited the coastal area of the Alaskan panhandle for at least 3,000 years (ADNR 2011). While Tlingit archaeological sites are common in the region around Sitka, no prehistoric archaeological sites, physical remains, artifacts, or other physical evidence related to the Tlingit have been recorded on any of the Causeway islands, in the state park, or in the Causeway Right-of-Way. It is possible, however, that the Tlingit used some of the Causeway islands, particularly Sasedni Island, as burial grounds (ADNR 2011). According to accounts in the Sitka Tribe of Alaska Historic Preservation Plan (Theodoratus et al. 1995), human remains were uncovered during the construction of the Sitka Airport and Mount Edgecumbe Hospital, both of which are located on Japonski Island, which is connected to the Causeway. The Alaska Heritage Resource Survey (AHRS) lists one area (SIT-00731) on Sasedni Island where a local informant reported the location of gravesites of Tlingit who died of an unknown epidemic; however, the exact location on the island is unknown, and no associated physical remains have been located or documented. It is likely that World War II construction activities obliterated Tlingit archaeological and grave sites on the islands linked by the Causeway (Theodoratus et al. 1995).

Contact with Europeans is estimated to have occurred as early as 1741 with early Russian explorers (ADNR 2011). In 1799 Russian pioneers settled Old Sitka, and in 1808 Sitka was designated the capital of Russian America. In 1809, Russian navigator Ivan Vasiliev named Japonski, Nevski, Reshimosti, Virublennoi, Sasedni, Kirushkin, Mogilnoi, and Makhnati islands; Gold Island was named by U.S. naval officers in 1880 (ADNR 2011). Russians had strong influences on Sitka's culture even after the U.S. purchased Alaska from Russia in 1867 (ADNR 2011), reportedly continuing to use Japonski and Signal islands (Japonski Island is adjacent to FRCSHP, while Signal Island is within the park boundaries but not connected by the Causeway). The late 19th and early 20th century growth of Sitka was primarily related to fish canning and gold mining, with associated activities likely occurring on the Causeway Islands (ADOT&PF 2009). The Causeway itself and the islands it connects with their multiple historic sites in total constitute and AHRS-listed historic property (SIT-000732) that is a component of the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark (ADNR 2011; AHRS Database 2012)

Historic Buildings and Structures

Between 1941 and 1943, the U.S. military began its buildup in Sitka, Alaska, in preparation for World War II (ADNR 2011). This build up had the most dramatic effect on the islands, including connecting them to the mainland via Japonski Island. Construction of Fort Rousseau began in 1941 and was completed by the end of 1942 (ADNR 2011). Defense fortifications and support facilities, such as barracks and mess halls, changed the islands' landscape forever (ADNR 2011). The Fort consists of a series of 12 islands, 8 of which are connected by the approximate 8,100-foot-long

rock Causeway. It begins on Japonski Island and ends on Makhnati Island. An extensive array of coastal defenses and fortifications were built, including concrete ammunition (ammo) bunkers, concrete gun emplacements, fire control stations, lookout towers, utilities, Quonset huts, wood-framed structures, and the Causeway linking eight islands (ADNR 2011). The islands became a place of residence, where servicemen worked and participated in leisure-time activities. Makhnati Island was used by the Army as the Harbor Defense Command Post and by the Navy as the Harbor Entrance Control Post (ADNR 2011). Battery 292 on Makhnati Island was the only one completed before the fort was decommissioned in 1944, although the guns were not installed (ADNR 2011). Recent surveys and inventories located ammo bunkers, antiaircraft emplacements, collapsed timber structures, concrete foundation slabs, one standing timber structure, vehicles and parts, fire hydrants, two dumps, and miscellaneous scattered wood and metal debris (ADNR 2011). Fort Rousseau has been determined to be the harbor defense component and contributing element of the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark (ADNR 2011). All the historic buildings and structures described above are located on the islands connected by the Causeway, with none located in the proposed Causeway Right-of-Way. There are 11 historic sites registered in the AHRS database within 1 mile of the Proposed Action. These are listed be found in **Table 3-1**.

After Fort Rousseau was decommissioned in 1944, the islands remained largely abandoned. Post-World War II cultural influences have been minimal. The area has principally been used as a recreational area (ADNR 2011). Negative effects to the project vicinity have included vandalism to concrete buildings and garbage dumping.

Native Populations/Traditional Resources/Native American Religious Concerns

Members of the Sitka Tribe of Alaska consider the Causeway islands an important cultural and traditional use area. Native Alaskan families inhabited and used the island chain that now comprises the FRCSHP before the U.S. military commandeered some of the islands from Native inhabitants. They were important locations for gathering subsistence resources, and were reportedly used as burial grounds. Unfortunately, it is likely that construction on the islands during World War II destroyed any physical evidence of use of the islands as burial grounds by Tlingit peoples, or for any other traditional cultural activities (Theodoratus et al. 1995). The Army and Navy did not allow non-military personnel access to the Causeway and islands for security reasons.

Table 3-1 Alaska Heritage Resource Sites Within 1 mile of Proposed Action

AHRS Site		
Number	**Name**	**Description**
SIT-00804	Battery Emplacement No. 292	Gun emplacement bunker (Mahknati Island)
SIT-00805	Harbor Command Post	Single bunker on Mahknati Island that served as harbor/harbor entrance command post
SIT-00806	Ammunition bunkers	Two ammunition bunkers near the causeway entrance on Makhnati Island
SIT-00807	Residential quarters	Kirushkin Island--foundations of World War II barracks, mess hall and recreational area, fire hydrants, electrical poles, and standing remains of radio building
SIT-00808	Ammunition bunker on	Three ammunition bunkers near causeway on Virublennoi Island

Table 3-1 Alaska Heritage Resource Sites Within 1 mile of Proposed Action

AHRS Site		
SIT-00809	Residential quarters	Foundations and debris of barracks and gun platform on Sasedni Island
SIT-00810	Motor pool	Remains of motor pool on Sasedni Island
SIT-00811	AA gun emplacements	Four 3-inch gun emplacements located near causeway on Sasedni Island
SIT000922	Fuse House and Bunker	Intact World War II structure on Gold Island. Fort Rousseau's only remaining intact wood structure
SIT-00732	Fort Rousseau	All historic sites associated with Fort Rousseau
SIT-00731	Reported location of Tlingit gravesites	Location information related to Tlingit gravesites withheld

This negatively affected the Native community's traditional activities on the islands and throughout the Sitka area by restricting access to traditional use areas and changing the infrastructure of Sitka and the surrounding area. Literature suggests that no Traditional Cultural Properties have been identified on the islands, in the Causeway Right-of-Way or adjacent areas, and there is no physical or archaeological evidence documented on the Causeway Islands related to the traditional use of the area by Native Alaskans; however, the Sitka Tribe of Alaska would like to emphasize that evidence of habitation and traditional use of the islands was destroyed when the military built the fort (Feldpausch 2012). As such, the Causeway and associated islands are considered important cultural and traditional use areas to Sitka Tribe of Alaska. The BLM invited the Sitka Tribe of Alaska to enter into government-to-government consultation by letter on September 26, 2012. To date, no formal response has been received. An informal response was received regarding the content of the draft EA and these concerns have been incorporated into the document. Additional discussion of traditional use of the project vicinity is discussed below in the Subsistence Resources section of this EA.

Paleontological Resources

The submerged lands, filled tidelands and intertidal areas surrounding the Causeway are generally less than 60 feet deep and therefore would have been terrestrial sediments during the Ice Age when worldwide mean sea level was depressed by more than 300 feet. Although bones of Ice Age mammals have been found in similar shallow-water environments elsewhere in southeast Alaska, no paleontological remains have been encountered either in the FRCSHP or in the aquatic environment surrounding the Causeway. In addition, the project area (e.g., the causeways themselves) consists of imported rip rap and other fill, and therefore does not contain intact geological formations that would contain paleontological resources.

3.3.2 Direct and Indirect Effects from No Action Alternative

The No Action Alternative would continue to limit access to the historic, World War II-era resources decreasing opportunities for interpretation of historic resources. The Causeway would

continue to erode thereby adversely affecting its integrity, which would subsequently affect the integrity of the Sitka Naval Operating Base National Historic Landmark and FRCSHP.

3.3.3 Direct and Indirect Effects from Proposed Action Alternative

The Proposed Action would allow for repairs to be completed, which would restore the historic integrity of feeling, setting, and character of the Causeway and FRCSHP. It also would improve pedestrian access to the islands connected by the four segments of the Causeway being proposed for repair under the Proposed Action. As indicated above, visitors would still have to initially access the islands by boat; however, once landed, visitors can access the islands connected by the Causeway by foot. Visitors would have greater access to the historical, World War II-era cultural resources on the islands connected by the Causeway. Park maintenance staff also would have increased access to the historical resources and would be better able to rehabilitate and restore these historical resources, which would benefit future visitors to the Causeway. There is a low potential to effect historic properties through vandalism, or for visitor refuse to be left, as a result of increased pedestrian traffic from the Proposed Action.

The BLM AFO Archaeologist has conducted informal consultation with the National Park Service and the SHPO regarding the proposed action. Both agencies agreed that the Proposed Action will have no adverse effect on cultural resources, including the National Historic Landmark (NHL). Janet Clemens, historian for the NPS, and contact for National Historic Landmarks in Alaska, stated in an email dated 12/6/2012, "We agree that the project sounds like it will not be an adverse effect to the National Historic Landmark." In response to this statement, the SHPO compliance staff, Shina Duvall, responded in an email dated 12/19/2012: "Taking into consideration the NPS's "no adverse effect" is appropriate for the proposed work."

3.3.4 Mitigation

No further mitigation has been identified for cultural or paleontological resources. If cultural resources, including potential human remains, are discovered during Causeway repairs, all project activity will cease immediately and the SHPO, the BLM Authorized Officer, the BLM AFO Archaeologist and other interested parties will be notified and any necessary additional mitigation measures will be determined at that time.

3.4 Subsistence Resources

The Southeast region of Alaska has been in use for thousands of years by the Tlingit, Haida, and Tsimpsian peoples and their predecessors, who have subsisted on rich marine and terrestrial plant and animal species found within the area. Large runs of five salmon species (*Oncorhynchus* spp.), Pacific herring (*Clupea pallasii*), Gumboot chitin (*Cryptochiton stelleri*), sand lance (*Ammodytes hexapterus*), marine mammals, geoduck clams (*Panopea generosa*), littleneck clams (*Protothaca stamineais*), razor clams (*Siliqua patula*), Dungeness crabs (*Cancer magister*), tanner crab (*Chionoecetes bairdi* and *C. opilio*), Red king crab (*Paralithodes camtschaticus*), Macrocystis kelp (*Macrocystis intergrifolia*), hair seaweed (*Desmarestia viridis*), black seaweed (*Porphyra abbottiae*), and Giant North Pacific Octopus (*Enteroctopus dofleini*) are among the marine and freshwater animals species traditionally harvested by the Tlingit, Haida, and Tsimpsian peoples in Southeast Alaska. Bear and deer are important food resources as well. Bird eggs also have been a traditional subsistence food harvested from the Causeway Islands.

Pacific herring (*Clupea pallasii*) and their roe are of particular interest to the Sitka Tribe. The Sitka Tribe is a federally recognized tribe with members primarily of Tlingit, Haida, Aleut, Tsimpsian heritage in the Sheet'-Ká area. These people have occupied the Southeast region of Alaska from long before contact with Europeans in 1741 to present. Herring remains at archaeological sites in

Southeast Alaska dates the use of herring by Native groups beginning at 8,000 years ago. Sitka Tribe of Alaska utilizes the Causeway and islands associated with it to harvest mollusks, such as Gumboot chitin (*Cryptochiton stelleri*) and pinto abalone (*Haliotis kamtschatkana*). Harvest of chitins occurs year-round at low tides; while abalone harvesting occurs at varying tide levels and is usually a dive fishery. The Causeway and islands are used as a hunting platform by Sitka Tribe of Alaska for seals and sea otter (Feldpausch 2012). The Causeway and associated islands create calm ocean conditions, which are favorable to hunting these marine mammal species. Harvest of these species can occur year-round; however, it is more favorable to hunt sea otter from mid-September to mid-May and seal hunt during January, and from May through December. Salmonberries are another subsistence resource harvested on the islands by the tribe as well.

Today, Whiting Harbor is important to the Native community because of its marine resources, in particular, for its herring egg subsistence fishery; the fishery also has occurred in all waters surrounding Makhnati Island. According to Sitka Tribe of Alaska, Whiting Harbor, the northern edge of the Causeway, and Japonski Island are areas where subsistence harvest of herring roe on kelp and hemlock branches occurs. Roe on kelp harvests occur in this area year after year. The Causeway and associated islands provide protection and favorable conditions for the growth of kelp and the harvest of herring eggs on kelp and hemlock branches. Although herring eggs have been harvested for subsistence uses throughout the state in the past, Sitka Sound provides the largest and most reliable source of herring eggs in Alaska today (Meuret-Woody et al. 2010). These areas constitute one of the most productive subsistence areas for the harvest of herring eggs in the Sitka sound. Harvests occur during herring spawning in late spring, typically between March 15 and May 31.

The Causeway provides reliable, easy access to herring egg harvest locales for subsistence users. The ease of access provided by the Causeway allows the safe use of small boats close to shore for subsistence harvest.

3.4.1 Direct and Indirect Effects from No Action Alternative

The Causeway would continue to erode and access would become increasingly tenuous under the No Action Alternative. While the proximity to town makes the Causeway and associated islands a benefit to subsistence herring roe harvesters, it does not generally increase access to these specific, subsistence resources in the area since boats are still the primary means of access. Access to other resources such as Gumboot chitin (*Cryptochiton stelleri*), pinto abalone (*Haliotis kamtschatkana*), and sea cucumbers (*Paristichopus californicus*) may be affected if the Causeway continues to erode. The No Action Alternative also could affect how sea otter (*Enhydra lutris kenyoni*) and Harbor seal (*Phoca vitulina*) are harvested as well.

3.4.2 Direct and Indirect Effects from Proposed Action Alternative

If Causeway repair construction activities were conducted during the spring this could have the potential to disrupt herring spawning activities and also disturb the herring eggs themselves. Construction-related traffic would consequently interfere with subsistence harvesters accessing the area during key subsistence seasons.

Effects to the subsistence herring egg harvest due to Causeway repair construction would be avoided by not performing construction activities during the herring spawn and subsistence harvest in March 15 through May 15th, which is a condition of the Section 404 Wetlands Permit to which the project proponent is already subject. Sitka Tribe of Alaska has expressed concern about the potential for overharvesting of subsistence resources by subsistence users with the repair of the Causeway segments. Such repairs would allow more than just the most physically fit individuals to traverse the Causeway segments allowing more subsistence users to access those resources. The

construction schedule and activities should proceed in consultation with the Sitka Tribe to ensure access to the Causeway's herring egg harvest areas and to mitigate impacts to the herring fishery.

Construction activities would coincide with the mollusk subsistence harvest that traditionally occur year-round; as well as, local seal harvests that occur from May to December and January. Construction activities could disrupt subsistence users from accessing areas being repaired. Noise from repair activities could deter marine mammals from coming close enough to the Causeway for subsistence users to harvest them.

3.4.3 Mitigation

Construction activities have been planned to avoid the more critical and narrow herring egg harvest season, which occurs between March 15 and May 31. No further mitigation has been proposed since the proponent was able to plan its construction activities to avoid conflicting with the herring egg harvest. The proponent has proposed to limit its presence on the Causeway to the period between May 16 and September 30, which provides ample opportunity for subsistence harvest of seals and mollusks. Further, construction activities would be limited to four segments of the Causeway, which still allows subsistence activities to occur along other segments of the Causeway

3.5 Hazardous Waste and Contaminated Sites

Similar to other former military sites in Alaska, the Causeway and surrounding state park contains a number of contaminated sites. As such, several environmental investigations and actions have been conducted concerning the Causeway and island property. Carson Dorn Environmental Engineering of Juneau and AECOM, under contract with the USACE, have been responsible for carrying out these investigations.

One of the more relevant sources of contamination important to residents of Sitka is the approximately 40 miles of lead communication cable that have been identified throughout the waters of Sitka Sound (Carson Dorn, Inc. 2006). The lead communication lines were installed to connect multiple islands for communication purposes during the World War II military build-up in Sitka (Carson Dorn, Inc. 2006). The Sitka Tribe of Alaska conducted sampling of typical subsistence seafoods found in areas where lead cable is present, including the Causeway (Carson Dorn, Inc. 2006). Test results showed elevated levels of lead in several species including gumboots, abalone, herring roe, rockfish, seaweed (*Porphyra* spp.), and sea cucumber (*Paristichopus californicus)* in various locations in Sitka Sound. To date, lead cable has been removed from many areas of Sitka Sound with future plans by the Sitka Tribe to remove cable at Makhnati Island (Carson Dorn, Inc. 2006).

Pieces of lead cable were observed on islands adjacent to the Causeway.. Lead leaching from this cable may impact surrounding soils within a limited area. Lead cable submerged in marine waters, however, may pose a greater impact to species through the uptake of lead by shellfish and other species of marine life (Carson Dorn, Inc. 2006).

Buried debris exposed in an undercut bank located on Virublennoi Island shows evidence of a former dump site (Carson Dorn, Inc. 2006). This dump site is located on the island outside of the project area (Carson Dorn, Inc. 2006). The dump site was later confirmed and further described by World War II historian, Matthew Hunter, of Sitka. Although not identified at the time of the visit, Hunter stated that a large quantity of old 1-inch by 6-inch tiles are scattered along this beach. Hunter described the tiles as aluminum-like but, when broken, exhibit fibers resembling an asbestos-like material. Other items dumped here included sinks, radiators, axles and other automotive parts. The dump site may extend back into the uplands from the intertidal area.

A former government-controlled dumpsite was used until the early 1970s by residents and businesses of Japonski Island, primarily for the disposal of domestic wastes, according to Marjorie L. Ward, a former nurse with the Mount Edgecumbe Hospital (Carson Dorn, Inc. 2006). Ward stated the dump was located on the edge of Japonski Island near where it joined the Causeway. The dump also was used by the hospital until 1950 or so, when a new hospital building was constructed that included an incinerator (Carson Dorn, Inc. 2006). After 1972, when the bridge was built that allowed area residents to take their waste to the municipal land fill in Sitka, the dump was closed and covered by fill for the airport. Given the types of waste likely disposed of at the dump according to Ward, the potential for hazardous waste is low. This dump site is not located within the project area; however, any future construction or excavation in this area should consider the dump site (Carson Dorn, Inc. 2006).

The Sitka Tribe of Alaska has documented large amounts of debris in some areas of Whiting Harbor off of the Airport runway and Causeway (ADOT&PF 2009). Their documentation indicates there is reasonable potential that the debris contains solid waste or even explosive ordnances (ADOT&PF 2009). According to the tribe, explosive ordnances including 50-millimeter (mm) to 100-mm anti-aircraft shells have been encountered within multiple near-shore areas (ADOT&PF 2009). Some shells have been identified as having either explosive tips or spotting charges associated with them (ADOT&PF 2009).

No spills of oil or hazardous substances have been reported on the Causeway or the adjacent islands. The four spills reported within a 0.5-mile radius all occurred on Japonski Island. Products spilled included kerosene, heating oil, gasoline, and waste oil. None of the releases occurred to marine waters or had potential to reach the Causeway property.

3.5.1 Direct and Indirect Effects from No Action Alternative

The No Action Alternative would have no direct effect on the hazardous waste and contaminated sites associated with the Causeway in the short-term since there would be no disturbance of these sites. None of the Environmental Assessments and Surveys revealed hazardous substances to be located within the fill used to construct the Causeway Lots. Over the long-term, however, continued erosion of the Causeway could expose hazardous wastes typical of the era buried within the Causeway..

3.5.2 Direct and Indirect Effects from Proposed Action

Under the Proposed Action Alternative, the proponent could potentially disturb and inadvertently release contaminants into the surrounding environment as they repair the Causeway. However, the primary construction method is to place fill on the existing Causeway footprint, not to excavate or disturb the Causeway base. Potential release of hazardous chemicals into the environment from construction equipment and supplies brought on site could occur as well. However, no refueling tanks would be brought on site. Several small 5-gallon jugs would be deployed to the landing area along with the equipment at the staging areas. The fuel jugs would be placed in containment with absorbent pads placed underneath to prevent fuel spills. The staging areas would be located near the three landing areas. Equipment would be refueled off of the Causeways at the landing areas, which are located on State of Alaska property. While the proponent does not intend to bring any hazardous chemicals on site to perform the repair work, the equipment could be a source of petroleum-based contamination. Accordingly, if there is a spill the release of these substances would be limited to the quantities stored in the small tanks integrated into construction equipment. The total quantity available in these tanks would be no more than 250 gallons.

Project design considerations to avoid negative effects would include inspecting equipment prior to bringing it on site and using small catchments, commonly referred to as “duck ponds” underneath

heavy equipment when not in use. The proponent would work with BLM and other agencies to develop a project-specific Spill Prevention, Control, and Countermeasures (SPCC) Plan in order to prevent contamination from occurring on or around the Causeway.

As part of its plan to rehabilitate the Causeway, the proponent has conducted Phase I and Phase II Environmental Site Assessments to identify potential sources of contamination in the areas it proposes to complete repair work. The proponent has an understanding of where contamination is known to occur within a 1-mile radius of the Causeway which would allow the proponent to avoid disturbing contaminated sites and avoid releasing hazardous chemicals or materials into the environment, including Whiting Harbor.

3.5.3 Mitigation

No further mitigation has been identified for hazardous waste and contaminated sites.

3.6 Vegetation

3.6.1 Affected Environment

The Causeway is covered with dense vegetation. Even rock, which in a drier climate would be bare, is colonized by mosses, small plants, shrubs, or trees. Tree species found throughout the Causeway include a mix of Sitka spruce (*Picea sitchensis*) and hemlock (*Tsuga* spp.) with alders (*Alnus* spp.) and elderberry (*Sambucus*) interspersed underneath. Alders have overgrown previously cleared portions of the Causeway. Thickets of salmonberry (*Rubus spectabilis*), alder, elderberry, and cow parsnip (*Heracleum maximum*) cloak portions of the islands that have shallower soils and that have been more recently disturbed. Groundcover on the islands typically consists of false lily-of-the-valley (*Maianthemum dilatatum*), a variety of grasses, and mosses. Other vegetation present in and around the Causeway includes ferns, currants, fireweed (*Epilobium angustifolium*), rusty menziesia (*Menziesia ferruginea*), and wild celery (*Vallisneria Americana*).

Several invasive, non-native plant species have been found in Sitka, Alaska. Preventing the further spread of these invasive species is important to local, state, and federal agencies. As a result, activities that may result in their spread is monitored closely. The occurrence of these various terrestrial invasive species has been documented in the Alaska Exotic Plants Information Clearinghouse database (2012). Documented occurrences of each of these invasive species are provided in **Figure 3-1**. **Table 3-2** provides a list of the invasive species that have been recorded within the vicinity of the Causeway, but an actual survey of the FRCSHP islands and Causeway lots has never been conducted. Although there are 29 species of invasive plants known to occur in the area, none of these species are presently known to occur on the Causeway or islands connected by the Causeway.

Marine Vegetation

Sitka's coastal and marine areas vary from sandy estuarine areas to boulder and cobble intertidal areas (Arimitsu et al. 2003). Sitka Sound sustains a highly productive marine environment, particularly in spring when increasing light levels, coupled with abundant nutrients create blooms of phytoplankton and secondary production by zooplankton. The lower intertidal and subtidal rock habitats that occur in and around the Sitka Sound support extensive beds of kelp including both giant kelp (*Macrocystus pyrifera*) and bull kelp (*Nereocystus leutkeana*). Limited areas of eelgrass (*Zostera marina*) occur in the more sheltered areas of the Sound, while surfgrass (*Phyllospadix* spp.) can be found in more wave exposed areas (Federal Aviation Administration [FAA] 2009a.

3.6.2 Direct and Indirect Effects from No Action Alternative

By selecting the No Action Alternative marine vegetation currently growing on the Causeway below the mean low tide level would remain intact and undisturbed. . Vegetation such as willow alder growing above mean low tide would remain intact as well.

3.6.3 Direct and Indirect Effects from Proposed Action Alternative

New rock fill placed into the intertidal zone to repair the Causeway Lots will cover the substrate marine vegetation below the mean low tide level and much of the vegetation above mean low tide would be removed, which would gradually re-establish itself on the new substrate.

Figure 3-1 Invasive Terrestrial Plant Species Occuring Within Sitka Area Relative to Fort Rousseau Causeway

Table 3-2 Invasive Species Within 1 Mile Radius of Causeway

Common Name	Scientific Name
Anise	*Myrrhis odorata*
Annual bluegrass	*Poa annua*
Big chickweed	*Cerastium fontanum*
Black medick	*Medicago lupulina*
Brittlestem hempnettle	*Galeopsis tetrahit*
Canada thistle	*Cirsium arvense*
Common chickweed	*Stellaria media*
Common dandelion	*Taraxacum officinale*
Common plantain	*Plantago major*
Creeping bentgrass	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Dames rocket	*Hesperis matronalis*
Hairy catsear	*Hypochaeris radicata*
Italian ryegrass	*Lolium multiflorum*
Japanese knotweed	*Fallopia japonica*
Low cudweed	*Gnaphalium palustre*
Nipplewort	*Lapsana communis*
Orchardgrass	*Dactylis glomerata*
Oxeye daisy	*Leucanthemum vulgare*
Paradise plant	*Daphne mezereum*
Pineappleweed	*Matricaria discoidea*
Purple foxglove	*Digitalis purpurea*
Reed canarygrass	*Phalaris arundinacea*
Scotch broom	*Cytisus scoparius*
Shepherd's purse	*Capsella bursa-pastoris*
Kentucky bluegrass	*Poa pratensis*
Timothy	*Phleum pratense*
White clover	*Trifolium repens*
Yellow toadflax	*Linaria vulgaris*

3.6.4 Direct and Indirect Effects from Proposed Action Alternative

As a direct effect of the Proposed Action, the proponent would remove standing vegetation that has encroached on the Causeway. Removal of standing vegetation would allow the proponent to repair and inhibit further disintegration of the four Causeways segments for which the Right-of-Way authorization is being sought. Introduction of invasive species could occur through introduction of gravel and other materials brought on to the Causeway segments from an off-site location. In order to avoid these potential negative effects, the proponent will implement invasive plant species prevention protocols including thoroughly cleaning all equipment prior to deploying it to the project site; as well as, procuring gravel and other materials from local sources within Sitka, Alaska.

The Proposed Action would have little to no affect on marine vegetation since it is most of this type of vegetation is not accessible from the Causeway segments. Removal of marine vegetation would be limited to that required to reposition the boulders that comprise the Causeway segments.

Introduction of non-native species has the potential to occur as a result of the Proposed Action Alternative when the proponent accesses the site to perform its proposed repairs. Limited heavy machinery would be brought onsite by landing craft to complete the repair work, which has the potential to introduce invasive and noxious plant species to the Causeway and surrounding areas, including Sitka Sound. Introduction of these undesired species would have a detrimental ecological effect on the Causeway environment.

By implementing best management practices (BMPs) that involve cleaning and sanitizing equipment and fill materials to the greatest extent possible prior to bringing it onsite, the proponent would minimize the potential for introducing non-native, invasive, or otherwise noxious species to the Causeway. Equipment and gear will be cleaned after construction activities have been completed in order to prevent the inadvertent introduction and spread of non-native and invasive species to other areas.

3.6.5 Mitigation

Further mitigation should reasonably include monitoring and Early Detection Rapid Response for several years after the construction in the event the implementation of BMPs fails to prevent the introduction/spread of non-native and invasive species to the Causeway.

3.7 Water and Wetland Resources

3.7.1 Affected Environment

There are no streams or springs on the islands connected by the Causeway. Drainage patterns on the Causeway and associated islands consist of some overland flow during heavy rains, but most precipitation is expected to percolate through existing soils into bedrock on the islands and Causeway. The Causeway is considered part of the Japonski Island Watershed, which encompasses Japonski Island and the eight Causeway islands.

Sitka Sound and Southeast Alaska is largely influenced by the Alaska current. The Alaska current brings warm water from the south into the northern Gulf of Alaska, contributing to the heat budget in the area. The marine waters around Sitka Sound and the Causeway are typically classified as either Open Ocean or saline estuary. Saline estuaries are characterized by the discharge of abundant freshwater along the coast and the presence of a pycnocline, which is a layer of rapid change in water density with depth typically caused by changes in water temperature and salinity. Open ocean marine waters are reflective of the tidal and current influences circulating marine water through the area.

The marine waters in Sitka Sound have been classified by the Alaska State Water Quality Standards for a variety of uses, including aquaculture, seafood processing, industrial water supply, water contact, secondary recreation, growth and propagation of a variety of flora, and harvesting for consumption of raw aquatic life. Several sources of pollution exist in Sitka Sound including the City and Borough of Sitka Wastewater Treatment Plant, Silver Bay Wastewater Treatment Plant, the Sitka Beverage Corporation Walter Filtration Facility, the Sitka Ferry Terminal Wastewater Treatment Facility, and the lead communication cable remaining in the sound.

Wetlands

The wetland areas associated with the Causeway, the islands it connects, and the waters surrounding it are all classified as estuarine system habitats, as described by Cowardin 1979. The estuarine system consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land, but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater. The estuarine system also includes offshore areas of continuously diluted sea water. Estuarine salinities range from 0.5 to 40 percent from ocean-derived salts. Subtidal areas are continuously submerged, while intertidal waters are less inundated by tidal waters. Both subtidal and tidal subsystems are present within the Causeway area. The Causeway and associated islands are classified as intertidal, while the waters surrounding it are considered subtidal since it is continuously submerged.

Several classes of estuarine, intertidal habitats can be found along the Causeway and islands associated with it. The Causeway Right-of-Way segment between Kirushkin and Mogilnoi islands has been classified as unconsolidated shore wetlands that are irregularly flooded. Landing Area 2 is classified as unconsolidated shore wetlands that are regularly flooded. The northern to northwestern shoreline of Sasedni Island is classified as rocky shore wetlands that are regularly flooded; while the northwestern shoreline of the nearby Mahkanti Island is classified as rocky shore wetlands with regular flooding. All of the other segments of the Causeway above the mean high water line are non-wetlands. The lands below the mean high water line are subtidal, unconsolidated bottoms that are permanently flooded with tidal water.

3.7.2 Direct and Indirect Effects from No Action Alternative

Under the No Action Alternative, the Causeway would continue to erode into the adjacent and surrounding marine waters. Continued erosion of the Causeway has the potential to reduce water quality over time. However, the risks associated with potentially reducing water quality through introduction of construction-generated pollution such as storm water runoff and contaminants into Sitka Sound would not occur.

3.7.3 Direct and Indirect Effects from Proposed Action Alternative

Under the Proposed Action Alternative, the continued degradation of water quality from the erosion of Causeway materials would be reduced; however, the Proposed Action Alternative could have a detrimental effect on water quality through the potential introduction of storm water runoff and contaminants into the Sitka Sound by repair and restoration activities. Since the Right-of-Way authorization is anticipated to be granted for less than 5 years, effects on water quality are expected to be temporary. The proposed repairs would ultimately improve water quality by reducing erosion and siltation of Causeway components into the surrounding ocean environment.

The proponent would work with the BLM and other regulatory agencies to ensure that woody debris and storm water are managed properly. The BLM also would work with the proponent to ensure that heavy equipment is cleaned and in good operating condition prior to being brought on site or transported in marine landing craft. The BLM would require the proponent to have a basic SPCC Plan to prevent petroleum from being released and to minimize detrimental effects of a

potential spill. This would minimize impacts to water quality by ensuring debris and chemicals are not introduced into the marine environment.

3.7.4 Mitigation

No further mitigation has been proposed for water resources or wetlands. The USACE did not propose any compensatory mitigation in the permit decision granted to the proponent of this Proposed Action either.

3.8 Wildlife, Fisheries, and Invasive Species

3.8.1 Affected Environment

The Sitka Sound is located within the northeast Pacific Ocean. The Pacific Ocean's Japanese current slightly warms the waters of Sitka Sound, making it a productive area for the fish and small organisms that are food for whales and other wildlife.

The islands that dot Sitka Sound provide safe haulouts for Steller sea lions (*Eumetopias jubatus*) and harbor seals (*Phoca vitulina*). Sea otters (*Enhydra lutris kenyoni*) are commonly seen in the Sound during the summer months. Humpback (*Megaptera novaeangliae*), gray (*Eschrichtius robustus*), killer (*Orcinus orca*), and even a few minke (*Balaenoptera acutorostrata*) whale sightings are possible throughout the summer. Humpback whales also can be seen in Sitka Sound in large numbers between mid-September and mid-January, when whale sightings are less common elsewhere in Southeast Alaska. The area is thought to be a last feeding stop for humpbacks before migrating to winter breeding and calving waters in Hawaii. The marine waters of Sitka Sound also support pandalid shrimp (*Pandalidae*) and several species of crabs including Dungeness (*Cancer magister*), king (*Paralithodes camtschaticus*), and tanner (*Chionoecetes bairdi*). Other invertebrates present in the area include pinto abalone (*Haliotis kamtschatkana*), the large browsing sea cucumber (*Paristichopus californicus*), and urchins (*Strongylocentrotus* spp.).

Sitka Sound also is home to a multitude of fish species including five species of salmon, halibut, Pacific herring (*Clupea pallasii*), and multiple groundfish species. These fish species include surf smelt (*Hypomesus pretiosus*), sand lance (*Ammodytes hexapterus*), and salmon (*Oncorhynchus* spp.). The Pacific herring (*Clupea pallasii*) is one of the more important of these fish species in Sitka.

Pacific herring is an important forage and human subsistence species particularly in Sitka, Alaska. The largest herring stock in southeast Alaska migrates to Sitka Sound to spawn in the surrounding kelp beds between March and May each year. Spawning occurs in shallow, vegetated areas in intertidal and subtidal zones. The herring spawn is a vital event for many animals in the area, including humpback whales, gray whales, and sea otters (*Enhydra lutris kenyoni*).

Herring spawn from the intertidal zone down to about 40 feet below Mean Low Low Water , targeting areas with substantial macroalgae concentrations. Egg deposition occurs on all species of kelp in the Sitka area, especially large floating species, but herring also use eelgrass, rockweed, coralline algae, red algae, and hard rocky substrates. Males and females release their milt and eggs into the water column where they mix and fertilize. The eggs are adhesive and attach to vegetation, such as kelp or the bottom substrate. Eggs hatch about 2 weeks after fertilization and the young larvae drift and swim in the ocean currents. Once the larvae become juveniles, they rear in sheltered bays and inlets prior to schooling and moving to deeper waters in the fall.

Pacific herring feed seasonally on phytoplankton and zooplankton, building up fat stores for periods of inactivity. They generally feed in surface waters at night in areas of upwelling. Young

herring feed mainly on crustaceans but would eat decapods and mollusk larvae. Adults consume mostly large crustaceans and small fish. Pacific herring travel in large schools.

Loss of spawning grounds through habitat loss and degradation from dredging, construction activities, log storage, oil spills, and decreases in water quality threaten Pacific herring. Global warming also may pose a threat to the species by reducing the availability of their prey; zooplankton and phytoplankton. In addition, the recovery of populations of predator species, such as humpback whales, may impact herring populations.

Bird species occurring within the vicinity of the Causeway include bald eagles, seagulls, crows, ravens, and many passerine species. Seabirds are plentiful in the marine areas surrounding the Causeway. Some of the more common seabirds occurring in the area include several species of puffins and gulls, as well as hosting murres and marbled murrelets. Several species of warblers, thrushes, finches, and sparrows can be found in and around Sitka.

Terrestrial mammals such as mink inhabit the islands connected by the Causeway. Land mollusks such as large banana slugs and turbinate snails are plentiful in the park's lush vegetation. There is one non-native slug, the European black slug (*Arion subfuscus*), which has was first recorded in the Starrigavan Recreation Area in 2004. This species of slug has expanded their range along the road and trail system adjacent to the original point of observation. No freshwater occurs on the islands connected by the Causeway; as such, freshwater fish and wildlife species are not supported by the Causeway or islands it connects.

Non-native/Invasive Species

Multiple non-indigenous, invasive species of fish, plants, and invertebrate species have been introduced or are moving into Alaskan waters. Pathways of introduction in aquatic and marine systems include fish farms, aquaculture, and transport in ballast water from ships, live seafood trade, and sport fishing gear. A colonial tunicate species that was originally detected in the area in June 2010 is of most concern to residents of Sitka. This invasive, colonial tunicate is more commonly referred to by its scientific name, *Didemnum vexillum*, abbreviated as "*D. vex*." *D. vex* is known as "carpet tunicate" or rock vomit because of its growth pattern, and slimy, brownish yellow appearance. It also is referred to as "glove leather tunicate" since it feels like soft, wet leather. Scientist believe the species is likely to have originated in Japan, spreading to new locations either via hull or sea chest (water intake area) fouling, with subsequent local spreading by fouled recreational craft, barges, commercial vessels, movement of fouled aquaculture stock and gear, and drifting and reattachment of dislodged fragments. Currently, *D. vex* is restricted to Whiting Harbor on the north side of the Causeway. Efforts by ADF&G and local organizations are currently underway to eradicate and prevent the spread of *D. vex* in Sitka Sound.

Throughout its current worldwide range, *D. vex* is abundant at many nearshore and offshore sites, preferring salinities above 25 parts per trillion and temperate water conditions. In North America it is known to occur along both the East and West Coasts. In the Pacific Northwest, this invasive species has been detected in California, Washington, Oregon, and Alaska (**Figure 3-2**). *D. vex* can quickly colonize and overgrow apparently healthy natural benthic substrates, including subtidal rock outcrops and gravel (pebbles, cobbles, and boulders) in deeper water; as well as, shallow intertidal rock pools. It occurs in a wide range of marine habitats worldwide with potential important conservation and economic consequences through the alteration of marine habitats and impacts to mariculture and fisheries, especially shellfisheries. Natural environments, from intertidal and nearshore areas to offshore fishing grounds, have been infested with the carpet tunicates. Substantial impacts on marine food webs may result when invasive tunicates smother organisms living on the sea bottom, thereby concealing food from predators.

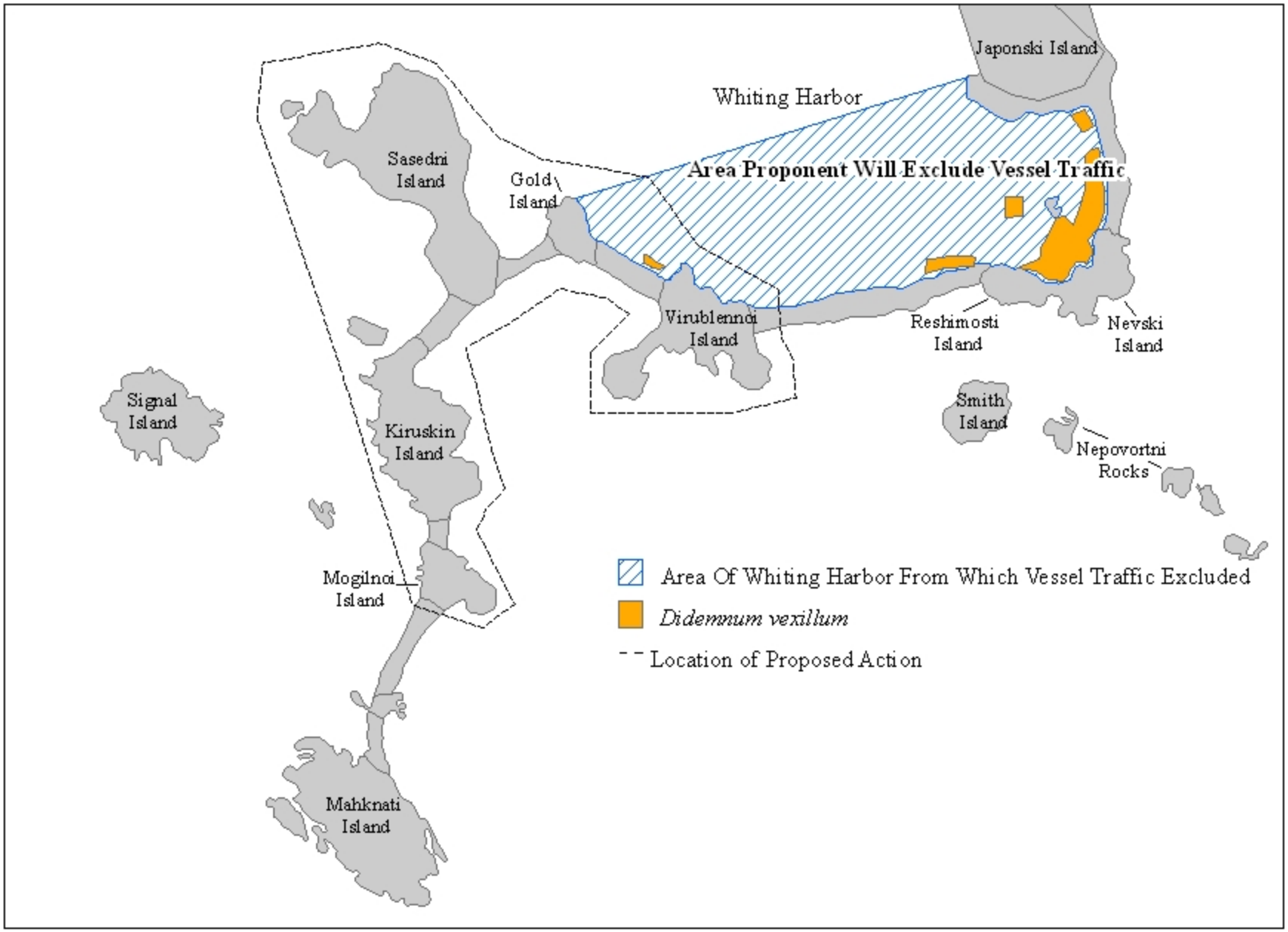

Figure 3-2 Local Distribution of Didemnum vexillum in Sitka, Alaska

3.8.2 Direct and Indirect Effects from No Action Alternative

The Causeway provides a natural barrier preventing the *D. vex* from spreading from the north side to the south side. The No Action Alternative could indirectly affect the spread of the invasive tunicate species if the Causeway continues to erode; however, the No Action Alternative would prevent the potential introduction of other non-native species by not allowing the proponent to bring equipment into the Causeway Right-of-Way to perform repair work.

3.8.3 Direct and Indirect Effects from Proposed Action Alternative

The Proposed Action Alternative would have a beneficial effect on wildlife and fisheries by allowing needed repairs to the Causeway. These repairs would reinforce the physical barriers in place that would potentially prevent the spread of *D. vex* to the south side of the Causeway. The proponent is proposing to remove alder and elderberry brush as part of its restoration efforts on the Causeway and four islands connected by it. The removal of this vegetation represents a long-term loss of this type of habitat since the proponent would maintain the Causeway segments in a manner that would prevent the reoccurrence of overgrowth of this vegetation. While the removal of this vegetation would affect individual passerine birds, which nest or use the alder and elderberry these effects would not be felt at the population level since this type of shrub habitat is common to the area in which the Proposed Action would occur.

To avoid spreading *D. vex* further and negatively impacting fish and wildlife species, BLM will incorporate the 2010 BLM Alaska Invasive Species Management Policy BMPs into the Right-of-Way authorization. Similar BMPs have already been incorporated into the proponents USACE Section 404 Wetlands permit. These mitigation measures include a strict decontamination protocol for all equipment being used to complete Causeway repairs including ensuring equipment is completely cleaned and inspected prior to bringing it onsite and inspecting and cleaning landing craft that would be used to transport heavy equipment and supplies to the Causeway. Transit vessels used for transporting fill materials and all vessels associated with the construction of this project will not travel within the area of Whiting Harbor, southeast of the line from Gold Island to Japonski Island depicted in Figure 3-2, or any subsequently identified *D. vex* locations. Repair work would not occur between March 15 and May 15, to avoid disrupting the Pacific herring spawning. The proponent also would be required to work with the U.S. Fish and Wildlife Service to minimize impacts to migratory birds and their nests, which may be affected by removal of alder and elderberry brush. As part of the BLM Right-of-Way authorization, the proponent will need to develop and adhere to a post-construction monitoring plan to identify any *D. vex* on either side of the Causeway after construction.

3.8.4 Mitigation

No further mitigation has been identified for wildlife, and fisheries. A contingency plan for addressing the spread of invasive species would be put in place to conduct early detection rapid response activities to eradicate any newly discovered infestations of all taxa of non-native invasive species.

3.9 Cumulative Effects

The cumulative effects analysis is conducted in recognition that, while the effects of individual actions may have minor effects, the cumulative effect of past, present, and reasonably foreseeable future actions on resources may be considerable. As with the direct and indirect effects, the No Action Alternative serves as the baseline against which cumulative effects would be evaluated. The cumulative effects analysis necessarily involves assumptions and uncertainties, and data sets may be incomplete.

3.9.1 Projects Considered in the Cumulative Effects

The cumulative effects analysis must take into consideration past, present, and reasonably foreseeable future projects. Such projects would include actions undertaken at the Causeway, as well as notable developments undertaken in the Causeway environs.

3.9.2 Past Actions

Past actions considered during this cumulative effects analysis include all those projects that have occurred on the Causeway and neighboring lands within the past 10 years, which encompasses the period between 2002 and 2011. Consideration of the historic military occupation and presence of the area, residual contamination, and current actions to remove historic contamination have been considered as well.

Designation of FRCSHP on April 2, 2008: Designation of the FRCSHP allowed the State to protect the Causeway and the islands it connects by recognizing it as an important resource for Sitka, Alaska. A management plan has been prepared, which outlines improvements proposed for the park and how the resource would be managed. Some of these actions effect the Causeway and surrounding areas.

The Sitka Rocky Gutierrez Airport Improvement Project May 2009: Sitka Rocky Gutierrez Airport has one runway (Runway 11/29) and a partial parallel taxiway. Runway 11/29 is 6,500 feet in length and 150 feet in width. The Airport Improvements Project was proposed and undertaken to provide runway safety areas that meet current FAA guidance to the greatest extent practicable. Improvements were proposed to reduce the potential for runway incursions, improving the safety and efficiency of aircraft operations at the Airport, as well as to improve the ability of aircraft to land and/or takeoff during inclement weather conditions. The project also was undertaken to maintain structural integrity of the runway and prevent closure of the runway due to deposition of storm debris from wave action. Lastly, the Proposed Action was undertaken to obtain property rights sufficient to protect lands for current and future aviation and Airport uses.

ADOT&PF Sawmill Creek Road and Halibut Point Road Roundabout: A project to construct a roundabout to improve safety and capacity at the Sawmill Creek Road and Halibut Point Road intersection was completed in April 2010.

City and Borough of Sitka (CBS) and ADOT&PF Water and Sewer Line Replacement: Water and sewer lines established under Utility Relocation Agreement were replaced in October 2010.

ADOT&PF and CBS - Japonski Island Road Improvements and Utility Upgrades: The ADOT&PF improved roads and utilities on Japonski Island in the west Seward and Tongass Avenue area. This action also improved access to the University of Alaska campus, the Mount Edgecumbe High School facilities, the U.S. Coast Guard cutter dock, and the working float road from Airport Road. New water and sewer mains and services were installed, overhead telecommunications were relocated underground, drainage was improved, and the Alaska State Trooper driver training area was upgraded. The project was essentially completed as of June 2011.

CBS Expansion of Centennial Building and re-positioning of Crescent Harbor parking lot: The CBS secured funding to expand the building either to the front, sides, or rear and to reposition and upgrade the parking lot it shares with Crescent Harbor.

Airport Lagoon Waste Disposal and Wildlife Hazard Abatement: The ADOT&PF has received a permit and is moving toward the filing of approximately 10.15 acres of Airport Lagoon closest to

the airport access road. The lagoon is being filled to reduce wildlife hazards as well as to facilitate the planned future development of the site for airport uses sometime in the future.

Phase 2 of The Airport Access Road Relocation Project: The ADOT&PF relocated the existing airport roadway to the east (further away from, but parallel to, the runway) to provide additional lease lots for airport tenant use, as all available land adjacent to the apron has been leased. The first phase of this project has been completed with the relocation of a segment of the road. The second phase of the project was undertaken to relocate the remaining portions.

Airport Slotted Drain Project: The ADOT&PF constructed approximately 500 feet of 18-inch-diameter culverts and slotted drains along the front of the Sitka Rocky Gutierrez Airport apron. Storm water travels under Taxiway A and is discharged into an existing drainage ditch that flows southwest around Runway end 11. The project corrected the ponding and icing issues on Taxiway A.

3.9.3 Current Actions

For the purposes of this cumulative effects analysis, current refers to projects that were under construction during the year 2012, the time frame in which the EA is being prepared.

The FRCSHP Management Plan, Signed May 8, 2012 establishes planning guidelines and a long-range vision for managing this unique park and for developing and maintaining Fort Rousseau Causeway interpretive sites and materials. The plan presents an overview of the Causeway's cultural, historical, natural, and recreational qualities, defines management goals and objectives, visitor experience goals, interpretive themes, and make recommendations for projects and partnerships.

Sitka Tribe of Alaska Transit Bus Maintenance Facility July 2012: The existing public transit program in Sitka, Alaska (The RIDE), has been in operation since 2002 and is an important community service provided by the Sitka Tribe of Alaska. The RIDE is currently administered out of the Sitka Tribe of Alaska Administration Building on Kalian Street with buses stored off site in unsecured parking lots that are difficult to plow and provide no protection from the weather. Vehicle maintenance and repairs are completed by an independent automotive repair shop resulting in service delays and increased cost from renting back up vehicles. The Sitka Tribe of Alaska and the ADOT&PF proposed to use Federal Transit Administration and Bureau of Indian Affairs funding to acquire 2.05 acres at Lot 11 on Alice Island in Sitka, Alaska, for the purposes of constructing and operating a facility to house the operations, maintenance, and administrative functions for the public transit program at a single location.

ADOT&PF Sawmill Creek Road Upgrade: The project would reconstruct and widen Sawmill Creek Road between Jeff Davis Street and the end of the pavement at Blue Lake Road. The intersection would be improved at Indian River Road, sidewalks would be added, a separate path constructed, drainage improved, alignment would be shifted somewhat to avoid slope failures, and parking and interpretation at a number of trailheads along the route would be upgraded. The Indian River Bridge would either be rehabilitated or replaced. Additionally, fiber optic cable would be installed. The project is currently in the NEPA process (Categorical Exclusion) and construction was expected to begin in 2012.

ADOT&PF and CBS Halibut Point Road Pavement Rehabilitation and Drainage: The road would be re-paved from Sawmill Creek Road to the end of the pavement at Starrigavan Bay Campground. Two bridges (No Name Creek and Granite Creek) would be replaced. Culverts and storm drains would be replaced as required. Bus pullouts would be constructed and existing bus shelters relocated as required. Sidewalks would be replaced or repaired, and utilities would be adjusted or

relocated as needed. The CBS also has requested that approximately 500 linear feet of water main near the Channel Club be relocated and that the water and sewer mains at Granite Creek, No Name Creek, and Cascade Creek bridges be relocated. Construction was expected to begin in spring 2012.

ADOT&PF Sea Plane Ramp, Whiting Harbor: This action will reduce the potential for runway incursions by relocating the seaplane pullout from the causeway to the southeast side of Charcoal Island. This action will eliminate the need for Airport staff to provide escorts to vehicles accessing the seaplane pullout and moving aircraft to and from the pullout. The fixed seaplane pullout ramp will be 30 to 40 feet long and constructed to FAA design standards, with a ramp slope between 6:1 and 10:1 and a submerged depth of 4 feet at the toe.

3.9.4 Reasonably Foreseeable Future Actions

There are multiple projects anticipated in the reasonably foreseeable future for the Causeway and surrounding areas.

FRCSHP Repairs. Repair and rehabilitation of other segments of the Causeway could occur in the near future. These future actions would be part of an effort to continue to improve the Causeway and its islands. Remediation of contaminated sites along the Causeway and on the Causeway islands is expected to occur in the future as well.

Commercial and Heavy Transit Apron Expansion and Sitka Rocky Gutierrez Airport Apron and Lease Lot Development. To accommodate the forecast need for additional aircraft storage and parking, the existing airport apron and lease lot areas would be expanded between the existing aircraft apron and Charcoal Island. Charcoal Island would be developed first to include an airport apron, likely comprised of compacted gravel, with an apron expansion extending over time to include portions currently within the Airport Lagoon.

Sitka Channel Breakwater Project. This project would address existing issues with wave action continuing toward New Thompson Harbor and improve the breakwater in Sitka Channel. This project is planned to start during the next two years.

CBS Seaplane Base Relocation. This project would relocate the existing seaplane base from its current location Sitka Channel onto Japonski Island adjacent to Mount Edgecumbe School.

Mariculture Expansion in Whiting Cove. The expansion of existing mariculture activities in Whiting Cove is expected to occur in the future to allow for increased production of oysters. Future expansion of mariculture activities could result in marine habitat loss, increases in pollution from processing activities, and spread of disease. The project could result in the further spread of the invasive colonial tunicate, *D. vex* if sanitation measures are not implemented.

USACE Cleanup of Virublennoi Dump Site. Details have not been found regarding USACE plans to clean up the Virublennoi Dump site.

Sitka Tribe of Alaska Debris Removal from Marine Areas Adjacent to Causeway. Sitka Tribe of Alaska has plans to remove debris from the marine areas adjacent to the Causeway, which it has identified using undersea cameras.

3.9.5 Summary of Cumulative Effects

BLM has reviewed the above projects in light of the current Proposed Action to evaluate the cumulative effects on various resource issues.

Recreation Resources

Under the No Action Alternative, the cumulative effects to recreation from past, current, and future projects would be generally beneficial since most of these projects have involved upgrading and enhancing the Sitka Rocky Gutierrez Airport and neighboring Whiting Harbor. These upgrades would in turn allow for greater access to recreational resources in Sitka, Alaska. When these effects are considered in conjunction with the Proposed Action, the beneficial, cumulative effects on recreation would be much greater since visitors to Sitka would have improved access to the recreational opportunities in the project area. This cumulative, beneficial effect would continue to increase as more of the Causeway was repaired in the future. As with any single or group of projects that increase access to recreational resources, there is always potential for negative effects such as degradation of the resource over time due to unsustainable use of the area. However, with the FRCSHP Management Plan and access measures implemented by the Sitka Rocky Gutierrez Airport expected to be implemented, the negative, cumulative effects are not expected to be substantial.

Visual Resources

Past neglect of the Causeway has contributed the most to deteriorating the visual aesthetic of the Causeway; however, projects aimed at modernizing the surrounding areas may detract from the historical visual appeal of the Causeway if the cumulative effect of these projects on visual resources is not considered. A majority of the past activities occurring near the Causeway have involved ground disturbance activities such as road realignments, and upgrading of utilities, which taken together have limited cumulative effects on visual resources. Most of the detrimental effects associated with these ground disturbing activities are temporary, subsiding shortly after projects are completed.

The cumulative effect on visual resources from the Proposed Action and repairs to other Causeway segments in the future would primarily be beneficial, enhancing the historic quality of the Causeway and surrounding areas. According to the proponent, most of the other necessary repairs could be achieved using existing or other natural materials that would not detract from the aesthetic quality of the Causeway.

Cultural Resources

Past projects, including the buildup of military facilities in Sitka, Alaska, during World War II that created the NHL may have had potentially adverse effects on prehistoric and Native American cultural resources. Current projects including the proposed Right-of-Way authorization, as well as future projects, have the potential to adversely affect historic properties and other cultural resources if avoidance and mitigation measures are not implemented. Future development of FRCSHP and the Phase 2 Relocation of the Airport Road project are two individual projects that could have the most potential to adversely affect cultural resources. Development of FRCSHP could, however, potentially have a beneficial effect on historic properties. Since most of the current and future actions, including the Proposed Action, require either federal or state oversight, these actions will require compliance with the NHPA and/or the Alaska Historic Preservation Act, and consultation with the SHPO. As a result, the cumulative effects of all of these actions are not expected to be substantial.

Subsistence Resources

The cumulative effects of the Proposed Action in concert with past, current, and reasonable foreseeable future projects are expected to be inconsequential with respect to subsistence resources. The Proposed Action would have a negligible effect on subsistence resources since the

project proponent has agreed not to complete its work during the important Pacific herring spawning season in late spring usually between March 15th and May 15th.

Hazardous Waste and Contaminated Sites

Most of the contaminated and hazardous waste sites present within the project area were created from past actions, particularly with the buildup of Sitka during World War II, development of the Sitka Rocky Gutierrez Airport, past mining operations, the fishing industry, and forest industry operations. Today, issues related to hazardous waste and contaminated sites have focused largely on avoiding the disturbance or exposure of past contamination and in managing hazardous waste and spills to minimize impacts. The USACE has strived to identify and delineate contaminated sites within the Causeway and neighboring park, which has enabled proponents to identify these sensitive areas and implement preventative measures to avoid disturbing these sites further. For this reason, the cumulative effects associated with the Proposed Action in combination with other projects identified above are expected to be unsubstantial.

Vegetation Resources

The buildup of Sitka during World War II has resulted in the direct loss of terrestrial and marine habitats. Replacement of soft bottom habitats with rocky shore habitats and increasing the amount of open water in the Sitka Sound are among the primary alterations that have occurred to marine habitats as a result of past projects and actions. Past projects have changed littoral habitats and altered marine habitats in areas protected from wave energy as well. The environmental effects on marine and terrestrial vegetation resources would be considered minor when compared to the effects from past actions, which had a much greater impact on those resources. Terrestrial vegetation that has been removed as a result of more recent past actions, as well as vegetation that could be removed as a result of current and future actions are not unique to the area and therefore have not warranted special protection. This includes the alder brush expected to be removed by the project proponent if BLM elects to issue the Right-of-Way authorization. As such, the cumulative effects on vegetation resources are expected to be unsubstantial.

Water and Wetlands

Increased storm water runoff due to restoration of the original surface acreage of the impervious surfaces of the historic Causeway segments along with current and future projects could have a cumulative, detrimental effect on water quality without mitigation measures being implemented. The cumulative effects on water quality not expected to be substantial since past, present, and future actions have not and are not expected not to inhibit any designated beneficial uses of water resources in the area. The Causeway surface would be restored to its original surface area by the proponent with no new additional acreage being created that will be releasing water into Sitka Sound. Creating a smooth surface by capping the eroded Causeway with compacted gravel will increase sheet flow of rainwater but no storm water drains or culverts are involved in the repair of the Causeway lots.

Although there has been a loss of wetlands due to past actions, and wetlands losses would continue to occur as a result of current and future projects, these impacts are not expected to be substantial.

Wildlife and Fisheries

Habitat loss and fragmentation from past projects has had a detrimental effect on some wildlife and fisheries resources. Removal of herbaceous species, shrubs, and smaller trees, as has been proposed for the Transit Bus Maintenance Facility, and the Airport Project, are not unique habitats that warrant special protection. Similar effects would occur as a result of the Right-of-Way authorization. While removal of alders and other vegetation on the Causeway as a result of the

Proposed Action could adversely affect individual birds and mammals, these effects would not be felt at the population level. In addition, threatened and endangered species are not expected to be adversely impacted by the Proposed Action and are not expected to be detrimentally effected on a cumulative basis either. For this reason, the cumulative effects to wildlife are not expected to be substantial. Fisheries species are not expected to be negatively affected by the Proposed Action since the proponent has agreed to avoid completing its work within the BLM Right-of-Way outside of the crucial Pacific herring spawning season. The cumulative effects to fishery resources within the project area also are not expected to be substantial given the mitigation measures that have, are, or would be implemented to prevent storm water runoff from reaching Sitka Sound.

4.0 Consultation and Coordination

4.1 Public Participation Opportunities

During the initial interdisciplinary team meeting, which occurred on July 5, 2012, the BLM decided that the public would be provided an opportunity to participate in the planning process for the EA during the 30-day public comment period prior to a decision on the Right-of-Way. Members of the EA team have consulted formally or informally with numerous agencies, groups, and individuals during the EA development process. Consultation, coordination, and public involvement have occurred through public review of the EA; meetings and briefings with federal, State, and Tribal government representatives; and informal meetings with interested individuals and organizations, such as the Sitka Historical Society and the Sitka Maritime Heritage Society.

Tribal Consultation

In accordance with the NHPA, as well as in recognition of the government-to-government relationship between Native villages and corporations, and the federal government (EO 13175), a letter from the BLM AFO inviting consultation, which is provided in **Appendix A,** was sent to Sitka Tribe of Alaska on September 26, 2012. To date, a formal response has not been received by the BLM. Follow up is ongoing. An informal response was received by AECOM by email regarding concerns the Sitka Tribe of Alaska would like to see addressed in the document. The response was prompted when AECOM provided preliminary draft chapters of the EA for which Sitka Tribe of Alaska was invited to provide informal feedback.

4.2 Interdisciplinary Team

An interdisciplinary team of specialists from AECOM (third-party contractor), the BLM AFO, the BLM Alaska State Office, and Sitka Trail Works, Inc. (proponent) prepared the Fort Rousseau Causeway Repair Right-of-Way Authorization EA (**Table 4-1**). The Sitka Tribe of Alaska and the State of Alaska also has participated in the development of the document. The BLM AFO have provided technical review and support.

Table 4-1 Interdisciplinary Team

Name	Responsibility
AECOM	
Edmund Gaines	Cultural Resources
Amy Kearns	Project Manager
Katrina Moss	Senior Technical Review
Sitka Trail Works, Inc.	
Deborah Lyons	Proponent, Right-of-Way Authorization Applicant
Sitka Tribe of Alaska	
Jeff Feldpausch	Natural Resources

Table 4-1 Interdisciplinary Team

Name	Responsibility
BLM	
Doug Ballou	Branch Chief, Resources
Larry Beck	Hazardous Material
Jenny Blanchard	Archaeologist
Molly Cobbs	Planning and Environmental Coordinator
Stephen Fusilier	Lands and Realty Specialist, Alaska State Office
Jeff Kowalczyk	Outdoor Recreation Planner / Visual Resources
Merlyn Schelske	Fish Biologist
Bruce Seppi	Wildlife Biologist
Thomas Sparks	Lands and Realty Specialist
Laurie Thorpe	Vegetation and Invasive Species

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Personal Communications via Email

Tammy Davis, Alaska Department of Fish and Game, November 13, 2012.

Jeff Feldspauch, Sitka Tribe of Alaska, October 7, November 28 and December 4, 2012

Appendix A

U.S. BLM Letter to Sitka Tribe of Alaska, September 25, 2012

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Anchorage Field Office
4700 BLM Road
Anchorage, Alaska 99507-2591
http://www.blm.gov/ak

In Reply Refer To:
8100 (AKA010)
AA-093208

SEP 26 2012

CERTIFIED MAIL 7004 1350 0002 0430 1389
RETURN RECIPT REQUESTED

Lawrence A. Widmark, Jr., Chairman
Sitka Tribe of Alaska
456 Katlian Street
Sitka, Alaska 99835-7505

Dear Chairman Widmark:

We are writing to invite the Sitka Tribe of Alaska to enter into government-to-government consultation regarding a proposed application from Sitka Trail Works, Inc., which the Bureau of Land Management, Anchorage Field Office (BLM) has received to repair the causeways connecting the islands of what is now Fort Rousseau Causeway State Historic Site near Sitka, Alaska.

The BLM is proposing to grant a Right-of-Way (ROW) for two years to Sitka Trail Works to repair several of the causeways connecting the islands of Fort Rousseau. While the islands are managed by the State of Alaska and have been designated a State Historic Site, the causeways are managed by the BLM. The proposed project area is on approximately two acres of BLM-managed lands (NEPA file: DOI-BLM-AK-A010-2012-0026-EA). A total of 1,408 lineal feet of the Causeway would be repaired. The roadbed would be restored to an eight-foot width with one- to two-foot shoulders. Restoration and repairs would be completed seasonally by Sitka Trail Works over a period of two years beginning in spring 2013.

In previous consultation with your Tribe, you have expressed concern that proposed actions could potentially impact subsistence resources or access to those resources. While the environmental analysis is still ongoing, based upon current information and previous projects in the vicinity, the BLM does not believe that the proposed project will impact any subsistence resources, or access to them.

Under federal law, the BLM is responsible for processing requests to authorize projects to be constructed and operated on land it manages. In processing the applications, the BLM must comply with the requirements of the National Environmental Policy Act of 1969 (NEPA), which requires that federal agencies reviewing projects under their jurisdiction consider the environmental impacts. In the case of the proposed causeway repair, this will be accomplished through preparation of an Environmental Assessment (EA). The BLM is the lead federal agency responsible for meeting the consultation and documentation requirements for section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, and Native American consultation, including government-to-government consultation.

This letter serves to provide notification of the proposed project, explain the roles of the BLM, and offer an invitation to the tribe to enter into government-to-government consultation pursuant to the *Executive Memorandum* of April 29, 1994 and other relevant laws and regulations. If you provide sensitive information, a 1991 amendment to the National Historic Preservation Act allows the BLM to prevent the release of this information to the public if it may pose a risk to historic properties or traditional cultural properties.

Please do not hesitate to contact us if you have any comments, questions or would like to schedule a meeting. The BLM points of contact for this project are Brian Bourdon, Project Manager: (907) 267-1210, email: bbourdon@blm.gov; or Jenny Blanchard, Anchorage Field Office Archaeologist: (907) 267-1341, email: jblanchard@blm.gov. You may contact us by letter, phone, or email to let us know of your interest or preference for involvement in this project.

The BLM truly appreciates your interest and concern for the public lands in southeast Alaska and looks forward to hearing from you regarding the proposed project.

Sincerely,

Dave Mushovic
Acting

Nikki Moore
Acting Field Manager

Enclosure

LLM:AKA012:JBlanchard:sta:9/25/2012:907-267-1341:EMaildrive:01200 Resources Branch:FY2012:Sept:AA-093208 Sitka Rousseau Causeway Repair Tribal Notification