State of Alaska
Coastal Impact Assistance Program

December 2010 Amendment

APPENDIX B-1.2

Project Descriptions: Direct to State Funding

Publically Solicited Projects – Tier 2

State of Alaska
Coastal Impact Assistance Program
Direct to State Funding

Tier 2 - Publically Solicited Projects		
Project ID Number	**Project Title**	**Spending Estimate**
AKCIAP_PUB_T2-01	Seward NE Harbor Fish Cleaning Station	$579,000
AKCIAP_PUB_T2-02	Expansion of the Alaska ShoreZone Habitat Mapping and Inventory Partnership to the Aleutian Islands, Western, and Arctic Coasts	$294,466
AKCIAP_PUB_T2—03	Auke Lake Launch Ramp	$250,000
AKCIAP_PUB_T2—04	Prince William Sound and the Copper River/Bering Glacier Ecosystems: Building an Educational Knowledge Base for Climate Impact Mitigation	$897,493
AKCIAP_PUB_T2--05	Woodard Creek Rehabilitation, Phase I - Planning and Design	$92,825
AKCIAP_PUB_T2--06	Coastal Wetlands Protection in Southeast Alaska: An Assessment and Credit-Debit Tool for Compensatory Mitigation	$486,600
AKCIAP_PUB_T2-07	Restoration and Mitigation Opportunities for Juneau Watersheds	$75,589
AKCIAP_PUB_T2-08	Alaska CoastWatch	$481,650
AKCIAP_PUB_T2-09	Alaska Coastal Observation Network (ACON) – An Educational Component on How to Conduct Remote Coastal Observations and Analysis of Changing Shorelines to Protect Coastal Areas	$2,928,346
AKCIAP_PUB_T2-11	Fish Waste Compost Project for Improved Nushagak Watershed Environment	$81,189
AKCIAP_PUB_T2-12	Matanuska River Debris/Junk Removal	$156,792
AKCIAP_PUB_T2-13	Potter Marsh Watershed Corridor: Conservation from Anchorage's Sea to Tundra for People and Wildlife	$2,000,000

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

City of Seward

This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Seward NE Harbor Fish Cleaning Station

PROJECT CONTACT

Contact Name:	Kari Anderson, Harbormaster
Address:	PO Box 167 Seward, Alaska 99664
Telephone Number:	(907) 224-3138
Fax Number:	(907) 224-7187
Email Address:	harbormaster@cityofseward.net

PROJECT LOCATION

Seward is a coastal community which lies on Resurrection Bay, a glacially carved fjord adjacent to the Gulf of Alaska. This maritime community borders the Kenai Fjords National Park which is home to a vibrant array of marine species including sea otters, Steller sea lions, puffins, artic terns, and murrelets. The proposed Seward NE Harbor Fish Cleaning Station is a project which will be completed within the Seward Small Boat Harbor. The harbor lies at approximately 60°07'N and 149°26'W along the northwest edge of Resurrection Bay. Please see the attached Site Vicinity Map in Attachment B for further details.

PROJECT DURATION

The Seward NE Harbor Fish Cleaning Station project will take less than one year to complete upon finalization of the grant agreement. Engineering, materials procurement, and construction are expected not to exceed eleven months according to an estimate by a certified waterfront engineer.

ESTIMATED COST

The request for funding for the Seward NE Harbor Fish Cleaning Station is $579,000.00, and a cost estimate for project components is included in Attachment C.

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$579,000	$579,000	0	0	0

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$579,000	0	0	0	$579,000

PROJECT DESCRIPTION

The City of Seward has recently expanded the Seward Harbor to accommodate recreational vessels. The City of Seward wishes to construct a new fish cleaning facility that will replace the existing deteriorated fish cleaning tables in the northeast area of the small boat harbor. The existing facilities are unsanitary, and cause a nuisance and water quality issues due to fish waste accumulating beneath the tables. This

project will replace these tables and will be designed to meet current ADA standards, safety codes, and best management practices for managing fish waste.

The goal of the project is to construct a fish cleaning facility that is designed to direct the waste into a contained area and located properly below mean high water levels to allow access to the waste collection barge for more frequent removal and proper disposal of the waste. The measurable outcomes will include the reduction of over-accumulation of fish waste and associated problems with ailing marine mammals and avian species who have fed on the deteriorating fish waste. Water quality issues will be addressed by allowing for proper collection of waste and more frequent removal and disposal of waste at the fish cleaning tables.
The Seward NE Harbor Fish Cleaning Station project includes constructing a new 12-ft wide galvanized steel pile supported timber trestle, leading to a 54-ft x 26-ft pile supported dock with associated fish cleaning tables in the northeast portion of the harbor; 25 feet north of the existing boat launch ramp facility as shown in the attached drawings (Attachment B). This new facility will replace the existing fish cleaning tables located along the boardwalk in that area.

Finally, the improved fish cleaning stations and waste collection barge will reduce the number of marine mammals and avian species which regularly feed at the existing facilities because of a lack of containment of the fish waste. There is documented evidence of bloated mammals and birds which have become ill after feasting on decomposing fish waste. The area beneath the dock of the proposed NE Fish Cleaning Station will be enclosed in a fine mesh net to prevent gulls and sea lions from utilizing the area as a habituated food source.

The proposed facility is of a similar design to others that have been constructed in several communities throughout the State. These facilities have shown to be instrumental in helping communities manage fish waste properly and reduce the amount of fish waste accumulating within harbor areas or along the shorelines of the community. The project goals will be achieved very soon after construction and the fish waste management issues that currently exist in this area of the harbor will be immediately alleviated. The new facility will eliminate the access to fish carcasses by seabirds and marine mammals. Non-point source pollution will be reduced by providing the public with a convenient way to discard of fish waste.

This project has been permitted through the US Army Corps of Engineers and has been reviewed by the Division of Coastal and Ocean Management for consistency with the Alaska Coastal Management Program. The project milestones for this one year project are listed in the table below.

Milestones: Year 1

Milestones	Q1	Q2	Q3	Q4
Engineering Design for NE Harbor Fish Cleaning Station	X			
Award Construction Contract	X			
Materials Procurement		X		
Complete Construction			X	
Eliminate Access to Fish Waste by Seabirds and Mammals				X
Reduce Nonpoint Source Pollution				X

MEASUREABLE GOALS AND OBJECTIVES

The number one project goal is to reduce the number of marine mammals and birds feeding on fish waste in the Seward Harbor. The current fish cleaning station configuration allows for the foraging of sport-caught fish carcasses by seabirds and marine mammals (Steller sea lions). The measurable outcome of this project is the completed NE Harbor Fish Cleaning station will prevent open access to discarded fish carcasses and to have 0% of wildlife in the Seward harbor feeding on recreational fish waste. Measureable outcomes of the NE Harbor Fish Cleaning Station include: obtaining all necessary permits (federal, state, and local) for the project by the second quarter, and to complete construction of the fish cleaning station prior to the fourth quarter of the project.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project is consistent with Authorized use number 2, *mitigation of damage to fish, wildlife, or other resources.* Trained animal responders from the stranding department at the Alaska SeaLife Center respond to an average of 30 calls per summer season from marine mammals, which have become accustomed to feeding on fish waste from recreational and sport fishing vessels in the Seward Harbor. These animals become lethargic, entangled in equipment, and become a threat to the public once they associate humans with a food source.

The Seward NE Harbor Fish Cleaning Station Project will address this problem by installing an ADA-accessible fish cleaning station near the north harbor vessel launch ramp area within the harbor. The fish cleaning facility will extend over the water, enabling the fish waste barge to remain submerged through all stages of the tide. This will be a significant improvement from the existing facilities in this area (see photographs in Attachment A). This proposed facility will mitigate the existing impacts noted above by eliminating the access to fish waste by seabirds and marine mammals.

Routine harbor and boating activities produce a variety of non-hazardous solid wastes. Too much fish waste in a poorly circulated harbor basin lowers oxygen levels in the water. As the waste decomposes, it creates foul odors and lower oxygen levels, which contribute to the death of microorganisms living within the harbor. This consequence transfers up the food web ultimately impacting spawning salmon, seabirds, and marine mammals. The proposed project will reduce the amount of fish waste which accumulates in the Seward Harbor, and will mitigate damage to microorganisms, fish, and wildlife.

The Seward NE Harbor Fish Cleaning Station is designed to meet authorized use #2: outlined in 43 U.S.C, 1356a(d)(1) regarding mitigation of damage to fish, wildlife, or natural resources. The primary goal of the project is to mitigate the existing impacts to marine mammals that are caused by feeding on fish waste by preventing marine mammals including the threatened Steller sea lion from becoming accustomed to feeding on fish waste and to limit human/animal interactions.

This project is also consistent with CIAP Authorized Use number 1, *projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.* A second project goal is to protect the coastal area around the Seward Harbor by reducing non-point source pollution in the Seward Harbor from fish carcasses. Currently 50% of the fish carcasses that are discarded in the Seward NE Harbor end up in the waters of the harbor due to poor aim by fisherman attempting to discard the carcass, or seabirds pulling carcasses into the water. The amount of fish carcasses entering the harbor will be

reduced as a result of the new NE Harbor Fish Cleaning station, thus reducing non-point source pollution from fish carcasses. Reducing pollution is an essential component to protecting coastal areas.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

According to a 2005 survey conducted by Cornell University, the Seward Small Boat Harbor was the harbor most frequently used in the State of Alaska by Recreational Boaters. The Alaska Department of Fish and Game (ADF&G) has recognized the Seward Harbor's concentration of recreational fishing activity. The Seward NE Harbor Fish Cleaning Station Renovation Project has received letters of support from ADF&G, Division of Sport Fish and the Seward Charter Boat Association.

COST SHARING OR MATCHING OF FUNDS

CIAP funds may be used for cost sharing or matching purposes required by another grant. If they are used in this manner, a letter will be included with the CIAP grant application from the other Federal agency (the agency charged with administering the program that includes the cost sharing or matching requirement) indicating that the other agency's program allows the use of Federal funds to meet cost sharing or matching requirements.

Other entities contributing to the project include the City of Seward and the Alaska Department of Fish and Game.

ATTACHMENT A
Photographs

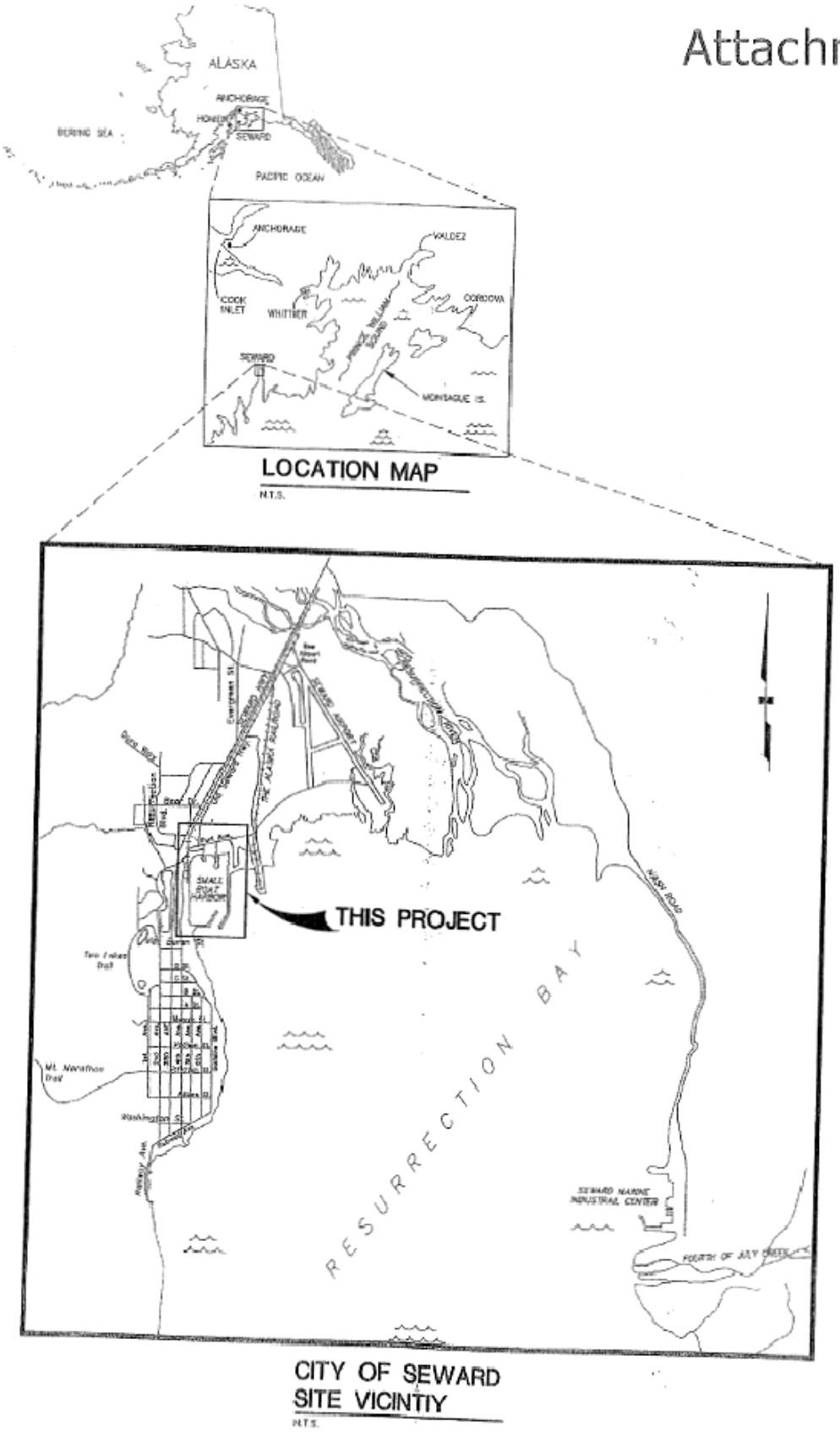
Photo 1: The existing fish cleaning table.

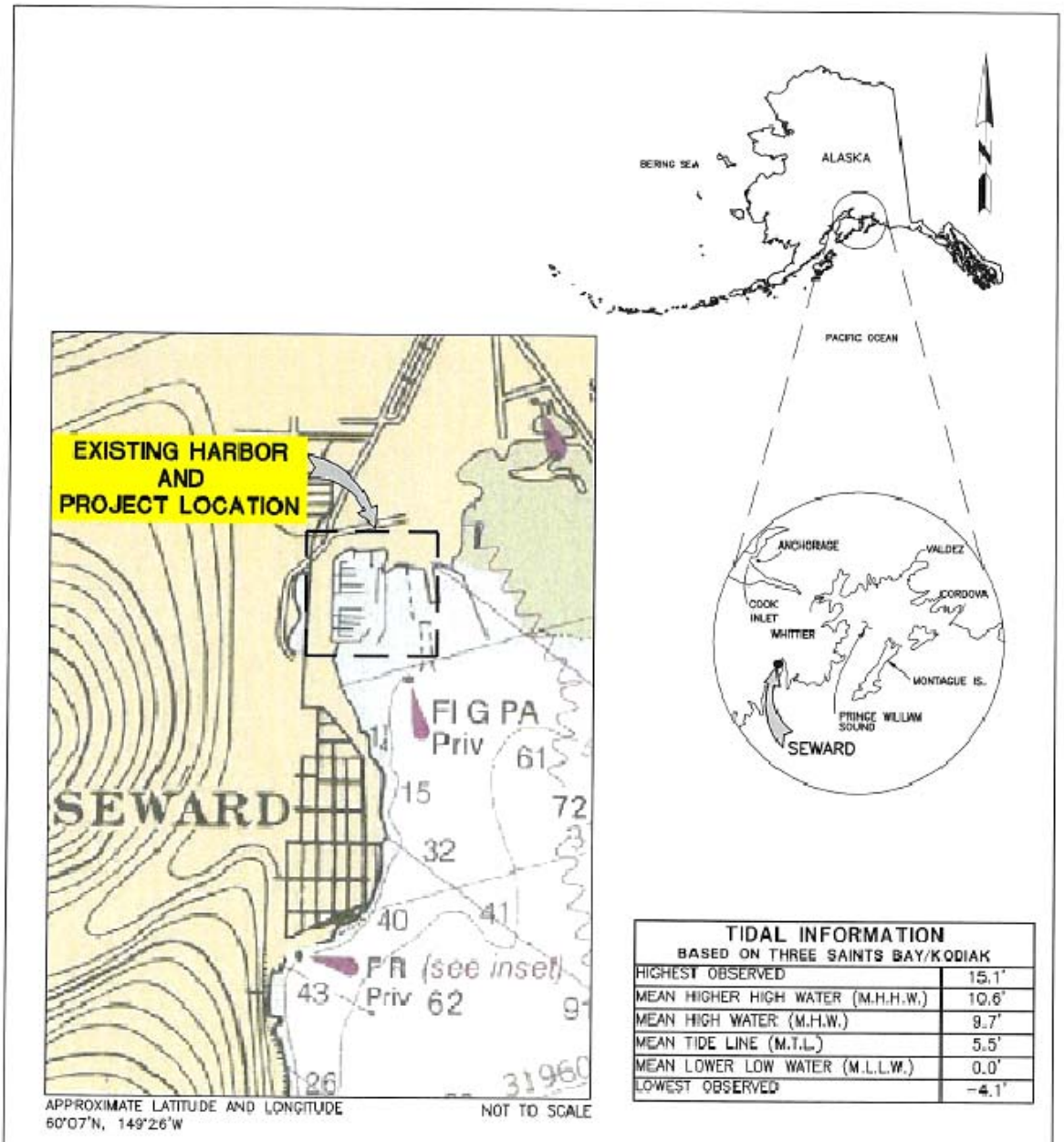
Photo 2: Fish waste collection barge area.

Photo 3: Tables similar to proposed facility.

Photo 4: Harbor Staff Towing Fish Waste

Attachment B





APPROXIMATE LATITUDE AND LONGITUDE
60°07'N, 149°26'W

NOT TO SCALE

TIDAL INFORMATION BASED ON THREE SAINTS BAY/KODIAK	
HIGHEST OBSERVED	15.1'
MEAN HIGHER HIGH WATER (M.H.H.W.)	10.6'
MEAN HIGH WATER (M.H.W.)	9.7'
MEAN TIDE LINE (M.T.L.)	5.5'
MEAN LOWER LOW WATER (M.L.L.W.)	0.0'
LOWEST OBSERVED	-4.1'

PURPOSE:
REPLACE FISH CLEANING STATION

PERMIT: 1-940426
RESURRECTION BAY 99
DATUM: M.L.L.W. = 0.0'
ADJACENT PROPERTY OWNERS:
UPLANDS: CITY OF SEWARD / ALASKA RAILROAD
OFFSHORE: CITY OF SEWARD

VICINITY MAP

NOT TO SCALE

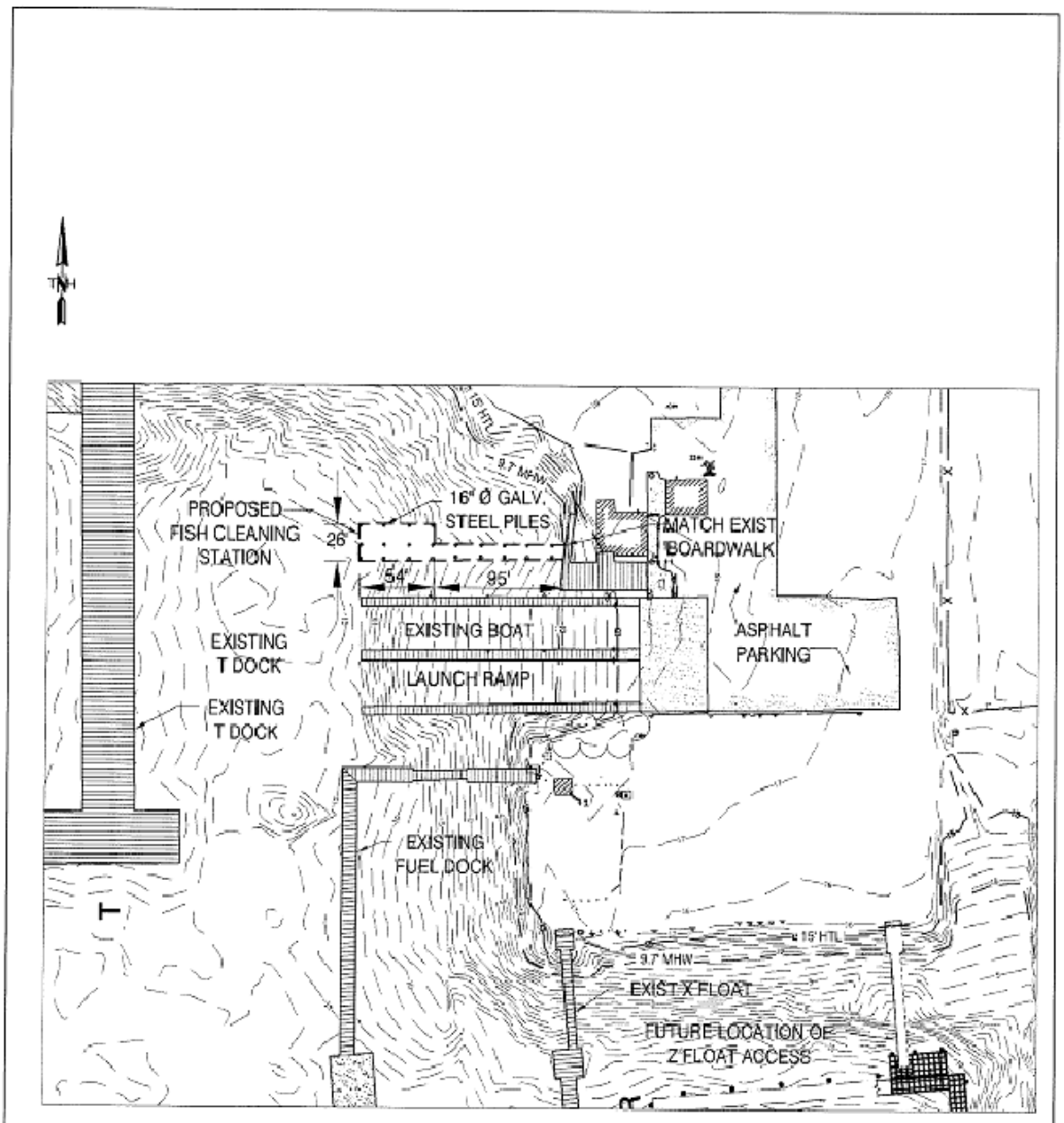
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA

SEWARD SMALL BOAT HARBOR

IN: RESURRECTION BAY
AT: SEWARD, ALASKA
APPLICATION BY:
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664
SHEET: 1 OF 7 DATE: 05/15/09

DWG. FILE: FishSta p1 vicinity.dwg

JOB NO.: 26219977 REV.: 0



PURPOSE:
REPLACE FISH CLEANING STATION

PERMIT: 1-940426
RESURRECTION BAY 99
DATUM: M.L.L.W. = 0.0'
ADJACENT PROPERTY OWNERS:
UPLANDS: CITY OF SEWARD/ ALASKA RAILROAD
OFFSHORE: CITY OF SEWARD

SITE PLAN

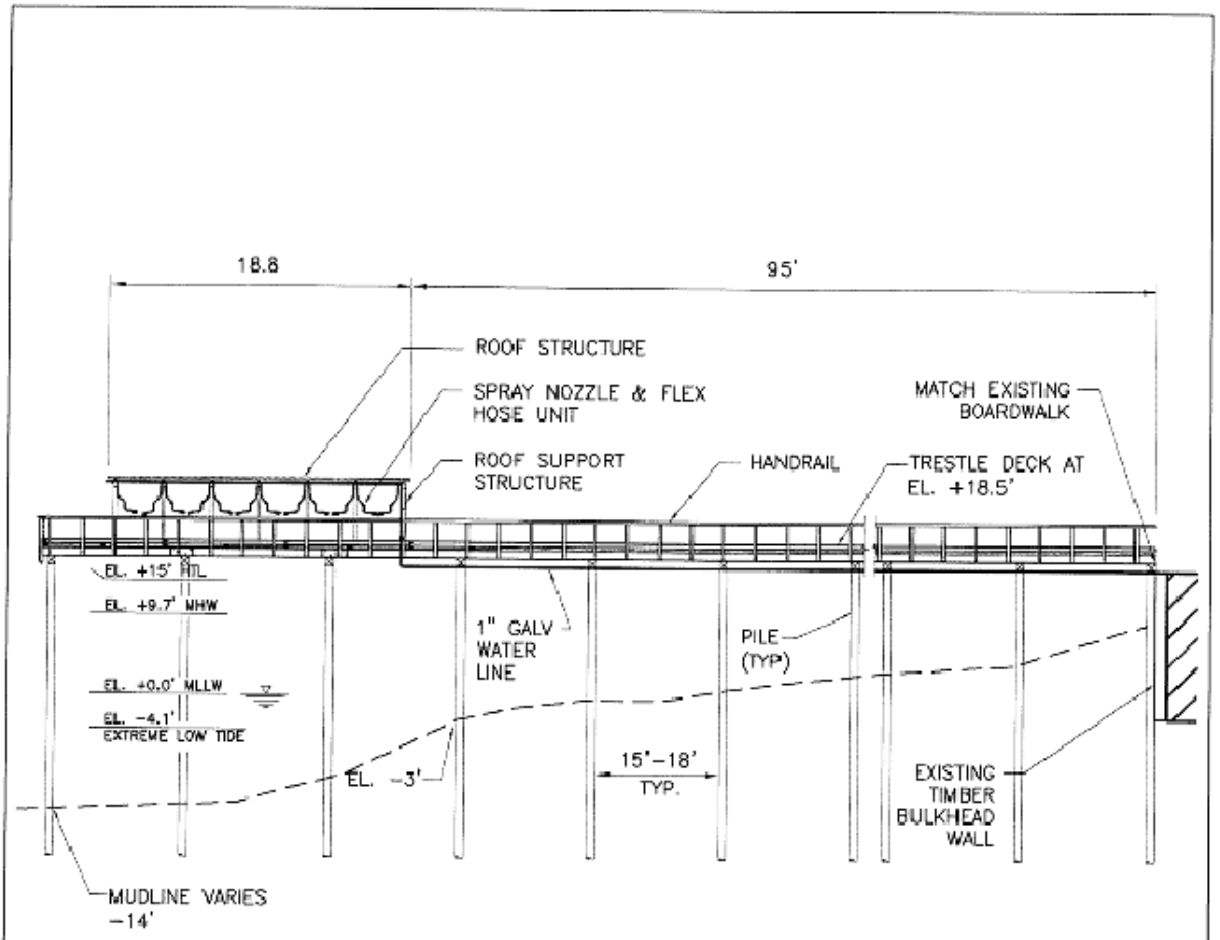
100 0 100
SCALE: 1"=100'

CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA

SEWARD SMALL BOAT HARBOR

IN: RESURRECTION BAY
AT: SEWARD, ALASKA
APPLICATION BY:
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664
SHEET: 3 OF 7 DATE: 05/15/09

DWG. FILE: FishSta P2&3B Location.dwg.
JOB NO.: 26219977 REV.: 0



PURPOSE:
REPLACE FISH CLEANING STATION

PERMIT: 1-940426
RESURRECTION BAY 99
DATUM: M.L.L.W. = 0.0'
ADJACENT PROPERTY OWNERS:
UPLANDS: CITY OF SEWARD/ ALASKA RAILROAD
OFFSHORE: CITY OF SEWARD

ELEVATION

20 0 20
SCALE:1" = 20'

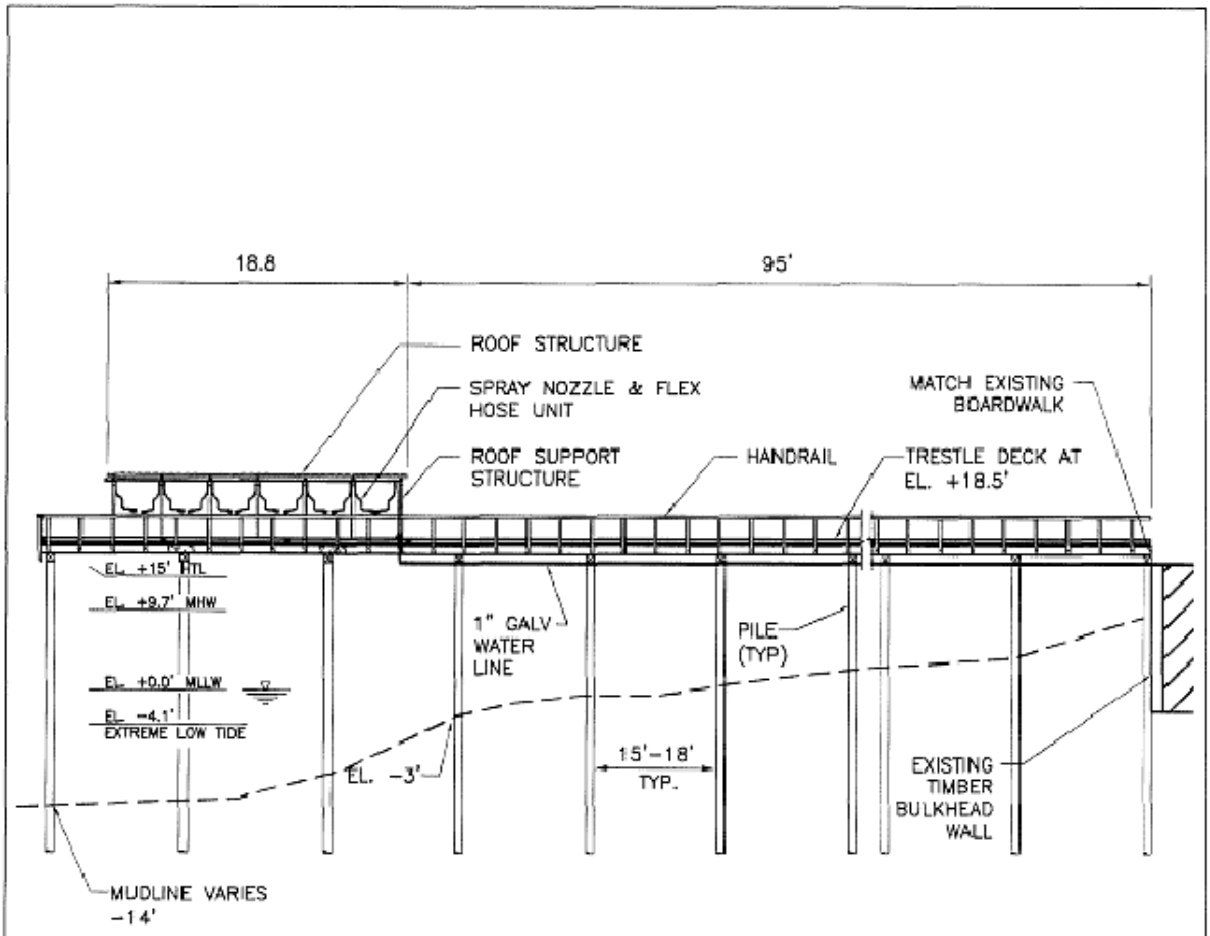
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA

SEWARD SMALL BOAT HARBOR

IN: RESURRECTION BAY
AT: SEWARD, ALASKA
APPLICATION BY:
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664
SHEET: 5 OF 7 DATE: 05/15/09

DWG. FILE: FishSta p4&5 PlanElevation.dwg.

JOB NO.: 26219977 REV.: 0



PURPOSE:
REPLACE FISH CLEANING STATION

PERMIT: 1-940426
RESURRECTION BAY 99
DATUM: M.L.L.W. = 0.0'
ADJACENT PROPERTY OWNERS:
UPLANDS: CITY OF SEWARD / ALASKA RAILROAD
OFFSHORE: CITY OF SEWARD

ELEVATION

20 0 20
SCALE:1" = 20'

CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA

SEWARD SMALL BOAT HARBOR

IN: RESURRECTION BAY
AT: SEWARD, ALASKA
APPLICATION BY:
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664
SHEET: 5 OF 7 DATE: 05/15/09

DWG. FILE: FishSta p4&5 PlanElevation.dwg. JOB NO.: 26219977 REV.: 0

PURPOSE:
REPLACE FISH CLEANING STATION

PERMIT: 1-940426
RESURRECTION BAY 99
DATUM: M.L.L.W. = 0.0'
ADJACENT PROPERTY OWNERS:
UPLANDS: CITY OF SEWARD/
ALASKA RAILROAD
OFFSHORE: CITY OF SEWARD

ROOF AND WATER SYSTEM

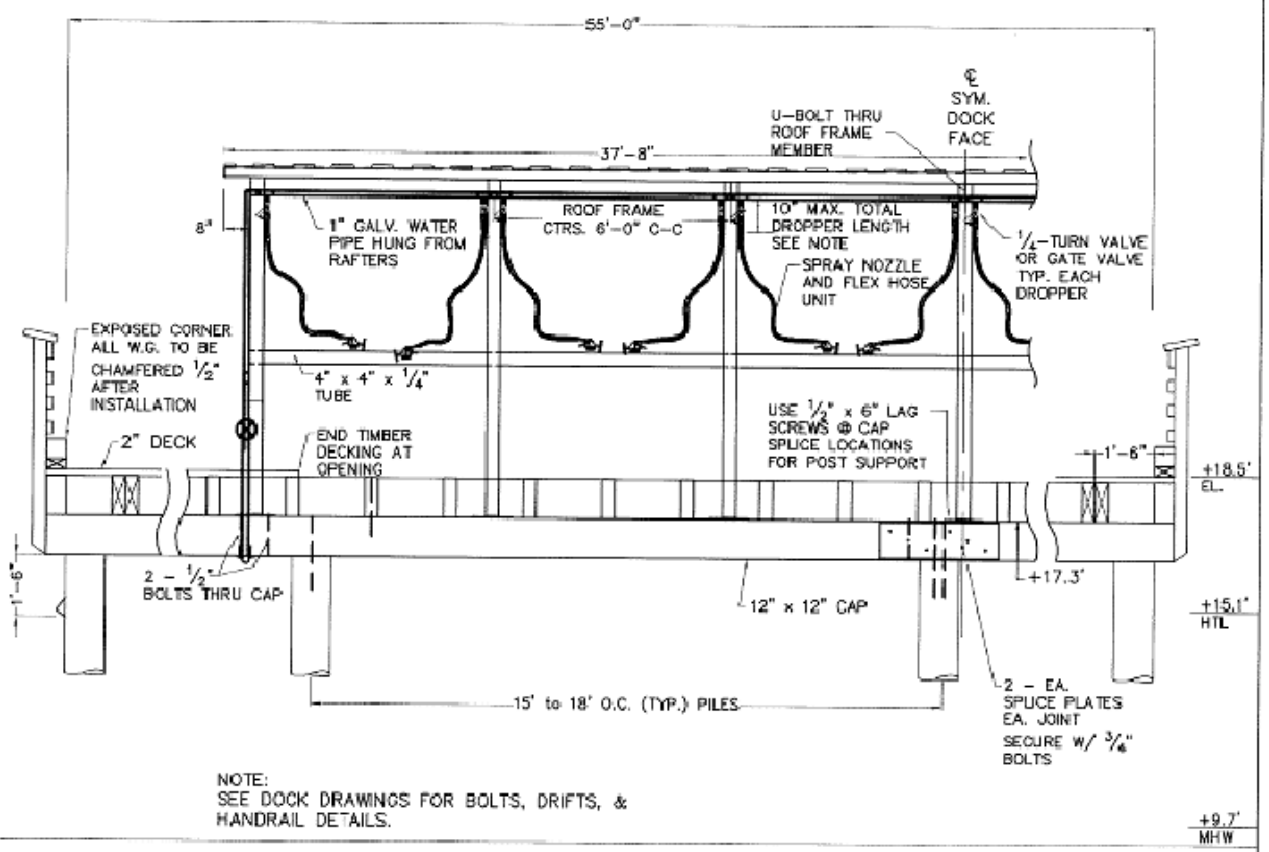
SCALE AS SHOWN
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA

SEWARD SMALL BOAT HARBOR

IN: RESURRECTION BAY
AT: SEWARD, ALASKA
APPLICATION BY:
CITY OF SEWARD
P.O. BOX 167
SEWARD, ALASKA 99664
SHEET: 6 OF 7 DATE: 05/15/09

DWG. FILE:FishSta p6&7 elev&section.dwg

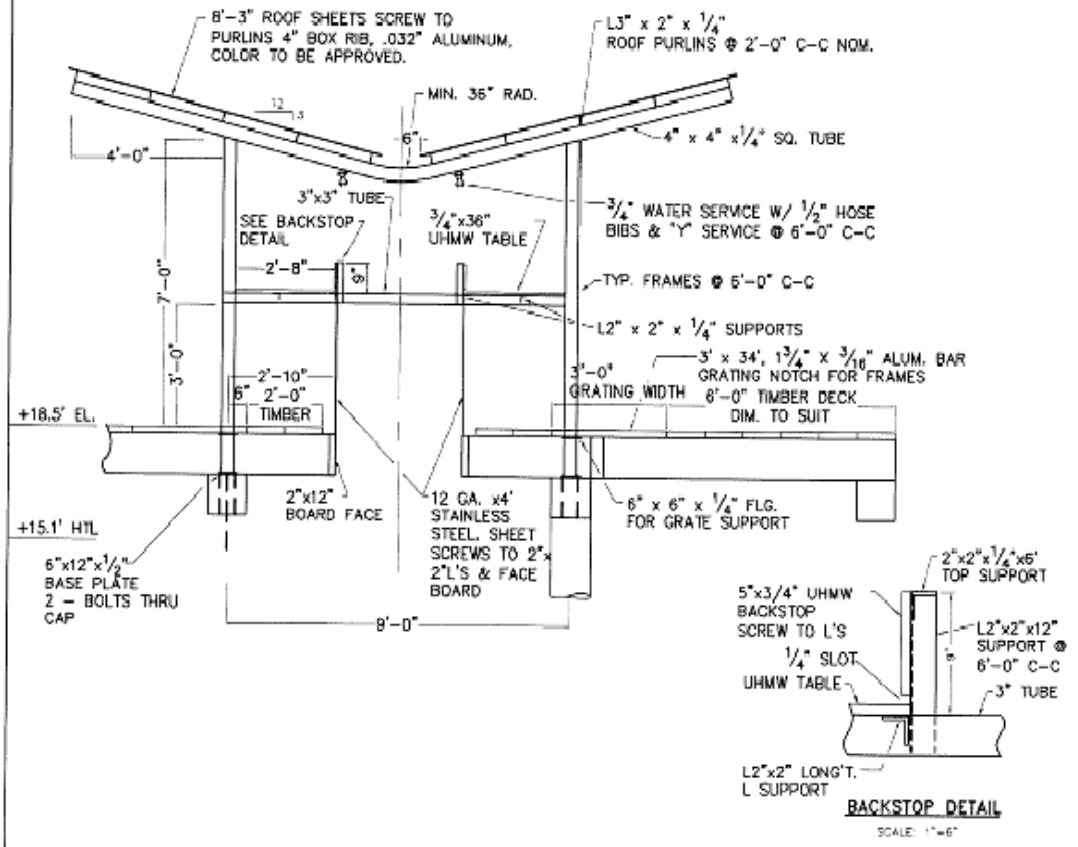
JOB NO.: 26219977 REV.: 0



NOTE:
SEE DOCK DRAWINGS FOR BOLTS, DRIFTS, & HANDRAIL DETAILS.

ELEVATION VIEW OF ROOF SUPPORTS AND WATER SYSTEM

GRAPHIC SCALE
2' 0 2' 4'
(IN FEET)



TYPICAL FISH CLEANING TABLE & ROOF SECTION

GRAPHIC SCALE
2' 0 2' 4'
(IN FEET)

PURPOSE: **REPLACE FISH CLEANING STATION** PERMIT: 1-940426 RESURRECTION BAY 99 DATUM: M.L.L.W. = 0.0' ADJACENT PROPERTY OWNERS: UPLANDS: CITY OF SEWARD / ALASKA RAILROAD OFFSHORE: CITY OF SEWARD	**CLEANING TABLE AND ROOF** SCALE AS SHOWN CITY OF SEWARD P.O. BOX 167 SEWARD, ALASKA	**SEWARD SMALL BOAT HARBOR** IN: RESURRECTION BAY AT: SEWARD, ALASKA APPLICATION BY: CITY OF SEWARD P.O. BOX 167 SEWARD, ALASKA 99664 SHEET: 7 OF 7 DATE: 05/15/09

DWG. FILE: FishSta p6&7 elev&section.dwg. JOB NO.: 26219977 REV.: 0

Attachment C

BUDGETARY CONSTRUCTION COST ESTIMATE
SEWARD HARBOR--FISH CLEANING STATION

Item Description	Units	Quantity	Unit Cost	Amount
Mobilization/Demobilization	LS	1	$50,000.00	$50,000.00
Construction Survey	LS	1	$8,000.00	$8,000.00
Fish Cleaning Station				
Timber dock and approach trestle	SF	2500	$80.00	$200,000.00
12" Diam. X 1/2" Wall Steel Piles (60' long), Furnished	LF	1440	$70.00	$100,800.00
12" Diam. X 1/2" Wall Steel Piles, Driven	EA	24	$3,000.00	$72,000.00
Furnish and Install New Anodes	EA	24	$600.00	$14,400.00
Roof	SF	612	$30.00	$18,360.00
Cleaning Tables (2 ea., 3'x36')	LS	1	$12,000.00	$12,000.00
Fish Racks	LS	1	$3,000.00	$3,000.00
Utilities				
Potable water	LF	150	$110.00	$16,500.00
Electrical Power and Lighting	LF	150	$150.00	$22,500.00
New Fish Waste Collection Barge (for towing and disposal)	LS	1	$18,000.00	$18,000.00
TOTAL BASE COST				**$535,560.00**
Construction Contingency			10%	$53,556.00
Engineering			10%	$53,556.00
Administration Cost- Grant Reporting, Tracking, Audit				$62,640.00
Legal, Permitting, Construction Administration				$25,000.00
TOTAL PROJECT COST				**$720,312.00**

Funding Sources

City of Seward	**$41,312.00**
ADF&G -Federal Aid in Sport Fish Restoration	**$100,000.00**
Community Coastal Impact Assistance Program	**$579,000.00**

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

The Nature Conservancy
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Expansion of the Alaska ShoreZone Habitat Mapping and Inventory Partnership to the Aleutian Islands, Western, and Arctic Coasts

PROJECT CONTACT

Contact Name: Laura Baker
Address: 416 Harris St. Suite 301
Juneau, AK 99801
Telephone Number: (907) 586-8623
Fax Number: (907) 586-8622
Email Address: lbaker@tnc.org

PROJECT LOCATION

The Nature Conservancy's Alaska Field Office is requesting funds for the Alaska ShoreZone Habitat Mapping and Inventory Partnership Coordinator. The goals of this Partnership include the implementation of aerial surveys and digital mapping across the Aleutian Islands, Western, and Arctic Alaska, as shown in the map, Attachment A.

PROJECT DURATION

The Nature Conservancy is specifically asking for funding for a coordinator for 3 years to help initiate the extension the ShoreZone Partnership into the areas of the Aleutian Islands, Western, and Arctic Alaska. Three years of full time coordination for the project will advance the project signifcantly within these geographies. The goals of the Partnership will be met when the entire coast of Alaska has been imaged and digitally mapped and this information is publicly available. The Partnership started in 2001 in the Cook Inlet by the Cook Inlet Regional Citizen's Advisory Council. Since then, 45% of Alaska's coastline (34,000 km) has been imaged and digitally mapped. Another 11,000 km have been imaged and await mapping. This leaves approximately 38,000 km remaining, mostly in the Aleutian Islands, Western, and Arctic Alaska. The project is expected to be completed in 2017.

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$294,466.00	$97,769.00	$96,968.00	$99,729.00	n/a

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$294,466.00	0	0	0	$294,466.00

PROJECT DESCRIPTION

Alaska hosts more coastline than the contiguous United States. Coastal residents and resource managers in Alaska have little consistent and publicly available information about complex coastal habitats along the state. The Alaska ShoreZone Partnership is changing this situation. The methods for gathering data involve the collection and synthesis of aerial videography, high resolution still photos, and expert commentary of the intertidal zone and estuarine environment. Some of the resources being inventoried include huge expanses of eelgrass beds and kelp forests, tidal flats, thousands of estuaries, sandy beaches, erosional shore types, coastal development, and archeological and cultural sites.

While scientists have long been able to explain the ecological significance of habitats, the Alaska ShoreZone data documents where the habitat features are located by associating them with a latitude and longitude i.e. georeferencing. All of the photos and summarized digital mapping are made available to the public through an interactive website hosted by NOAA National Marine Fisheries Service. See http://alaskafisheries.noaa.gov/habitat/shorezone/szintro.htm

It is critical to have a full-time coordinator oversee and implement the Alaska ShoreZone Partnership to advance the collection of data, coordinate the distribution of the information to the public, and train people to use the data in expanded areas along Alaska's coast. Due to the success of the project in the Gulf of Alaska and Bristol Bay, significant increases in partners, large amounts of data, and demand for expansion of the project into new geographies, The Nature Conservancy is requesting funding to support a partnership coordinator for three years. A coordinator for this project is critical in catalyzing project goals of imaging and mapping the entire coast of Alaska and making the data publicly accessible.

Key milestones:
Year 1. The Nature Conservancy will hire a full time Alaska ShoreZone Partnership Coordinator and coordinator will begin to seek funding to achieve partnership goals.
Year 1 – Year 3. ShoreZone annual plan complete and partnership meeting held to set summer field season priorities.
Year 1-Year 3. Field season logistics are planned, organized and implemented. Community dialogue and feedback will be sought, necessary permits secured, and contracts prepared and managed.
Year 1 – Year 3. Regular communications with partners, imagery from the summer field season is posted on the NOAA website, fundraising for the 2013 field season.
Year 1 – Year 3. At least two ShoreZone training workshops conducted by year end.

The focus of the Alaska ShoreZone Partnership is to work closely with local, state, and federal entities. One of the Partnership's goals is to make the ShoreZone photos and data accessible to the public. Therefore, having one primary person is key to ensuring local, state, and government agencies are communicating about the latest technological advances for making the information available to the public. A coordinator is important for consulting with community and tribal members, fishermen, emergency response staff, and researchers about ways in which they can have access to the data that may be different than what is already available. The high resolution photos, 1-second captures from video, and digital habitat data are available through several agency sources. For example, NOAA National Marine Fisheries Service is providing the high tech programming and database management through their website where it is possible to "fly the coastline" by playing the video captures of the coast. Everyone can download the

high resolution photos and video catpures, query and download the habitat spatial data, and apply the information to your GIS (geospatial information system) platforms.

Lasting benefit for communities also comes through training of people of diverse backgrounds on how to use and apply the ShoreZone photos and data for their own purposes - from search and rescue personnel, community planners, researchers, educators, coastal managers, fishermen, and tourism operators. The more community members learn to use the information, the more valuable it will become as a tool for the public. This is why is it is critical to have one primary coordinator for the project, to ensure these goals are being met.

MEASUREABLE GOALS AND OBJECTIVES

Goal 1: Increase baseline coastal imagery and mapping data for conservation and protection of coastal resources.
Outcome 1: Provide a full-time coordinator to manage more than 20 partners across Alaska and expand ShoreZone imagery and mapping to the Aleutian Islands, Western, and Arctic Alaska.
Goal 2: Provide increased support of oil spill response and planning, habitat conservation, coastal community planning, and coastal resource management through the Alaska ShoreZone Project. Outcome 2: Coordinator will facilitate communications among multiple agencies to make large amounts of imagery and mapping available to the public.

Goal 3: The Alaska ShoreZone Partnership successfully completes at least 15,300 kilometers of Alaska ShoreZone surveys and digital mapping.
Outcome 3: Fundraise for, manage contracts, and coordinate complicated logistics among multiple partners to carry out remote aerial surveys.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

CIAP Authorized Use 1: Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands. By implementing the collection of ShoreZone imagery and mapping data, the project coordinator will be helping to expand an important decision support tool for the conservation, protection, and restoration of coastal resources. All of these management actions require readily available data that can be used in daily decisions for improving the permitting process, coastal zone planning, habitat modeling, emergency response, and conservation planning and implementation. For example, Alaska Shorezone data are used by oil spill responders during emergencies and training sessions, and ongoing Exxon Valdez Oil Spill restoration efforts in Prince William Sound. Response officials faced with emergency situations use ShoreZone to acquire critical information such as wave exposure, shore type, biological data, and high resolution coastline photos, resulting in more effective and timely response actions. Responders can now quickly locate and view photos of salmon streams, salt marsh, and eelgrass beds in the event of a spill, in order to know where to put response equipment to keep oil out of these sensitive habitats.

Fisheries research and management, tideland permit reviews, and understanding climate change impacts to coasts, are all of high importance to coastal residents in Alaska. ShoreZone helps agency staff and communities zoom in to their project area within minutes, see what habitat types and habitat resources are in specific areas, and greatly improve their planning activities. For example, federal and state permit review staff, researchers, and local coastal district coordinators now have a consistent tool for use in desktop reconnaissance of specific coastal development sites.

With projected increases in international shipping traffic and potential nearshore and offshore energy development, coastal managers will need access to consistent data to support planning and response efforts. Additionally, increases in storm frequency and coastal erosion issues associated with changes in climate are a concern for communities along Alaska's coast. Shorezone data provide information for managers to identify shore types vulnerable to erosion and the locations of problematic areas.

Sustained commercial, subsistence and sport fishing activities are important economic engines for coastal communities in Alaska. Therefore, fisheries habitat conservation and management are primary functions of federal and state resource agencies. Understanding the habitat needs, life histories, and abundance of important commercial and forage fish species in Alaska's waters has been greatly improved due to the coupling of the ShoreZone mapping with fish sampling surveys.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

The Nature Conservancy seeks funding for an Alaska ShoreZone Coordinator to increase our capacity to develop new partners with agencies, communities, boroughs, coastal resource service areas, coastal districts, villages, and tribes from the Aleutian Islands to the Arctic Coast. This project has been successful due to strong partnerships across coastal areas and the collaborative nature of the approach.

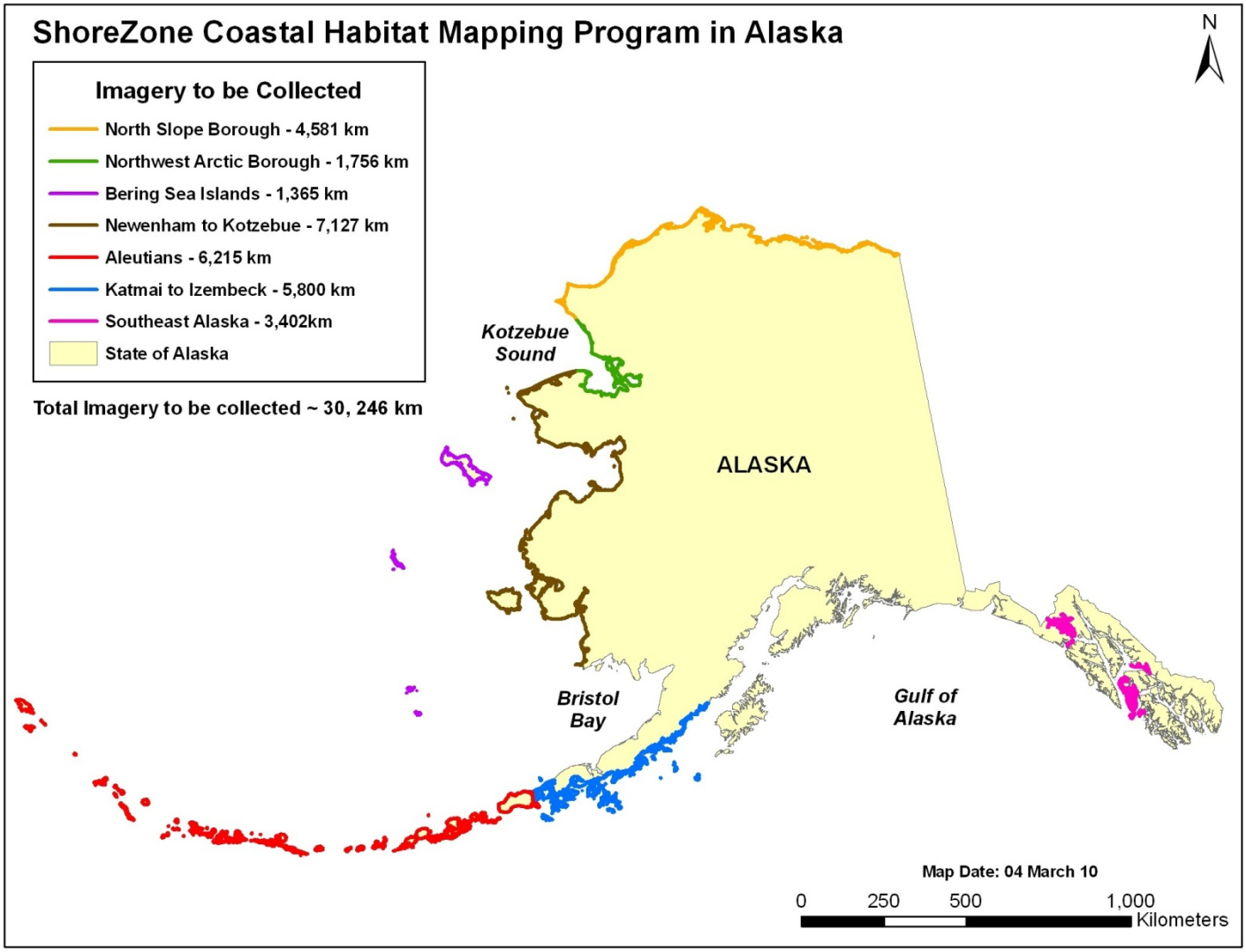
The U.S. Coast Guard and NOAA's National Ocean Service hydrographic survey staff have expressed interest in the Alaska ShoreZone Partnership. The Nature Conservancy hopes to increase its capacity for working with these agencies, along with the U.S. Geologic Survey, the Bureau of Land Management, the U.S. Fish and Wildlife Service's National Wildlife Refuge System, to plan for personnel and logistical support for ShoreZone surveys in the Bering, Chukchi, and Beaufort seas.

Federal and state partners are key to advancing this effort. Contributions so far include:
1. Alaska Dept. of Natural Resources, Div. of Coastal and Ocean Management and the Minerals Management Service: 2008 Alaska Coastal Impact Assistance Program Grant;
2. Alaska Dept. of Fish and Game has provided direct funding for aerial surveys, digital mapping, staff time for ground verification surveys, and tutorials for the public.
3. NOAA National Marine Fisheries Service and Alaska Fisheries Science Center provide in-kind staff time through biologists and habitat managers, database management, and programming.
4. The U.S. Fish and Wildlife Service: Southeast Alaska and South Central districts provide direct funding for coordination and surveys.
5. The U.S. Forest Service is providing direct funding of aerial surveys and digital mapping; and in-kind logistical support of boats and personnel.
6. The National Park Service has provided direct funding of aerial surveys and digital mapping; in-kind database management and programming; and advisory staff support.

COST SHARING OR MATCHING OF FUNDS

CIAP funds granted for this project will not be used for cost sharing or matching purposes.

Attachment A. Extent of Alaska ShoreZone Imagery to be Collected



STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

City and Borough of Juneau

This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: **Auke Lake Launch Ramp**

PROJECT CONTACT

Contact Name: Heather Marlow
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Juneau, Alaska 99801
Telephone Number: (907) 586-5252
Fax Number: (907) 586-5385
Email Address: Heather_Marlow@ci.juneau.ak.us

PROJECT LOCATION

The project is located on the south shore of Auke Lake, in Juneau, Alaska. The project is approximately 1,700 feet from the coast line (Auke Bay) and is located entirely with the coastal zone.

PROJECT DURATION

We expect the project to take 1 year to construct, with completion in June 2011. The CIAP funding would be a reimbursement to CBJ.

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$250,000	$250,000	0	0	0

All of the funding will be with FY 10 funding.

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$250,000	0	0	0	$250,000

PROJECT DESCRIPTION

This project will improve migrating salmon passage and habitat values in Auke Creek by relocating existing watercraft launch activities. A new engineered launch ramp will be constructed to access Auke Lake using rip rap and a concrete plank surface. The new launch ramp will be located as far from Auke Creek as possible. The use of rip-rap and concrete will minimize sediment run off into Auke Lake.

CBJ will prohibit vehicular access to the existing gravel launch ramp in Auke Creek and stabilize the slope to restore the riparian edge or the creek shoreline. Boulders will be placed at the top of the slope and

the upland portions of the ramp will be planted with spruce, willow and alder. The base of the slope will be vegetated with wetland emergent plants.

The project is scheduled for completion in year one of the project (by June 2011) and will be the single point of public access for watercraft on Auke Lake. The lake is a popular location for swimming, jet skiing, fishing, canoeing, water skiing, kayaking, bird watching and photography. The pedestrian, watercraft and vehicle traffic associated with these uses have negatively impacted Auke Creek and the adjoining shoreline area.

The proposed project is intended to replace the informal, unpermitted gravel launch ramp in Auke Creek, in response to water quality and habitat concerns. The project aims to improve small scale recreational access to the lake and to alleviate habitat concerns from the existing unpermitted boat launch ramp (an abandoned state highway bridge corridor). Vehicles that launch craft carry sediment down the slope of the ramp into the creek and wake action from the boat disturbs the creek banks. Idling watercraft introduce hydrocarbons into the creek. These disturbances affect a critical migration zone for salmon in Auke Creek. Returning salmon migrate through this area to spawn in Auke Lake and fry move from the lake in to the creek before discharging into the ocean.

The new launch ramp facility will be open to the public. Auke Lake is used for research and study by University of Alaska (Southeast and Fairbanks) and National Marine Fisheries Service. The lake is owned by Alaska Department of Natural Resources and periodic water quality sampling is performed by Alaska Department of Environmental Conservation. The work that these agencies perform benefits directly from improved water quality and habitat functions. All of these agencies have the potential to benefit from improved lake access.

To support implementation of the ordinance, and relocation of the existing Auke Creek launch ramp, the governing body of the community (the Assembly), appropriated $50,000 for agency permitting and project design and $250,000 for project construction. CBJ is seeking $250,000 in CIAP funding to reimburse project construction costs.

MEASUREABLE GOALS AND OBJECTIVES

The following measurable outcomes will be generated by this project:

- An engineered launch ramp is constructed on the shore of Auke Lake, in compliance with agency permits, and the Auke Creek ramp is abandoned and revegetated.
- The functional value of 3,000 square feet of disturbed shoreline on Auke Creek will be reestablished using native species from the surrounding area. Vegetation will be placed in the abandoned launch ramp footprint.
- Access to the abandoned launch ramp will be blocked at the top of the slope with boulders. The ramp slope will be vegetated with native species from the surrounding shoreline to stabilize the area and prevent gravels and lines from eroding down into the creek bed.

These measurable outcomes will all occur within year one of the project.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project is consistent with authorized use number 2, mitigation of damage to fish, wildlife, or natural resources. The proposed project is intended to replace the informal, unpermitted gravel launch ramp in Auke Creek, in response to water quality and habitat problems. Currently, vehicles that launch craft carry

sediment down the slope of the ramp in to the creek and wake action from the boat disturbs the creek banks. Idling watercraft introduce hydrocarbons into the creek. All of these disturbances affect a critical migration zone for salmon in Auke Creek. Returning salmon migrate through this area to spawn in Auke Lake and fry move from the lake into the creek before discharging into the ocean. This project is consistent with authorized use number 2 as these impacts will be mitigated with relocation of the launch ramp and prohibiting additional shoreline disturbance.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

This project has received an U.S. Army Corps Permit. During this permit review process permit conditions were incorporated from National Marine Fisheries Service.

COST SHARING OR MATCHING OF FUNDS

CBJ will not use CIAP funds for cost sharing or matching purposes.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Prince William Sound Science and Technology Institute
(dba. The Prince William Sound Science Center)
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Prince William Sound and the Copper River/Bering Glacier Ecosystems: Building an Educational Knowledge Base for Climate Impact Mitigation

PROJECT CONTACT

Contact Name: Rob Campbell, Ph.D.
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Cordova, Alaska 99574
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Fax Number: (907) 424 5820
Email Address: rcampbell@pwssc.org

PROJECT LOCATION

The project is focused on the coastal waters, estuaries, and near shore environments of the Prince William Sound (PWS), Copper River Delta and Bering Glacier ecoregion in Alaska; the northeastern corner of the Gulf of Alaska. (See map attached)

PROJECT DURATION

3.5 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$ 897,493	251,256	325,636	300,000	20,601

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$ 897,493	0	0	0	$ 897,493

PROJECT DESCRIPTION

Alaska has warmed at more than twice the rate of the rest of the United States. Statewide temperatures have been elevated since a climatic regime shift in the subarctic Pacific in 1976-77, and although warming trends have varied regionally, the statewide annual average temperature has increased by 3.0°F since the mid-20th century; it is projected that the warming trend will continue[1]. Higher temperatures have been associated with changes in the physical environment: earlier snowmelt, a reduction of sea-ice

[1] US Global Change Research Program: http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overviewalaska.htm

coverage, and retreating glaciers. Substantial changes in ecological systems have been observed, including major increases in the frequency of large fires, dramatic changes in wetlands areas, vegetation changes in the tundra, and ecological changes that are affecting fisheries.[2] In just 50 years a 28% loss of pond surface area in the Copper River Basin sounds an alarming signal[3].

These changes, both observed and expected, speak to the urgency for immediately establishing an analytical process to bring greater clarity to our present notions about how the ecosystem functions. In 2002 the National Research Council stated: "The Gulf of Alaska, its surrounding watersheds, and human populations are an interconnected set of ecosystems that must be studied and monitored as an integrated whole. Within this interconnected set, at timescales of years to decades, climate and human impacts are the two most important driving forces in determining primary production and its transfer to upper-trophic-level organisms of concern to humans."[4]. Eight years later, the ecosystem-level approach called for from the NRC report has still not been initiated.

Recent and past reviews of the oceanography and living resources of the northern Gulf of Alaska by Hood and Zimmerman (1987), Mundy (2005); Integral Consulting (2006) and Spies (2007) present examples of what is known about different parts of the coastal ecosystem including PWS. While these publications provide excellent contexts for an updated and expanded Prince William Sound and Copper River region narrative, they do not by themselves (or together) provide a comprehensive integrated assessment of the region or the processes we intend to describe. Those reviews are much broader in scale (on order of 100 to 1000 kilometers) and ignore many of the smaller scale processes (10 to 100 kilometers) that operate at the regional level. The availability of these publications will greatly assist our own writing efforts while we focus at a smaller scale and resolution that has relevance to the decision making process. Management, conservation, restoration and protection does not occur at the scale of ocean basins, it occurs at the local and regional level where most decisions on resource use are made. The synthesis conducted by this project will bring together the relevant information at that regional scale.

There are few long-term data sets available for judging change in coastal Alaska. One exception is the information on hand from extensive past research in Prince William Sound and the adjacent Copper River Delta/Bering Glacier.

It is our belief that by: (1) Engaging senior level scientists from a diversity of disciplines, (2) Re-evaluating results and conclusions from the past 100 years of research, particularly that associated with natural system responses to past disturbance (earthquakes, oil spills, ocean regime shifts, and unregulated fisheries), and (3) Integrating across disciplines and broadly distributing the results through both traditional publication of technical findings, plus a web based distribution of a non technical, general public edition based on the technical findings; we will produce and share a holistic understanding of natural process on a scale and at a resolution that can inform future mitigation efforts and capture regional opportunities associated with adaptations to climate change.

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[2] CCSP, 2009: *Thresholds of Climate Change in Ecosystems.* A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research

[3] Riordan, B., Verbyla, D and A. D McGuirel. 2006. Shrinking ponds in subarctic Alaska based on 1950–2002 remotely sensed images. Journal of Geophysical Research, 111 doi:10.1029/2005JG000150.

[4] National Research Council: *A Century of Ecosystem Science: Planning Long-Term Research in the Gulf of Alaska*

We expect to accomplish this task by bringing together a unique suite of professional expertise (many tens of person-years of research) to:

1. Update what is understood about the different components making up the structural elements of these ecosystems;
2. Synthesize this information to construct a "robust" ecological conceptualization of the implications to society resulting from climate and other change;
3. Deliver the synthesis conclusions and outcomes to both technical level and general audiences including policy makers, stakeholders and others whose livelihoods stand to be impacted by future shifts in coastal environments; and
4. Incorporate the synthesis into other regional formal and informal science education efforts to share our knowledge on natural systems change.

The process will be one of evaluating research results and conclusions rather than conducting a formal re-analysis of all data. The intention is to cover the abiotic processes important to ecosystem structure in the region, as well as the different parts of the ecosystem itself. Subjects like climatology and weather, hydrology, glaciology, physical and biological oceanography, marine chemistry, the ecology of forage fields and of fishes, marine birds and mammals will be reviewed (A draft table of context is attached in Appendix A). Authors will make contributions as professional assessments of understanding, providing a "this is what we know **now**" view of the region.

After completion of the technical volumes, a science writer will focus on the translation and abstraction of the technical results to create a broad, more general volume, designed specifically to provide access to information for the general audience that might otherwise be lost in the technical discourse. Our intent is to open the results of decades of research to citizens who might not otherwise benefit from the analyses presented in the technical documentation. The completion and publication of our synthesis will promote public awareness of the interdependence of natural systems, provide perspectives that can inform adaptation strategies developed in anticipation of global warming impacts, and provide valuable knowledge for educators preparing students to confront the challenges of climate shift and ecosystem change.

MEASUREABLE GOALS AND OBJECTIVES

Project GOAL 1: Produce a technical/academic level re-evaluation of results and conclusions from the past 100 years of research on the Prince William Sound and Copper River Delta/Bering Glacier coastal and marine environments.

Measurable Outcome 1: A technical-level and multi-chapter evaluation of the different and interacting components comprising the ecosystems - written by scientists for a mostly professional audience.

Project GOAL 2: Produce a generalized non technical volume (abstracted from the technical document), with implications for exploring environmental impacts and other issues arising from environmental change - developed for a broad audience by knowledgeable public educators and science writers in collaboration with the technical writing team.

Measurable Outcome 2: The non-technical volume is completed and published both as a printed document and electronically. The “non-technical” electronic edition has the capacity to be updated over time.

Project GOAL 3: Deliver the synthesis conclusions and outcomes to both technical level and general audiences including policy makers, stakeholders and others who stand to be impacted by future shifts in coastal environments. Incorporate the synthesis into other formal and informal science education efforts in the region.

Measurable Outcome 3: The published technical and non-technical volumes will be made available to the general public and distributed to selected local, state and federal agencies, academics, researchers, educators and stakeholder groups (e.g. tribal and local governments, libraries, commercial fishing and aquaculture, oil industry, NGOs). The electronic online edition of the non technical volume will be made available online and will provide links to technical reports, real time and historic data links and visualizations, forums, and informal science education programs. The Science Center Education Applications Planning Team will develop sample lesson plans using the online volume, and agreements are in place to test developed lesson plans in the school and informal science education programs.

Year 1 Outcomes: At 12+ months, authors of the technical chapters will meet in workshop and present peer-reviewable technical drafts and stand for questions. Sixty days later the author-revised (as needed) technical work will be sent to project peer reviewers.

Year 2 Outcomes: all sections of the technical document will be available in second-draft and peer reviewed form. This material will be delivered to the editor and science writer responsible for the second, non technical more generalized volume. Design/lay out ideas are presented and lay out begins for technical and non-technical volumes.

Year 3 Outcomes: Technical and non-technical volumes will be completed and available as printed publications, and non-technical volume is electronically published.

Year 3.5: The online non-technical edition links readers/educators/users to technical reports, real time and historic data links and visualizations, forums, and informal science education programs. The online edition will be used to support formal and informal science education program planning through the Science Center Education Applications Planning Team. Sample lesson plans using the online volume will be developed and the lesson plans used in the regional school and informal science education programs conducted by the Science Center (reaching approximately 400 local students and 100 local residents, out of a population of 2000 people).

Two significant tangible and lasting results will be produced: (1) a “gap analysis” will be available to local, state, federal and academic researchers to inform the research and monitoring programs that are critical to better understanding system dynamics, and (2) the non-technical online volume will serve educators and decision makers by providing not only the perspectives gained through the synthesis, but also the links to technical reports and visualizations that can better inform mitigation plans and management decisions that can help maintain resilient natural systems.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project addresses CIAP Authorized Use No. 1: Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands. To conserve, protect and restore marine, coastal and wetland systems we need to understand the interrelationships between multitudes of physical,

biological, chemical and anthropogenic forces influencing natural system function. It is not possible to conserve, protect or restore a coastal area if one does not have a basic idea of how the system functions. With global warming that is driving rapid climate shifts it is imperative that we develop whole systems approaches to understanding how biological productivity responds to change. This project is the first step to that kind of understanding: decision makers need to take advantage of the best information available. Ecosystems and their services are complex but understandable when the meanings of prior studies are considered as an ensemble; this information is best developed in a collaborative forum peopled by acknowledged local expertise. As stated previously, management, conservation, restoration and protection does not occur at the scale of ocean basins, it occurs at the local and regional level where most decisions on resource use are made. The synthesis conducted by this project will bring together the relevant information at that regional scale. This synthesis will promote public awareness of the interdependence of natural systems, provide perspectives that can inform adaptation strategies developed in anticipation of global warming impacts, and provide valuable knowledge for educators preparing students to confront the challenges of climate shift and ecosystem change.

The synthesis will be made available to the general public and distributed to the many stakeholder groups in the region. The model and inspiration for this synthesis is a similar collaborative effort done in the Puget Sound region in 2006 and 2007. That effort involved dozens of local scientists (at universities, federal and state agencies) and stakeholders (citizens, local, state and tribal governments), and attempted to summarize both what was known at the time about the Puget Sound ecosystem, and how it might change in the future. The resulting report, "Sound Science: Synthesizing Ecological and Socioeconomic Information about the Puget Sound Ecosystem[5]" showcased that summary in a clear and accessible way. The report was designed for, and is used by, scientists, resource managers, educators and local governments for teaching, operational decisions, and planning purposes (an exhaustive list of the participants is given in the report). As in the Sound Science report, the synthesis proposed here will also include a gap analysis ("what do we not know") that will inform planning for required research and monitoring efforts.

The non-technical volume planned as part of this project will be similar in scope to the Sound Science report, and will be for a similar audience. Specific user groups include: area residents, local and tribal governments, state agencies (e.g. the Depts. of Fish and Game; Environmental Conservation; Natural Resources; Commerce, Community & Economic Development; and Transportation & Public Facilities), and federal agencies (e.g. NOAA, NMFS, US Forest Service, US Geological Survey). Area residents and educators will be able to use the report to teach and learn about how the region functions. Local and state governments will find the synthesis useful for ensuring coastal areas are protected when development and infrastructure planning. The synthesis will be invaluable to resource managers: the Alaska Department of Fish and Game will be able to use it for strategic planning of how fisheries might change in the future and how to successfully mitigate impacts to fish habitat; the US Forest Service will be able to use it for management of the Chugach National Forest, which surrounds PWS; NOAA will be able to make use of it for managing federal fisheries and monitoring efforts in the region.

Coal and oil resources are both located within the area, both onshore oil and coal, and undeveloped but recognized potential for oil in the north gulf. There are surface seeps of oil in the region, especially on the coast between Yakutat Bay and Katella. These seeps prompted the development of Alaska's first

[5] http://www.nwfsc.noaa.gov/research/shared/sound_science/documents/sound_science_finalweb.pdf
* note: file is 13.4 megabytes

producing oil field at Katella in 1902 on the extreme eastern edge of the Copper River Delta, The first Federal offshore lease sale in Alaska was held in 1976 in the Gulf of Alaska (GOA). From 1976-1981 three sales in the GOA leased 0.6 million acres. Twelve exploratory wells were drilled from Yakutat Bay to Middleton Island between1977-1983. Offshore oil development areas between Icy Cape just west of Yakutat to Point Martin near Katella were last offered for lease in 1992 as state "Oil Lease Sale 79". Significant negative testimony from commercial fishing interests about environmental concerns resulted in Arco Alaska. Inc.'s cession of negotiations, and the withdrawal of the leases. Oil producers occasionally show interest in having this area reopened for lease.

The region is also linked to oil and gas development in the North Slope: the Trans Alaska Pipeline passes through 160 miles of the Copper River watershed and crosses 5 tributaries of the Copper River, and tankers still transit the area en route from the Valdez terminal. The information collected in this project would be extremely valuable for developing mitigation strategies in the event of an incident in the watershed or the coastal ocean.

Immediately following the Exxon Valdez Oil Spill (EVOS) several agencies found themselves scrambling to try to catalog the resources in PWS prior to the arrival of the oil. Following the spill, the focus of most studies was to examine the fate and impact of the oil. If a spill were to occur in PWS today, we would be in a similar position as just before EVOS, because the results of those many studies have never been synthesized. We propose to pull that scattered information into a single compendium (and two formats: technical and non-technical).

After initial distribution of the printed volumes and online posting of the electronic non-technical synthesis the online edition will be used to support formal and informal science education. The online edition will link users/readers to the technical volumes and other related information sources. Links to ongoing research will allow "citizen scientist" users to look for both correlations and discrepancies in the original conclusions when compared to new knowledge and insights, and changes driven by climate shift. These citizen observations can be channeled through online forums, and help drive efforts to update the synthesis, and to respond to and mitigate recognized impacts to the ecosystem from climate change and human activity.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

Effective response to climate change will require scientists to share their understanding of complex system dynamics with a culturally and academically diverse audience. The need to more effectively share scientific understanding of the ecosystem has been an identified regional priority for over 20 years.

The 1991 Science Center publication "Prince William Sound-Copper River-North Gulf of Alaska Ecosystem" identified synthesis and collation of our knowledge as critical for managing the bioregion. In 1996 the National Biological Service sponsored the "Prince William Sound-Copper River Ecosystem Initiative", an attempt to organize agencies to collaborate on research and synthesis; the effort was suspended because of funding cuts. In 2005 and 2007 over 100 participants in the Copper River Salmon Workshop Series, including federal and state agencies, identified the need to summarize, simplify, and disseminate scientific findings as critical for meeting management challenges. This project has grown from these efforts, and reflects local, regional, state and federal priorities. In 2008 the Oil Spill Recovery Institute, a congressionally created federal/state organization, provided planning funds to convene the synthesis planning team that has developed this proposal.

The synthesis project planning team includes the Prince William Sound Science Center and Oil Spill Recovery Institute, the Alaska Department of Fish and Game, the US Forest Service, the Exxon Valdez Oil Spill Trustees Herring Recovery Planning Group, commercial fishing, aquaculture, NGOs, local and tribal governments, retired academics and practicing scientists. The City of Cordova is a member of the planning team, and has the Coastal Zone Management authority for a portion of the affected region, supports and endorses this effort, and has issued a formal letter of support.

COST SHARING OR MATCHING OF FUNDS

CIAP funds will not be used for cost sharing or matching purposes.

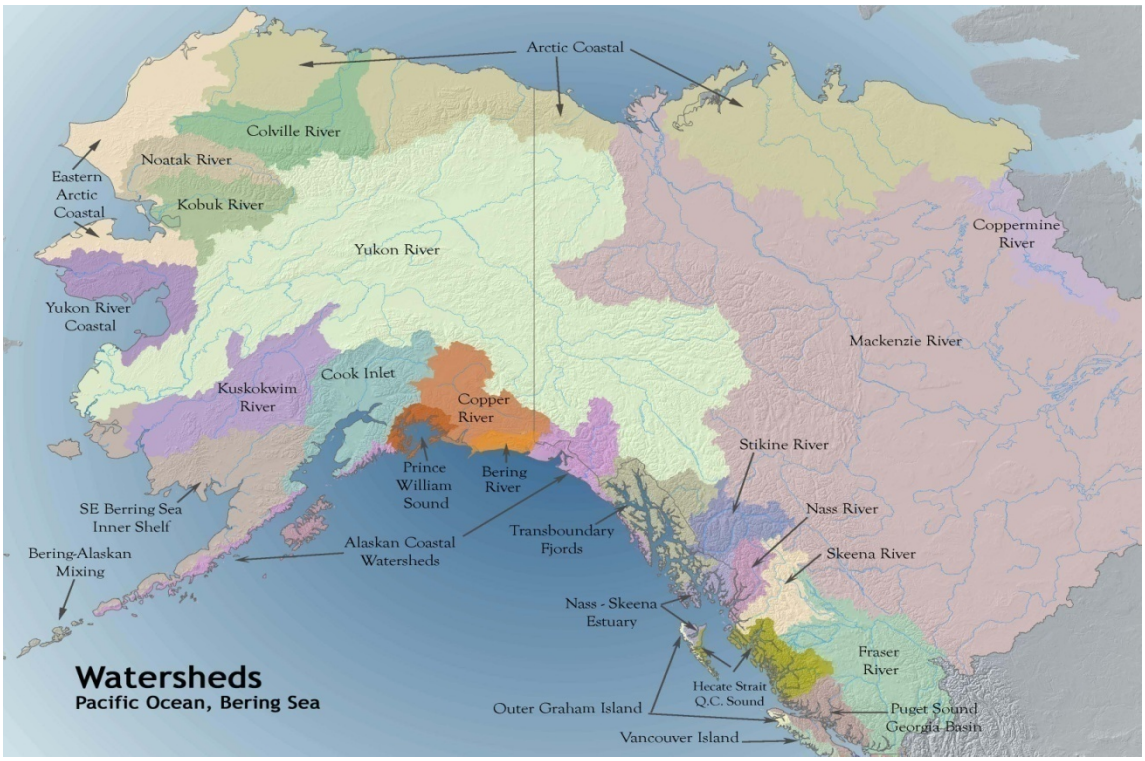

Figure 1: Watersheds of the north Pacific and western Arctic Ocean.

Appendix A: Provisional chapter titles for the two synthesis volumes

Volume I – A Review and Summary of the Technical Literature*

1) Introduction
2) The Physical Setting
3) Climate, Weather and Physical Oceanography
4) Geology and Glaciology
5) Marine Chemistry
6) Lower Trophic Levels – Plankton and Benthos
7) Shallow-Water habitats; Flora and Fauna
8) Ecologically Important Forage Stocks
9) High-Value Fishes (commercial, sport and subsistence)
10) Marine Birds, Shore Birds, and Waterfowl
11) Marine Mammals
12) Traditional Ecological Knowledge
13) Socioeconomic Issues
14) Ecosystem Form and Function: An Integrated Understanding (all lead authors) and Gap Analysis.

Volume II – The Anatomy of an Interacting Coastal Ecosystem

1) Introduction
2) A Brief History of the Region
3) A Generalized Synopsis of “Lessons Learned” From Past Studies
4) Socioeconomic Implications for an Impacted and Developing Region
5) Future Studies
6) References

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Pratt Museum

This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Woodard Creek Rehabilitation, Phase I - Planning and Design

PROJECT CONTACT

Contact Name: Dr. Diane Converse
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Telephone Number: (907) 235-8635
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PROJECT LOCATION

The project is located on the Pratt Museum property, 3779 Bartlett Street Homer, Alaska. The project lies within the Coastal Zone, and is approximately 2 miles from the shore of Kachemak Bay.

PROJECT DURATION

The project will be completed within three years of the grant award.

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$92,825	$37,130	$27,848	$27,847	$0

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$92,825	0	0	0	$92,825

PROJECT DESCRIPTION

This project will result in the design and permitting of a rehabilitation project for approximately 400' of Woodard Creek in Homer, Alaska (Figure 1). Woodard Creek is an urban perennial stream that flows through the eastern section of the City of Homer and discharges directly into Kachemak Bay. A 500' section of the creek flows across the Pratt Museum's property (Figure 2). During the construction of the current building, approximately 120 feet of the creek were diverted through a culvert to allow for the construction of the existing paved parking lot of the Museum. In addition, runoff from the museum roof and much of the paved parking was designed to discharge directly into the creek. As part of a larger capital project, the Museum plans to remove this culvert, rehabilitate the parking area, and rebuild the creek bed. The goal of the creek rehabilitation will be to restore much of the lost wetland functions,

including improving infiltration, restoring floodplain area, creating stream bank habitat, and reducing flow velocity at both low and high stages.

The need for restoration of the creek and watershed has been recognized by the City of Homer and a number of community groups. A recent flood event in 2002 resulted in significant damage to both public and private property. Impervious cover within the watershed is estimated to be 11- 15%, resulting in large storm water surges and a consequent drop in water quality due to pollutants washed from road and parking lot surfaces. Runoff from roads, parking lots, and roofs are diverted directly into the creek in a number of areas. Much of the creek bed, including a 120' section on Pratt Museum property, is currently confined in culverts or other impermeable flow structures. Confinement of the creek, large amounts of runoff from impervious surface cover, and the elimination of many natural floodplain areas has increased the intensity of flood events by eliminating floodwater storage capacity.

As part of a larger capital renovation project, the Museum has planned an extensive rehabilitation of a 400' section of Woodard Creek that flows through the Museum property (Figure 3). The rehabilitation plan includes:

- Removal of 120 feet of metal culvert,
- Design and construction of a new streambed and floodplain system to replace the existing culvert and then revegetating with appropriate native plant communities.
- Design and construction of an energy-dissipating drop structure to reduce downstream erosion potential,
- Assessing the potential for restoration of some discharge slope and floodplain wetlands areas, and
- Design of local drainage to eliminate direct storm water discharge to Woodard Creek, incorporating landscape elements (buffer strips, treatment wetlands or filtration structures) that improve the quality of runoff prior to interception by Woodard Creek.

The project will incorporate pre- and post-rehabilitation studies of aquatic invertebrate populations and downstream water turbidity as a tool to evaluate project effectiveness. The rehabilitated sections of Woodard Creek will become part of a permanent outdoor exhibit and will be used in our education programs to teach aquatic ecology and ecological restoration methods. We plan to share design details and outcomes with other community groups and the City of Homer to support the rehabilitation of additional sections of Woodard Creek.

In year 1, we plan to complete elevation and geotechnical surveys of the project area. This data will be used to complete a preliminary concept plan of the restored creek bed and floodplain areas. We will solicit community input on this plan as part of a larger capital improvement plan the museum is currently undertaking. At the end of year 1, the goal is to have a final concept plan that can be used to begin project design.

In year 2, we expect to complete a draft project design plan to be used in our continuing public process. This design will also be used to apply for applicable environmental permits required for project construction. At the end of year 2, we expect to have a final project design (based on input from agencies and the public). We also plan to complete work on all environmental permits during this year.

In year 3, we plan to obtain cost estimates for construction based on the final project design. Cost estimates and the final project design will be used to further fundraising efforts for the capital project. Pre-

and post-ecological studies (invertebrate sampling, riparian vegetation assessments) and sampling protocols will be developed.

MEASUREABLE GOALS AND OBJECTIVES

The project objective is to design an ecologically sound and environmentally practical rehabilitation project and produce a detailed cost estimate for the approximately 500' section of Woodard Creek on the Museum property.

Goals for year 1 include completion of elevation and soil surveys, development of a preliminary concept plan showing the streambed, floodplain, and drop structure locations. Promotion of the concept plan and feedback from the public and the Museum's members will be considered and modifications of the concepts plan will be made where appropriate.

Goals for year 2 include the completion of the final concept plan, production of initial design plans, and the completion of required environmental permitting work. Comments from agencies and the public will be considered and a final design plan will be produced.

In year 3, we plan to complete any remaining design and permitting work and submit the final project design plan to construction firms to obtain detailed construction estimates.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project will primarily address Authorized Use 1. *Projects and activities for the conservation, protection, or restoration of coastal areas including wetlands.* The project will produce a project design and obtain the permits required to create a minimum of 120 feet of riparian wetland habitat by building a streambed and floodplain to replace a section of the creek currently buried in a culvert, replace an upstream culvert, and rehabilitate 200 feet of existing streambed and riparian corridor. The design will include an engineered drop structure to dissipate flow energy and protect downstream areas from further erosion. The project design includes restoration work on a total of 500 feet of riparian corridor. Other design elements to be considered include capturing runoff from impervious cover and diverting it away from Woodard Creek and into vegetated "buffer strips" or adjacent vegetated wetland and upland areas.

Our design goal is to restore some of the lost wetland functions by increasing groundwater infiltration rates, restoring riparian habitat, providing flood flow alteration, and improving sediment and toxicant retention. These improvements will benefit the natural coastal environment by improving water quality in the stream. The restored stream will also become an important part of our outdoor education program as well as an example to other local groups interested in rehabilitating other creek segments.

Funding for construction of the final design is planned to be covered by our capital project campaign, currently underway. We have currently raised 20% of our goal of $8.5 million. Our capital project includes removing and relocating the current parking area along with other alterations to the landscaping surrounding the current museum building. We plan to perform the creek restoration work concurrently with parking lot removal and landscaping.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

No other federal programs or resources are currently involved with this project.

COST SHARING OR MATCHING OF FUNDS

We have no plans to use CIAP funds to provide matching funds for other federal grants. CIAP funds may be used as matching funds for private, local, or state grants obtained as part of our capital campaign provided all necessary conditions and approvals can be obtained from both funding sources.

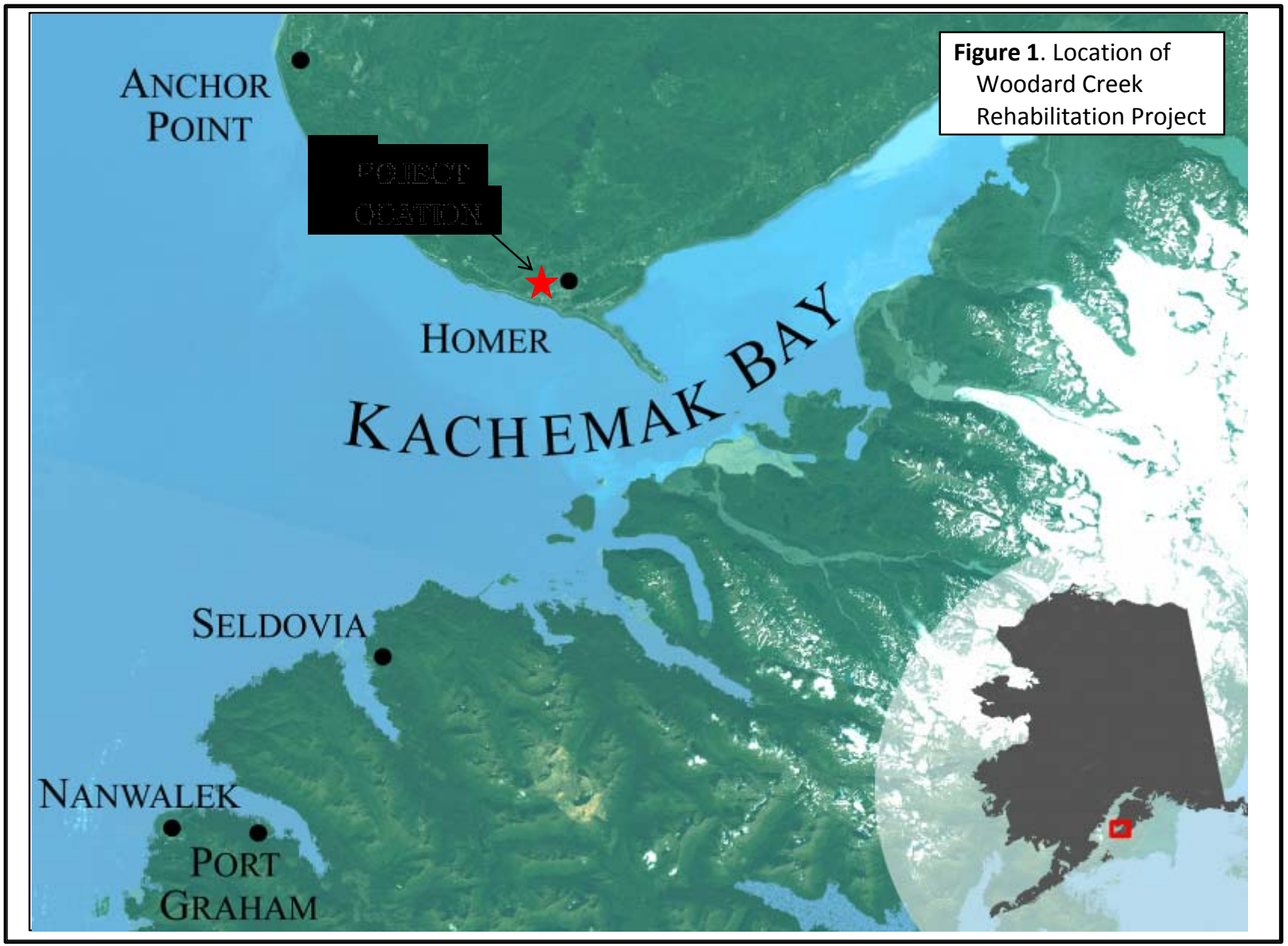

Figure 1. Location of Woodard Creek Rehabilitation Project

Figure 2. The aerial photos illustrate changes in the mid section of Woodard Creek and the surrounding watershed. Over the past 25 years, rapid development and deforestation have altered the landscape and increased impermeable surface cover, and degraded the riparian corridor. Red dots mark the location of existing culverts. The section of Woodard Creek running through the project area is shown in yellow.

Figure 3. A preliminary concept plan shows one option being considered for the daylighting (culvert removal) of Woodard Creek on the Museum Property as part of a larger renovation of the museum building and grounds. Issues such as floodplain locations, proximity to existing building foundations, and vehicle and pedestrian crossings are being addressed in upcoming concept plans. The north parcel outlined in blue is a planned land acquisition.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Southeast Alaska Land Trust
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Coastal Wetlands Protection in Southeast Alaska: An Assessment and Credit-Debit Tool for Compensatory Mitigation

PROJECT CONTACT:

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Email Address: sealtrust@ptialaska.net

PROJECT LOCATION

The project location is Southeast Alaska, which extends about 500 miles from the Canadian border (south of Ketchikan) northwest to Yakutat Bay and about 120 miles from the mainland west to islands of the Alexander Archipelago (Attachment A). Within this vast area, the project focuses on the aquatic resources (i.e., intertidal, freshwater and forested wetlands) located within the coastal area delineated by the State of Alaska's Coastal Management Program and found both in the Southeast coastal districts and throughout the region's public and private lands where districts do not occur. For example, Attachments B and C portray the coastal area of a few districts and northern Chichagof Island (south of Glacier Bay National Park) which are all within the project's geographic scope. The project's reach coincides with the geographic region served by the Southeast Alaska Land Trust (SEAL Trust) in its conservation and preservation actions.

PROJECT DURATION: 2.5 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$486,600	**$360,200**	**$93,800**	**$32,600**	**0**

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$486,600	0	0	0	**$486,600**

PROJECT DESCRIPTION

This project will develop, field-test, and implement a region-specific wetlands assessment and credit-debit tool ("Tool") for use by the Southeast Alaska Land Trust (SEALTrust), regulatory agencies, natural resource professionals, communities, and developers throughout Southeast Alaska's coastal rainforest. This Tool will provide: 1) a standardized method of identifying wetlands and evaluating their functions and services, and 2) a metric for translating the wetlands loss at a development site into equivalent aquatic resources protected at a candidate conservation site to be purchased with developers' in-lieu fees (ILF) paid to SEALTrust. A credit-debit data (recordkeeping) system that is compatible with the Tool will be developed so that SEAL Trust can regularly record and annually report its ILF mitigation actions region-wide to the Corps and IRT, as required under federal compensatory mitigation rules.

In Project Year 1, the Tool is developed through an iterative and collaborative process with key regulatory agencies (Phase 1) and rigorously field-tested/revised (Phase 2). In Project Year 2, SEAL Trust and the regulatory agencies implement the Tool during a trial period, with technical support, and refinements are made, as needed (Phase 3). In the six months of Project Year 3, modest technical support by consulting professionals will continue and SEAL Trust will conduct a public outreach to Southeast communities and professional organizations to explain the Tool so its use spreads throughout the region.

Over the years, the identification and valuation of wetlands in Southeast Alaska is inconsistent and uneven because methods are either locally specific (Juneau’s wetlands program), relatively data intensive and limited in scope (Hydrogeomorphic Guide for Southeast riparian wetlands), or generated solely for large, individual projects (e.g., Juneau and Sitka airport expansion projects). A uniform, region-wide method has simply not been developed. Furthermore, the difficult task of developing a numeric mechanism to compare various wetland types to calculate realistic compensation for losses (debits) so that other wetlands can be protected or restored (credits) has not been undertaken.

However, in response to 2008 federal rules that place rigorous attention on compensatory mitigation for losses of aquatic resources (33 CFR 332), SEALTrust (in its pivotal role as the U.S. Army Corps of Engineers' (Corps) authorized ILF sponsor in the region) must define and implement a method targeted to wetland types found throughout Southeast Alaska and one that employs suitable metrics in a consistent manner to account for the wetland losses ("debit" obligations taken on by SEAL Trust under ILF payments) and the wetland gains ("credits" to SEAL Trust as equivalent aquatic resources are protected with ILF purchases). Two related tasks under the project are 1) the development of a credit-debit data system which SEAL Trust can use to record and report its in-lieu fee mitigation actions and 2) a public outreach effort by SEAL Trust to educate interested parties in the region about the Tool so it is used by others interested in conserving wetlands in their community or avoiding wetlands in their development projects.

The project has evolved out of the frustrations of regional professionals at our lack of a consistent, widely-recognized methodology, and specifically out of the coordinated efforts of an Interagency Review Team (IRT) established under the Clean Water Act 404 regulatory process. SEAL Trust regularly works with the federal and state regulatory agencies and affected coastal communities on the IRT, and the project is designed as a collaborative effort with these parties.

MEASUREABLE GOALS AND OBJECTIVES

Project Year 1. The primary project goal and measurable outcome is a practical wetland assessment/credit-debit tool that is locally derived, science-based, and field-tested. A compatible credit-debit data (recordkeeping) system is created to enable SEAL Trust to regularly record and annually report its In-Lieu Fee (ILF) mitigation to the Corps and IRT, as required under federal compensatory mitigation rules.

Project Year 2. The measurable outcome is that the tool is actually used during a trial implementation period by the Corps, other IRT member agencies, and developers and users agree that the Tool consistently identifies and assesses wetlands on development projects and fairly quantifies impacts and the mitigation required in a Section 404 permit. Also, SEAL Trust uses the Tool to identify and assess candidate wetlands for protection (credits) that meet IRT approval to compensate for the wetlands lost (debits). SEAL Trust also prepares reports using the data system to account for the credit and debit transactions under its in-lieu fee program. Following minor refinements, the Tool and Credit-Debit Data System are finalized and distributed by SEAL Trust.

Project Year 3. The Tool is routinely used by (the Corps, IRT, consulting resource/land professionals, Southeast Alaska communities, developers, and SEAL Trust). The federal Section 404 permits and State coastal consistency determinations provide consistent wetland characterizations that accurately reflect the coastal aquatic resources at risk and yield a realistic compensation that fairly offsets development impacts. SEAL Trust's use of the Tool also results in the purchase and protection of wetlands of equivalent value to those wetlands lost to development so as to conserve the region's ecological integrity

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

Use #1. Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.

The project is consistent with Use #1 because it produces a field-tested, practical method that Southeast Alaska Land Trust will use to identify coastal Southeast Alaska wetlands that will be purchased and protected from development in perpetuity under the Trust's real estate instruments. The method will also be used by federal and state regulatory agencies, developers, and communities to identify the value of wetlands being impacted by development in the region and to calculate realistic compensatory mitigation that protects or restores other wetlands of equivalent value to those being lost to development. Most of the 30-plus communities of Southeast Alaska are constrained by terrain and are located along the coastline where productive salt marshes, estuaries, riparian, and forested wetlands also occur. Ongoing community redevelopment and expansion, coupled with expanding regional transportation and hydropower interconnections, will lead to additional pressure on the natural coastal environment. In the absence of a consistent, widely-recognized method geared toward the unusual features of wetlands in coastal Southeast Alaska there have been continual and incremental losses to valuable wetlands without rigorous attention to mitigate those losses. The method developed, field-tested, and implemented under this project provides a workable tool that accurately values wetlands and provides the financial resources (through developers' compensatory mitigation fees) to conserve, protect and restore wetlands critical to the overall integrity of the Southeast Alaska coastal environment.

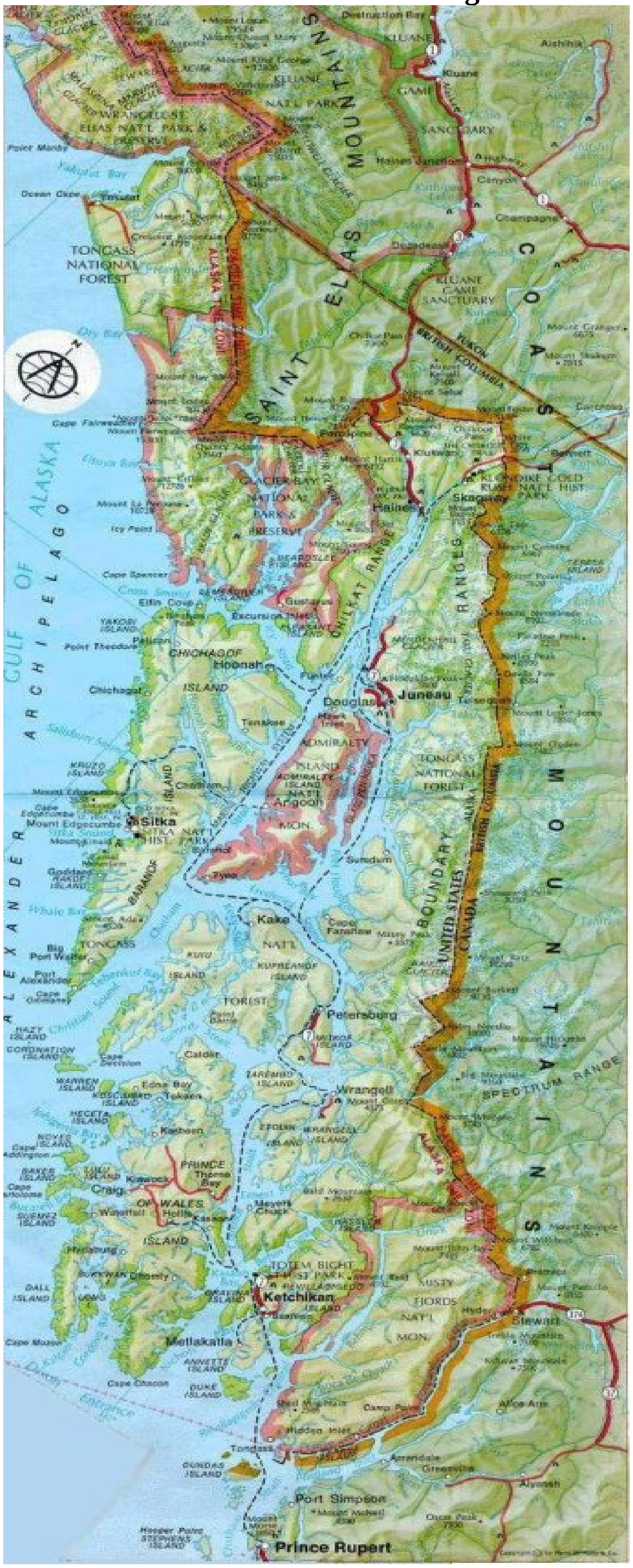
COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

Southeast Alaska Land Trust's project directly results from the Trust's longstanding legal relationship with the U.S. Army Corps of Engineers (Alaska District) as its in-lieu fee partner on Clean Water Act Section 404 permitting in Southeast Alaska since 1998. Under that regulatory process, SEAL Trust regularly coordinates with the Corps, US Fish & Wildlife Service, Environmental Protection Agency, NOAA Fisheries, Federal Highway Administration, State of Alaska resource agencies, developers, and affected coastal communities. This project will fill a need all cooperating parties have to rapidly and consistently assess the value of aquatic resources and mitigation the unavoidable losses through SEAL Trust's purchases of wetlands with equivalent values for permanent protection. This project provides the practical tool that can also be used for future large development projects, such as airport or highway expansions, which require federal National Environmental Policy Act (NEPA) reviews and coastal zone management consistency determinations by various federal agencies (e.g., FAA and FHWA).

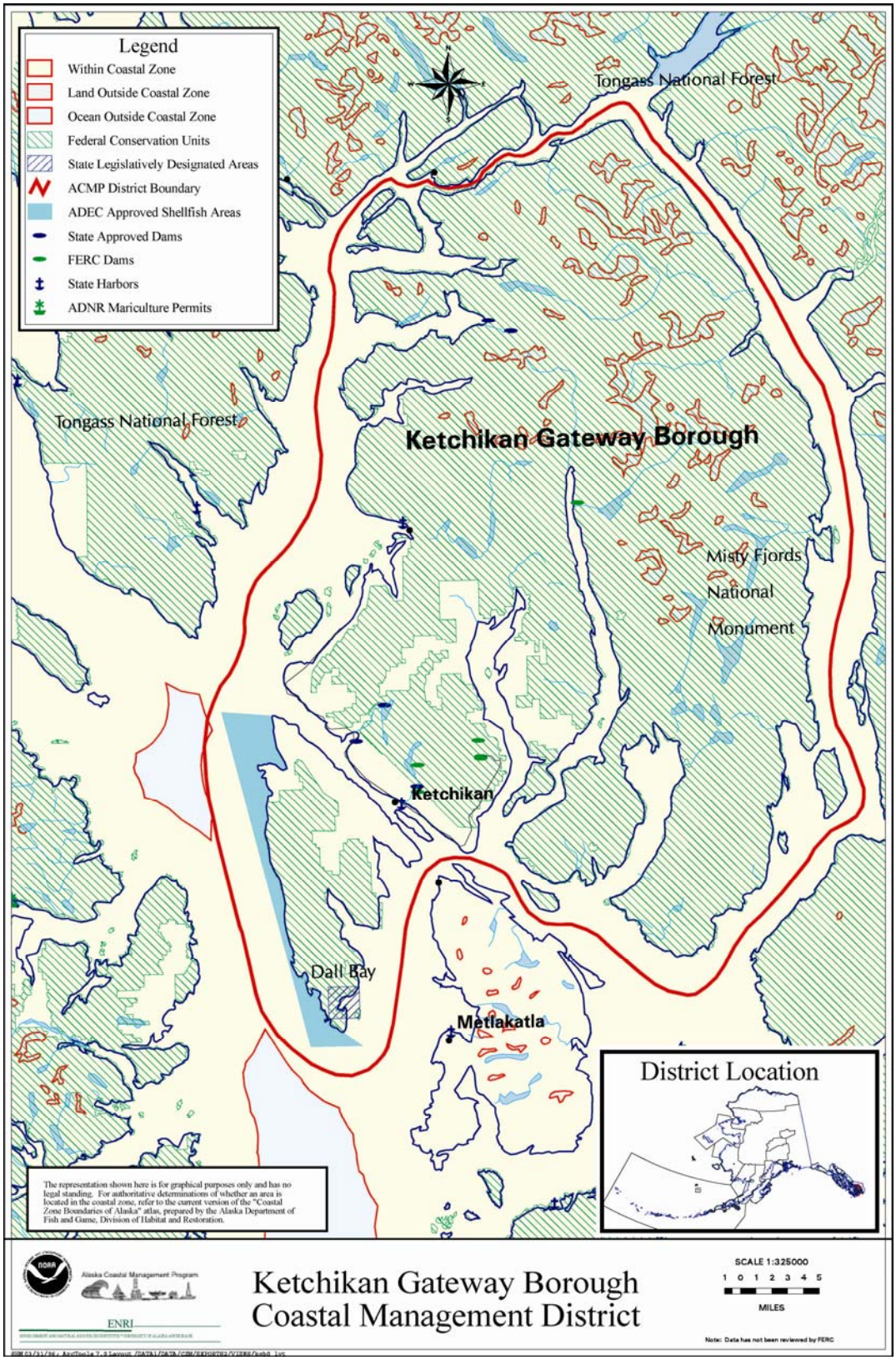
COST SHARING OR MATCHING OF FUNDS

N/A.

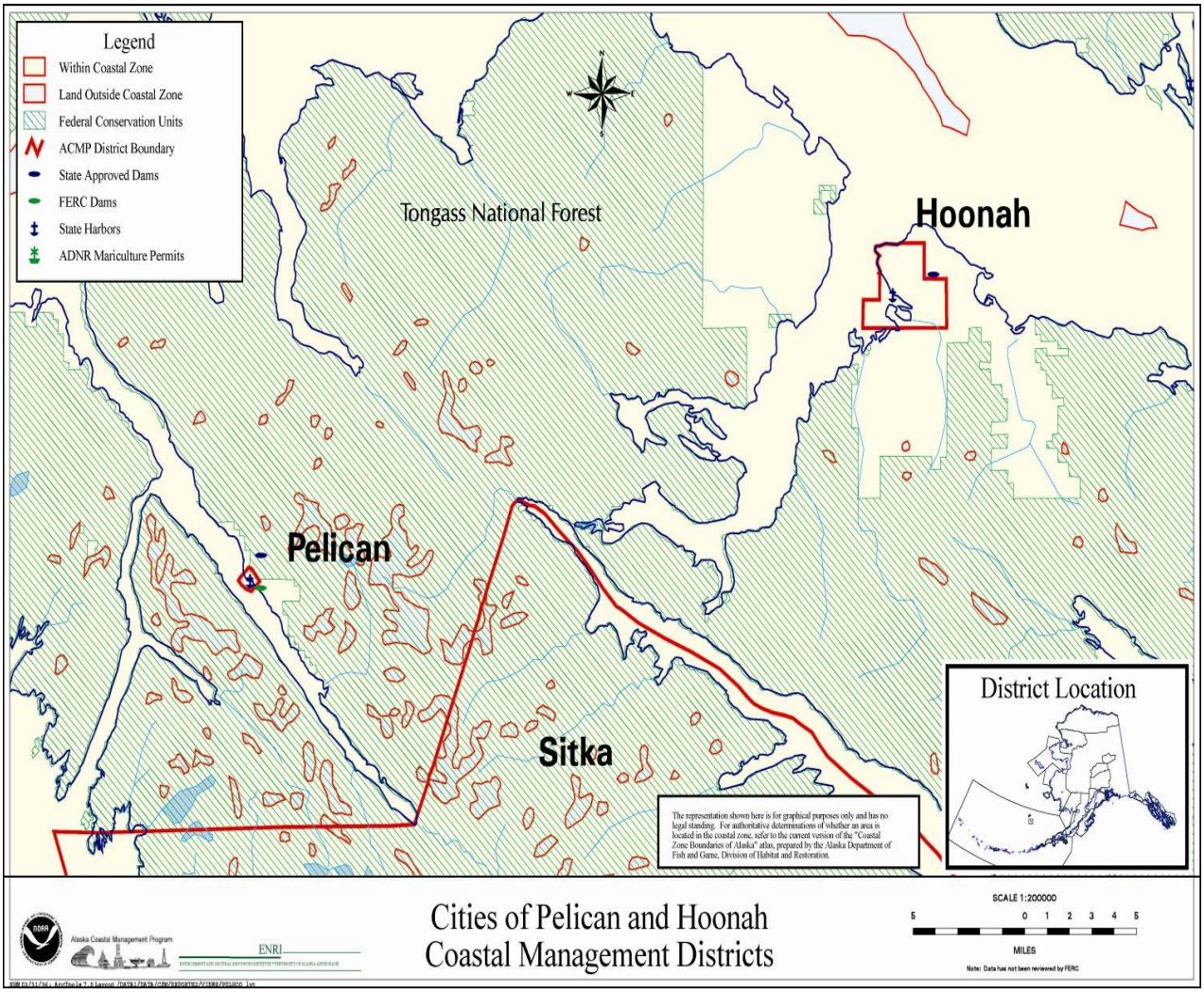
Attachment A. Southeast Alaska Region



Attachment B. Ketchikan Gateway Borough and Surrounding Coastal Area



Attachment C. Coastal Area of Northern Chichagof Island



STATE OF ALASKA

COASTAL IMPACT ASSISTANCE PROGRAM

Juneau Watershed Partnership

This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Restoration and Mitigation Opportunities for Juneau Watersheds

PROJECT CONTACT

Contact Name: Beverly Schoonover, Director
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Email Address: jwp@alaska.net

PROJECT LOCATION

This project will take place within the borders of the City and Borough of Juneau, Alaska. Juneau is located at 58˚21'5" North, 134˚ 30'42" West (58.351422, -134.511579). Stephens Passage, Gastineau Channel, Favorite Channel and the Lynn Canal are the adjacent coastal waters to the project location.

PROJECT DURATION

1.5 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$75,589	$55,589	$20,000	#	#

All of the funding will be with FY 10 funding.

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$75,589	0	0	0	$75,589

PROJECT DESCRIPTION

In order to improve the quality of our degraded watersheds and enhance and improve fish populations and riparian habitat, the Juneau Watershed Partnership (JWP) proposes to conduct work on a GIS mapping and assessment project entitled, “Restoration and Mitigation Opportunities for Juneau Watersheds.”

The purpose of our study is to compile a series of watershed restoration and mitigation opportunities for the enhancement of fish, habitat and water quality in Juneau’s watersheds. Using existing information and by conducting in-field assessments, JWP staff will identify and comprehensively catalog impaired sites in

each road-accessible Juneau watershed. Working closely with our agency partners and contractors, we will determine the type and extent of restoration or treatment appropriate to mitigate these impairments.

Currently, we are conducting a comprehensive assessment of salmon habitat restoration, enhancement and mitigation projects implemented in the CBJ over the last 20 years. We are finding that several restoration and enhancement project failures in Juneau are due to inadequate pre-project planning, including project selection, choice of methods, and lack of project monitoring. Many project failures appear to be the result of poor project choice and demonstrate a lack of understanding of hydrologic or biologic processes in design. This project will create site-specific project plans designed to meet critical habitat needs within urban watersheds and will take into account geofluvival and biologic processes to improve success of near-future rehabilitation projects.

Impairment issues we will document and address include mapping stormwater outfalls, stream bank erosion, impacted stream buffers, stream crossings, fish passage barriers, and channel modifications. Recommendations for actions to address these impairments might include culvert replacement or realignment, improving fish passage for migratory salmon species, stabilizing and re-vegetating stream banks, implementing storm water Best Management Practices (BMP's), stormwater retrofitting and/or wetland preservation and protection.

The outcome of our work will be to provide the Corps of Engineers (COE), the City and Borough of Juneau (CBJ), local permitting agencies, local land developers, and the general public with a comprehensive list of restoration, enhancement and mitigation opportunities for Juneau's watersheds. In addition to this comprehensive database of opportunities, JWP will work with our partners to provide conceptual designs for a select set of high priority projects in each watershed. This will enable JWP to provide the community with project ideas that can be quickly brought to shovel ready status for time-critical situations, such as permit-related mitigation work and grant applications.

Key Milestones
Yr 1- Convene meeting with agency, municipal stakeholders, and our contractor to identify existing watershed assessment and restoration plans to include in the mapping project.
Gather existing materials and digitize information into GIS map project, by watershed.
Begin fieldwork and document existing conditions and identify problem areas and impairments in each watershed. Make recommendations for actions to address impairment factors. Create a priority list of projects and work with our contractor to assist us in developing simple conceptual design plans and cost estimates for a handful of feasible restoration projects.

Yr 2-Reconvene our stakeholder group to present a final draft of the report for review and comments. Finalize the report and GIS maps. Print and distribute the final report and post our maps to the JWP website for public access and use.

MEASUREABLE GOALS AND OBJECTIVES
Project Goal 1: Enhance and improve local water quality, fish populations, fish passage, and aquatic and riparian habitat in Juneau watersheds by identifying and comprehensively cataloging restoration and mitigation opportunities in each road-accessible Juneau watershed.

Measureable Outcome 1: A GIS dataset of potential restoration and mitigation opportunities will be created showing location, problem identification and conceptual prescriptions. This dataset will also be provided to regional staff of the Corps of Engineers (COE) to help guide compensatory mitigation permitting. This report will also be provided to the Community Development Department of the City and Borough of Juneau (CBJ) and the Wetland Review Board to assist their efforts in the determination and implementation of CBJ wetland and Conditional Use permits.

Project Goal 2: Identify a subset of high-priority restoration, enhancement, and mitigation projects and produce preliminary conceptual designs and drawings, cost estimates, and monitoring plans for each site.

Measurable Outcome 2: Drawing from the comprehensive list of impaired or threatened sites, JWP, with input from concerned partners, will select sites where project work will have the greatest impact per dollar and/or where immediate groundwork could avert the need for more extensive work in the future. One to three of these high-priority actions will be designated for each watershed, and preliminary conceptual designs for each project will be contracted.

Project Goal 3: Utilize this report to seek funding and support to implement priority restoration/enhancement projects on the ground.

Measurable Outcome 3: Juneau Watershed Partnership creates a 3-5 year timeline of priority restoration project funding and implementation.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project meets the CIAP need of "Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands", because this project will create site-specific project plans designed to meet critical habitat needs within urban watersheds and will take into account geofluvival and biologic processes to improve success of near-future rehabilitation projects.

Currently there are 5 waterways in Juneau that are classified as “impaired” by the State of Alaska. Restoration and enhancement activities are needed to improve the quality and function of these waterways, with the goal that one day these waterways can be removed from the State’s list of impaired waterbodies.

In the CBJ's 1987 Juneau Wetlands Functions and Values report, it was noted that within 15 square miles of the CBJ city center wetlands occupy over 54% of that land. The report also noted that Juneau has an average of a 0.9% wetland loss per year. Future developments in Juneau threaten additional wetland loss if they are not developed appropriately.

There are three ways to fulfill the compensatory mitigation need to obtain a 404 permit from the Corps of Engineers to develop property in our wetland areas.

- The Southeast Land Trust is the one organization that has a formal agreement with COE to accept fee-in-lieu payments for wetland mitigation.
- A small wetland bank was developed by the CBJ in the 90’s as another method to mitigate wetland impacts for new developments.
- Permittee-responsible mitigation is where developers conduct restoration or mitigation activities themselves to mitigate impacts. This project will fill a critical unmet need for developers who are

interested in choosing this option for wetland mitigation efforts by providing a list of potential projects.

The work proposed by JWP would directly benefit these entities by identifying and providing a prioritized list of high quality wetlands or habitats to be protected as well as projects that would provide the most benefit for the dollar invested. The projects identified by this assessment are believed to also mitigate some of the habitat and wetland impacts of past developments, and seeks to provide developers and permitting agencies a tool to help diminish or regulate further impacts to wetlands and riparian health in our valuable salmon watersheds.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

JWP regularly collaborates with Federal, State and local agencies to work together on local watershed issues. Agencies and organizations that will be invited to participate and contribute to this project include the CBJ, US Fish and Wildlife Service-Juneau Field Office, Corps of Engineers-Juneau Regulatory Field Office, Natural Resource Conservation Service-Juneau Field Office, Alaska Department of Environmental Conservation-Division of Water, Department of Natural Resources, Alaska Department of Fish and Game-Division of Habitat, US Forest Service-Juneau Ranger District, Nature Conservancy- Juneau Office, and Trout Unlimited-Juneau Chapter.

COST SHARING OR MATCHING OF FUNDS

The CIAP funds we are requesting will not be used for cost sharing or matching of funds.

haring or matching of funds.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Center for Alaskan Coastal Studies, Inc.
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Alaska CoastWatch

PROJECT CONTACT

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PROJECT LOCATION
The project is statewide in scope but based out of Homer and Kachemak Bay, Alaska. The location of the habitat restoration and dock replacement is in Peterson Bay, Kachemak Bay. All activities will take place in the coastal zone on beaches in the intertidal zone or in stream corridors with tidal flows, with the exception of final dock placement in an area below extreme low tide.

PROJECT DURATION Three years

ESTIMATED COST

Spending Estimate Education & Marine Debris Clean-Up Project ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
150,000	50,000	50,000	50,000	0

Spending Estimate Dock Replacement($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
331,650	40,000	185,700	105,950	0

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
481,650	0	0	0	481,650

PROJECT DESCRIPTION

The Center for Alaskan Coastal Studies (CACS) will engage Alaskans in the use of mapping and assessment tools to increase awareness and participation in conservation and protection of Alaska's coastal environments. Community-based monitoring efforts will focus on the detection of changes in

areas of significance to coastal communities and thus provide science-based motivation for conservation, protection, and restoration of coastal areas. CACS proposes a two part project.

Part 1: **Education & Marine Debris Clean-Up**

The first part of the project is community based and involves the continuation and expansion of their successful Alaska CoastWatch program. This program has a proven success record of engaging students and community members in beach and stream marine debris clean-ups and coastal monitoring of environmental changes, including those related to oil and gas development and climate change. Alaska CoastWatch will be expanded statewide by the use of the recently created standardized coastal monitoring and marine debris clean-up protocols (developed by CACS with funding by the NOAA Marine Debris Prevention program) in assisting local coastal communities with community-based coastal monitoring programs. Training and outreach education will be provided in participating coastal communities. Expansion of the current Alaska CoastWatch Curriculum (currently providing resources for coastal monitoring for students in grades 4-6) will be completed to include lessons for use in K-3 and 7-12 grades. The first part of the project will also include support for the Alaskan Coastal Monitoring Network accessed through the CACS portal website, development of a coastal monitoring listserve, and a database georeferenced to ShoreZone mapping and Google Earth.

Removal of marine debris from shorelines addresses an important conservation and restoration issue for Alaskan coastal areas. Marine debris causes mechanical damage and smothers intertidal and subtidal communities, which recover slowly due to wave action, low water temperatures, and seasonally-limited sunlight. Plastic debris, in particular, is harmful on fish, seabirds, turtles, and marine mammals due to entanglement, ingestion, and the concentration of absorbed toxic chemicals. This well-documented problem was the basis for the federal Marine Debris Research, Prevention, and Reduction Act. Alaska is one of six hot spots for marine debris indentified by the NOAA Marine Debris Program (MARINE DEBRISP) and a 2008 statewide conference on marine debris concluded that addressing the problem was urgent. “The amount of debris, its persistence, and its insidious presence in even the most remote beaches of Alaska has brought this issue to the forefront of problems needing to be addressed in order to maintain a healthy marine ecosystem.”

Although marine debris is a global issue, it is a problem that can be addressed effectively at the community level. In the words of the US Commission on Ocean Policy, "While marine debris is a global problem requiring international cooperation, many of its negative impacts are experienced at the local level and require local involvement." CACS has conducted a community-based annual clean-up of the Kachemak Bay shoreline for 26 years and, since 2006, has taken a lead role statewide by serving as an “incubator” of emerging community-based clean-up and prevention programs through its innovative “pass-through” challenge grants with NOAA funds which target community-based marine debris efforts. This funding has been leveraged by thousands of hours of volunteer time and the removal of tons of marine debris each year.

The 2008 conference also underscored the challenges of coordinating marine debris clean-up and prevention efforts, concluding that a concentrated and centralized effort for organization of marine debris removal and prevention efforts is lacking in Alaska and that Alaskan marine debris removal efforts are currently scattered regionally, often opportunistic, and operate in isolation. This proposal would implement the recommendations that emerged from the conference by: 1) supporting CACS as the coordinator of a statewide marine debris network, 2) sharing information on the best practices for removal and prevention, and 3) promoting use of standardized data collection on miles of shoreline cleaned, volunteer hours, and the amount and type of debris removed from specific areas during community based monitoring and marine debris clean-up efforts.

CACS will cooperate with the Alaska Sea Grant coastal monitoring to expand Alaska CoastWatch into a community-based coastal monitoring program for invasive species, harmful algal blooms, water temperatures, pollution, marine and seabird mortalities, and ocean acidification. Coastal monitoring was identified in Sea Grant's Strategic Plan for 2010-2014 as the means to collect tangible consequences of global climate change and the challenge to coastal Alaska communities from a variety of human activities that pose current and potential threats to the sustained health of Alaska's coastal species, habitats, and communities. Concerns for marine species include acute and chronic health problems due to exposure to debris, oil, and chemical contaminants. The potential for these types of environmental impacts exists throughout Alaska but is greatest in coastal waters where shipping, gas/oil extraction, and urban development are concentrated and where new ice-free zones are seeing increased traffic.

Part 2: Dock Replacement

The second part of the project involves the improvement of infrastructure and the restoration of intertidal habitat by the replacement of a dock at the Peterson Bay Coastal Science Field Station in Peterson Bay, Kachemak Bay. These improvements will guarantee that the facility can continue to serve as the base for the only residential coastal stewardship science-based education programs in Alaska.

CACS has served an essential role in the conservation and protection of Peterson and China Poot Bays in Kachemak Bay as a result of their educational programs for over 25 years. Improving the organization's infrastructure by replacing the dock will not only ensure these efforts can be sustained for many years to come but also provide restoration of 10 acres of intertidal habitat.

The Alaska CoastWatch project will benefit communities, regions, and the state as a whole through the network of engaged citizens, site-specific assessment information, and the clean-up and restoration of shorelines. The data, the standardized coastal monitoring data collection protocols, and educational materials will be available online for use by state agencies and communities throughout the state.

Key Milestones:

Year 1: Part 1: **Education & Marine Debris Clean-Up**

Coastal monitoring protocols revised and expanded for use in Alaskan community clean-ups and monitoring projects, community database and network is established, outreach to coastal communities for coastal monitoring and marine debris clean-up projects.

Part 2: **Dock Replacement**

Planning is completed for dock replacement at the Peterson Bay Field Station.

Year 2: Part 1: **Education & Marine Debris Clean-Up**

Two years of coastal monitoring and marine debris clean-up data is entered into a database that is georeferenced to ShoreZone mapping and Google Earth. K-12 coastal monitoring curriculum is completed.

Part 2: **Dock Replacement**

Dock is replaced at the Peterson Bay Coastal Science Field Station.

Year 3: Part 1: **Education & Marine Debris Clean-Up**

Data from three-years of coastal monitoring and clean-up are analyzed and presented in communities and at the Alaska Forum for the Environment and one other major conference on issues facing coastal communities. K-12 coastal monitoring curriculum is piloted in coastal communities.

Kachemak Bay, shoreline clean-up and survey efforts are coordinated with the City of Homer who owns its own tidelands within city limits. Alaska CoastWatch has involved 22 different organizations and schools in 12 Alaskan communities since 2006. Examples of the many organizations and communities involved in CoastWatch include: Homer, the Homer Chamber of Commerce, Cook Inletkeeper, Friends of Kachemak Bay State Parks, Kachemak Bay Research Reserve, Boy Scouts and Girl Scout Troops, McNeil Canyon School, Homer Middle School, Fireweed Academy; Kodiak, Kenai, Seward, Seldovia, Haines, Juneau, Sand Point, Cordova, Anchorage, Gulf of Alaska Keeper (Gore Point clean-up), Sitka, Ketchikan, and Craig. The project goal is to support and expand this existing network through continued community outreach efforts. Project partners include two University of Alaska Fairbanks programs - Sea Grant, and the Alaska Center for Ocean Science Education Excellence (COSEE) - and the involvement of the NOAA Fisheries ShoreZone Mapping program which involves multiple state and local partners http://alaskafisheries.noaa.gov/habitat/shorezone/partners.htm).

MEASUREABLE GOALS AND OBJECTIVES

Year 1:
- 10 community-based organizations and schools will participate in clean-ups, coastal monitoring and assessment projects, and training and education programs.
- At least 400 volunteers will contribute at least 1200 hours of time to clean up 75 miles of shoreline, provide coastal monitoring assessment data on 75 miles of shoreline, and remove 10,000 pounds of marine debris.
- 10 acres of intertidal habitat will be restored through replacement of a dock that grounds at low tide by a floating structure.
- Standardized community-based coastal monitoring and data collection protocols will be available online on a CACS website.

Year 2:
- 10 community-based organizations and schools will participate in clean-ups, coastal monitoring or assessment projects, and training and education programs.
- At least 500 volunteers will contribute at least 1500 hours of time to clean up 100 miles of shoreline, provide coastal monitoring assessment data on 100 miles of shoreline, and remove 12,000 pounds of marine debris.
- Shoreline clean-up and coastal monitoring sites will be georefenced with associated data and accessible online through ShoreZone, Google Maps, or Google Ocean.
- A unit of K-12 instructional activities on Alaska coastal stewardship will be available online and incorporated into CACS educational programs that serve over 10,000 people annually

Year 3:
- 10 community-based organizations and schools will participate in clean-ups, coastal monitoring or assessment projects, and training and education programs.
- At least 600 volunteers will contribute at least 1600 hours of time to clean up 125 miles of shoreline, provide coastal monitoring assessment data on 125 miles of shoreline, and remove 14,000 pounds of marine debris.
- An Alaska CoastWatch Network of 50 community-based organizations and schools will be supported by a portal website, listserve, social networking site, and database to enable the sharing of data and observations, mapping and assessment methods and protocols, and information and educational resources to mitigate the harmful impacts of human activities.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

The project is consistent with the CIAP authorized use #1: projects and activities for the conservation, restoration, or protection of coastal areas.

A coordinated coastal citizen network will provide the means to overcome some of the logistical challenges and high costs of collecting environmental information for conservation and protection of biodiversity and productivity over Alaska's vast coastline in the face of anticipated development and development impacts. The project addresses the need to remove marine debris and to detect significant changes in coastal areas that have implications for the diversity and productivity of biological communities and fish and wildlife resources that support important recreational, commercial, and subsistence uses of coastal areas and harvests.

Removing debris from the marine habitats and resources associated with the Kachemak Bay National Estuarine Research Reserve (KBNERR) is crucial. Debris can smother marine invertebrate communities or entangle marine birds and mammals. Kachemak Bay is also a designated State Critical Habitat Area because it supports rich marine invertebrate communities. Sea ducks, diving ducks, shorebirds, marine fish, and small mammals feed on the clams, mussels, snails, worms, and other marine invertebrates found on the mudflats and rocky/gravel beaches of inner Kachemak Bay. The south side of Kachemak Bay is lined with rocky shores and kelp beds interspersed with pocket beaches of sand and gravel. These small coves support productive intertidal and subtidal marine life. The north side of Kachemak Bay including the Homer Spit is composed primarily of gravel and sand habitats that support razor, cockle, and red-necked clam populations. Kachemak Bay is also an important fish and shellfish rearing area, with historical abundance of herring; salmon; halibut; king, Tanner, and Dungeness crab; and pink, spot, humpy, side-stripe, and coon-stripe shrimp. Seasonal concentrations of nesting seabirds and overwintering seabird and waterfowl populations are also regionally significant.

This project benefits coastal habitats, living marine resources and their habitats, including commercial and recreational fishery resources (marine and shellfish), and anadromous fish spawning and migrating in coastal streams. Outside of Kachemak Bay, Part 1 of the project will continue to target marine debris and prevention efforts by organizations and communities that have successfully completed marine debris clean-up and monitoring projects. These efforts come from all over the state, including organizations and schools in Kenai, Soldotna, Haines, Seward, Kodiak, Seldovia, the Anchorage-based Gulf of Alaska Keeper, Juneau, Sand Point and Cordova. These programs included many kinds of sensitive terrain and debris collection points: heavily-used angler access points, salmon stream corridors, and intertidal spawning areas, beaches in state wilderness and marine parks, and recommended Essential Fish Habitat areas.

In addition, Kachemak Bay CoastWalk beach surveys provide valuable observations of marine mammals, including Steller's sea lions, sea otters, and humpback, beluga and gray whales that are threatened, endangered or candidate species in portions or all of their Alaska range. Essential Fish Habitats (EFH) and Habitat Areas of Particular Concern (HAPC) have not been finalized for Alaskan fisheries in these areas.

Coastal development and site-specific impacts are concentrated in coastal areas around widely-scattered Alaskan communities that serve as the base for oil and gas development and which are also experiencing rapid environmental changes as a result of climate change due to polar amplification. Coastal community members have a strong interest in conservation due to their dependence and appreciation of the local environment and its resources. The program will thus target the most heavily-used beaches and stream corridors near communities for monitoring and conservation and protection which are at the highest risk of increased residential and commercial development.

Statewide leadership in community-based marine debris clean-up and prevention aspects of Alaska CoastWatch have been underway since 2006. This proposal will sustain these efforts and expand them into a coordinated statewide community-based coastal monitoring network that will provide environmental assessment on a broad geographic scale. The coordination of community-based efforts will yield site-specific data about baseline conditions and detect changes and trends that may occur as a result of oil and gas and other types of development. Oil or other pollution may show up during coastal monitoring surveys. Most importantly, sustained annual surveys of areas of importance to communities provide a knowledge base about natural cycles and events and the changes that occur from all types of human activities so that should impacts or environmental changes occur specifically as a result of OCS oil and gas development, local effects can be detected quickly and put into context.

The Kachemak Bay CoastWalk program, which is the model for the Alaska CoastWatch program, engages more than 400 volunteers annually who removed approximately one ton of marine debris from Kachemak Bay beaches in both 2008 and 2009. The program has resulted in changes in improved waste disposal facilities at beach areas and a sustained 4-6th grade education program about marine debris prevention. Additional environmental data collected during the CoastWalk surveys have been used to develop City of Homer beach use ordinances, provided as site-specific environmental information to state and federal permit reviews for proposed development projects such as the Small Boat Harbor expansion, and detected and documented unusual concentrations of a sea star species out of its normal range in Alaska whose suspected origin was ballast water dumping. During the period 2007-2009, the expanded Alaska CoastWatch Program has involved 1794 volunteers in 23 Alaskan coastal communities spending over 5749 volunteer hours to remove 60,651 pounds of marine debris from 356 miles of shoreline.

Another measurable outcome in the proposal is the direct restoration of 10 acres of tidelands which are receiving negative impacts on habitat and altered flows from the grounding of a dock at low tide levels due to a natural process of accretion in an area with an extreme tidal range of 27 feet. The replacement dock will float at all tide levels. The replacement of the existing dock is a response to soil accretion that is occurring at an accelerated rate as a result of the rate of glacial melt in the watershed to the west. The current dock was recently moved from the east west side of the existing pilings to the east side of the pilings to avoid grounding out at minus tides and likely impeding flows that would erode sediments at the base of the slope at the entrance to the slough. The permit modification temporarily eliminated the threat of grounding for 3 years while CACS prepares for a permanent solution to the accretion and grounding out problem. Replacement of the existing floating dock with a dock that will float at all tidal levels is the only solution to this environmental problem and will help restore the intertidal habitat that has been adversely affected by the grounding out of the floating dock over the past 5 years. The proposed dock replacement will result in a reduction of impacts on fish and wildlife values and intertidal wetlands by eliminating the periods of grounding by the dock structure. The area around the dock is a gravel/cobble substrate with accumulations of sand which provides habitat for a diversity of marine intertidal organisms and juvenile and adult marine fish. The operation of residential educational programs that is made possible by dock access has made, and will continue to make, a significant contribution to conservation. It is one of very few programs of its kind in Alaska and it has provided coastal stewardship education to thousands of school children and adults and families from all over the world.

Replacement of this dock will improve the infrastructure and access to the CACS Peterson Bay Coastal Science Field Station, Alaska's only residential marine education facility and restore intertidal habitat. The Coastal Science Field Station is located on the south side of Kachemak Bay and is accessible only by boat. The improved infrastructure and access will sustain conservation and protection of coastal areas indirectly by sustaining the science and conservation education programs that CACS provides to

thousands of school children and adults each year based out of this facility and sustaining CACS stewardship of tidelands within the Kachemak Bay Critical Habitat Area that are among the most productive rocky intertidal and salt marsh habitats in Alaska.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

CACS will partner and coordinate with the NOAA-supported University of Alaska Fairbanks Sea Grant Marine Advisory Program, the NSF-supported Alaska Center for Ocean Science Education Excellence (COSEE), and the NOAA Fisheries ShoreZone Mapping Program. They will also continue to seek additional funding from the NOAA Community-based Marine Debris Clean-up and Prevention Grant Program.

COST SHARING OR MATCHING OF FUNDS

No commitment has been made of CCIAP funds for cost-sharing or matching purposes by another grant.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Seward Association for the Advancement of Marine Science, dba Alaska SeaLife Center
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Alaska Coastal Observation Network (ACON) – An Educational Component on How to Conduct Remote Coastal Observations and Analysis of Changing Shorelines to Protect Coastal Areas

PROJECT CONTACT

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PROJECT LOCATION

The Alaska Coastal Observation Network (ACON), managed through the Alaska SeaLife Center in Seward, will deploy automated observation stations and educate observers at remote coastal communities to record changes in coastal conditions related to climate change. Instrumentation testing, technical support and community observer training will take place in Seward. Sites for coastal observation, up to 9 for automated stations and 26 for community observers, will be selected by the ACON Advisory Board on the basis of erosion concerns, as reflected in USACE (2009), documents of the Alaska Coastal Management Program, and other environmental and coastal development considerations. Most sites are anticipated to be at or near villages of western and northern Alaska along the Bering, Chukchi, and Beaufort Sea coasts. Collaboration and support activities will take place in Anchorage (UAA) as part of the Alaska Ocean Observing System (AOOS). Data collected will be synthesized into regular reports of coastal change at the observation sites, incorporating analyses of regional data affecting coastal conditions, *e.g.*, weather and tide records from NOAA archives, and posted on the AOOS website for public information..

PROJECT DURATION

The project will be implemented during a 3.5 year period with the intent of continuation beyond through sponsorships by community, regional, State, and federal organizations.

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$2,928,346	757,251	$883,422	$905,053	$382,620

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$2,928,346	0	0	0	$2,928,346

PROJECT DESCRIPTION

Educating local citizens in how to effectively implement a statewide network for observing and reporting changes in coastal processes and shoreline characteristics is proposed. Alaska Coastal Observation Network (ACON) data and reports will enhance State and Federal efforts to monitor and predict progression of climate change coastal impacts. ACON will be implemented by: (1) automated stations along isolated shoreline reaches or in areas of extreme concern, (2) personal observations and manual measurements reported by residents of coastal communities, (3) automated stations at harbor entrances (Alaska Harbor Observation Network, AHON), and (4) regular analysis and public reporting of current conditions and trends. The combination, known as the Alaska Coastal Observation Network (ACON), is proposed to be an integral part of the Alaska Ocean Observing System (AOOS). AHON is currently being implemented in coastal communities with substantial marine transportation infrastructure with funding already received through AOOS.

Climate change impacts in the Arctic are critically evident as Alaskan coastal communities experience shoreline retreat and infrastructure losses. Such impacts create both environmental problems associated with marine debris and water contamination and serious safety risks from structures falling into the ocean. The State and Federal governments are aggressively attending to emergency situations, such as the catastrophic erosion at Shishmaref and Kivalina on the Chukchi Sea coast. The Corps of Engineers (USACE 2009) identified 178 Alaska communities with erosion concerns, recommending 13 coastal sites for priority action and another 32 for monitoring of ongoing coastal erosion processes. Objective observations of local coastal processes and their effects on shoreline stability are extremely sparse across the State at present. Objective observations during storms and other extreme events at the shoreline are of high value to engineers and others tasked with disaster recovery and prevention of future property damage. Site-specific measurements accommodate best practices for numerical simulations of wave conditions and related predictions of erosion rates or formulation of structural design criteria. Coastal management plans and design of coastal erosion responses will continue to have high risks and uncertainty unless more coastal observations and physical data are regularly applied to define coastal hazards. This project will train local observers how to implement ACON.

Implementation of ACON is planned to be scalable to satisfy demands and sustainable with limited resources. ACON, as proposed for initial implementation herein, will result in placement of up to nine automated remote sensor stations and training of 26 coastal community observers. All ACON and AHON data streams are to be processed, displayed on the web, and archived under the direction of AOOS. Archived raw data and synthesized analytical products will be available to agencies, engineers and scientists, and the public via Internet.

Methods

The project will be administered and managed at the Alaska SeaLife Center in collaboration with Dr. Orson Smith, PE, of the UAA Civil Engineering Department. An Advisory Board of agency, academic and community representatives will be convened annually to review progress and recommend site priorities and program developments for automated stations and communities for observers. Additional technical advice will be gathered during Year 1 and Year 3 technical workshops. Data assimilation and public reporting will be managed through AOOS. Design and installation of automated stations and development of observer technologies will initially be developed with aid of contract services.

Installation, operation, and maintenance will ultimately be supported by ASLC technical personnel and an instrumentation laboratory to be developed at ASLC.
Automated rural coastal observation stations will be operated in conjunction with data retrieval, analysis, and archiving already underway for AHON harbor entrance sites. Near-real time data analysis and dissemination and long-term archiving will follow AOOS procedures (see *http://www.aoos.org/*). Locations of rural automated stations will typically lie at or near a coastal community. Radio telemetry to a village public building should usually be practical for uploading data by internet to an ACON-dedicated server. Some very remote locations may require satellite, meteor-burst, or other means of long-distance telemetry, with ample backup data storage on site in case telemetry fails.

All automated stations will be configured with rugged, transportable, and affordably priced off-the-shelf components. Sensor capabilities and data recording protocol will generally follow NOAA standards (*e.g.*, Earle 1996). Meteorological parameters measured and recorded will include wind speed and direction, air temperature, barometric pressure, solar radiation, and relative humidity, rainfall, and snowfall. Water level data, when feasible on open-coast locations, will record astronomical tide, wind-generated wave characteristics, and storm surge. The station will periodically record digital (web cam) images of the bluff or dunes, adjacent beach, and the nearshore waves. Seasonal ground freeze-thaw effects and thawing of permafrost of coastal bluffs and dune shorelines will be monitored with digital temperature sensors (Hendee 2007). These processes are linked to heat exchange between the soil, air, ground water, and ocean water along the shoreline (*e.g.*, Are et al 2008). Remote station design will be tested at Lowell Point (Figure 1, Appendix A) near Seward.

Features of a remote automated monitoring system erected near the crest of a coastal bluff are illustrated in Figure 2 (Appendix A). The foremost challenges for a reliable design are the connection of submerged sensors to the data logger, the power budget for the system, and telemetry connection to a distant control and data dissemination system. These challenges will be met through prototype tests at Lowell Point near Seward with a view toward more remote sites along the Alaskan coast. Prototype tests of a small wind-turbine, supplemented in summer by a solar panel, indicate power demands can be met with off-the-shelf components.

Residents in the selected communities will be trained to use the equipment and record changes. Once trained, these observations by rural coastal residents will include visual observations and one-person manual measurements to provide regular objective recorded information about coastal processes and changing shoreline conditions. Coastal community residents are to be equipped with a set of observation tools and means to report their observations to a central AOOS database via Internet. The tool kit will include an illustrated manual with instructions for use of each observation device provided. Observers will be equipped to measure wind, wave, long shore current, water quality, and ice conditions, beach slope and material characteristics, and relative shoreline retreat. The equipment and procedures will be refined from the Littoral Environment Observation (LEO) program operated by the Corps of Engineers until about 20 years ago (Schneider 1981, Sherlock and Szuwalski 1987). Water quality tests will follow procedures of Cook Inlet Keeper's Citizens Environmental Monitoring Program (1998), including temperature, salinity, turbidity, color, odor, and pH (acidity) measurements. Sea ice observations will follow guidelines of Smith (2000). Annual summer workshops will be offered by the Alaska SeaLife Center for training selected coastal community observers in making observations, collecting data and

uploading data to the central AOOS database. Community observers will be trained and certified as members of the Alaska Coastal Community Observation Corps.

References are listed in Appendix C.

Milestones

Milestones include the following:

Year 1: ACON Advisory Board operational
Sites selected for remote coastal sensor installations and communities for observers
3 remote sensor systems installed and 6 community observers trained/deployed
Year 2: 3 remote sensor systems installed and 10 community observers trained/deployed
Year 3: 3 remote sensor systems installed and 10 community observers trained/deployed
ACON sustainability measures in place

MEASUREABLE GOALS AND OBJECTIVES

Measurable goals and objectives of this project are listed below. Please refer to Appendix B *ACON Project Plan (Microsoft Project)* for details.

Goal 1. Management, technical and educational requirements completed for ACON to succeed.

Objectives

- A seated and active ACON Advisory Board
- Completed technical workshop with confirmed technical specifications for observing systems
- Contract for engineering services
- Contract for curriculum specialist and completed community observer training curriculum and certification program

Goal 2. First tier community observer and automated systems installed as proof of concept.

Objectives

- ACON Advisory Board recommendations report on management structure, and remote coastal and coastal community locations targeted as priority observation sites
- Educate and certify six community observers as first contingent of the Alaska Coastal Community Observation Corps
- Three fixed infrastructure ACON stations and sensor packages installed
- Completed permitting for ACON installations for Years 2-3

Goal 3. Second and third tier community observer and automated systems installed coupled with ACON sustainability strategy.

Objectives

- Years 2 and 3 ACON Advisory Board recommendations reports
- Educate, certify, and deploy 20 additional Alaska Coastal Community Observer Corps members
- Six additional fixed infrastructure ACON stations and sensors installed
- Long term sustainability plan completed and initiated

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE:

Authorized use #1. Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands. ACON observation sites will be chosen from Alaskan coastal communities already concerned about coastal erosion. As a component of ACON, education of one or more community residents as observers will enhance direct local involvement in planning coastal erosion responses and in

coastal zone management decisions regarding proposed developments and conservation, protection, or restoration actions where impacts have already occurred.. ACON will provide long-term atmospheric, soil profile and coastal oceanographic data for baseline and trend analysis for planners, engineers, and coastal residents to understand and evaluate changing coastal conditions, to mitigate impacts from climate change, such as coastal erosion, and to develop new and improved infrastructure that is safe from ambient coastal hazards. ACON will also contribute to our understanding of Land-Ocean Interactions in the Coastal Zone (LOICZ), including rates of sediment influx into the coastal ocean due to coastal erosion. The key objective of LOICZ (2005) is to "provide the knowledge, understanding and prediction needed to allow coastal communities to assess, anticipate and respond to the interactions of global change and local pressures which determine coastal change." ACON activities and data will also be adaptable as showcase projects for secondary school curricula to demonstrate scientific approaches to observing the natural world and impacts of human developments. Ultimately, each rural coastal community with ACON infrastructure and an observer program will have a stake in the future of coastal development in their region through the knowledge and skills developed by resident coastal observers. Coastal observers, with their training and practical experience, will be poised to become local, regional, and statewide leaders representing coastal conservation, protection and restoration from the perspective of rural residents.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS:
The prototype automated infrastructure design for ACON follows design of similar coastal observing stations at harbor entrances (AHON) funded by the Alaska Ocean Observing System (AOOS) and the National Weather Service. We anticipate expanding collaborations with other entities, such as the Alaska Department of Natural Resources, the Corps of Engineers, and coastal communities who will benefit from local coastal data and trend analysis.

COST SHARING OR MATCHING OF FUNDS:
CIAP funds will not be used for matching or cost sharing.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Marine Advisory Program, School of Fisheries & Ocean Sciences,
University of Alaska Fairbanks
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Fish Waste Compost Project for Improved Nushagak Watershed Environment

PROJECT CONTACT

Contact Name: Izetta Chambers
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PROJECT LOCATION

The location for the proposed project will be within the Nushagak watershed area. Specifically, we will be working with the local native corporation, Choggiung Ltd. The prospective site is located off of Waskey Road, away from the residential part of town. The proposed location is relatively close to the local municipal landfill.

PROJECT DURATION

We anticipate that this project will take approximately 2 years to implement.

ESTIMATED COST

On the Spending Estimate table note how much will be spent each year of the project, regardless of when it is initiated.

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
$81,189	$63,089	$18,101	0	0

All of the funding will be with FY 10 funding.

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$81,189	0	0	0	$81,189

PROJECT DESCRIPTION

The proposed project aims to prevent the degradation of our Nushagak Bay and estuary environment by providing an alternative means of fish waste disposal. Currently, many locals irresponsibly and illegally

dump fish carcasses and fish wastes overboard or on the beach near their subsistence nets, exceeding the minimum 1/2" particle size and within the 1/2 mile from the shore. Although this is contrary to Alaska statutes on the proper disposal of fish waste and discharge, there are not adequate facilities in the City of Dillingham for the safe and convenient disposal of fish wastes. At the present time, fish wastes are incinerated at the local landfill site, which is a costly and wasteful endeavor.

This project entails the education of the public on safe and proper disposal and compost of fish wastes, provides a safe and effective disposal site, and minimizes interaction with bears, improving health and safety of residents. We aim to apply the best science in this area, as well as draw on case studies of where composting of fish wastes has worked in large quantities. The program provides for travel costs to bring research scientists in the area of soil sciences (with a particular emphasis on fish-based fertilizers) to the Bristol Bay area, as well as providing hands-on expertise and training to local residents.

The budget request will be used to primarily cover travel costs, as well providing for one month salary per year for our local MAP Agent at the Bristol Bay Campus, who will be the Principle Investigator on the project.

Tasks to be achieved during Year One include: (1) finalizing the Memorandum of Agreement with the landowner, Choggiung Ltd.; (2) educational activities, including composting workshops, a welding class where students will make compost tumblers, and a workshop on how to install a bear fence; (3) installation of signage and compost tumblers at the compost site; collection of compost waste materials for the project, and (4) purchase and use of a small tractor for the composting site.

Year Two will be a continuation of Year One activities, but will focus more on the outreach aspect of the project, and working with soils scientists to share the information learned and refine methods. There will be composting workshop scheduled throughout the region, and the Dillingham composting project will be used as a case study for how such a program can be implemented around the Bristol Bay region. The project successes and any obstacles will be presented at the Southwest Alaska Gardening Symposium being sponsored by BBNA and the UAF Bristol Bay Campus.

Coordination and collaboration will occur between the UAF Bristol Bay Campus Marine Advisory Program, the UAF Bristol Bay Campus Environmental Sciences Laboratory, Choggiung Ltd., the City of Dillingham, and local residents and gardeners. Those in the gardening community in Dillingham are particularly interested in this project. We will also be collaborating with the Bristol Bay Native Association and any local or regional tribal or municipal entities that express interest.

MEASUREABLE GOALS AND OBJECTIVES

Measureable goals for Year One: (1) reduce amount of fish waste illegally dumped at Kanakanak Beach or the Small Boat Harbor by 2,000 pounds; (2) provide at least two workshops related to the project (composting workshops, welding classes, bear fence installation), and (3) issue at least two press releases during the first year talking about the project.

Measurable goals for Year Two: (1) increase amount of finished compost by double the Year One amount; (2) broadcast the results of Year One activities in order to reach at least 2,000 residents in the Bristol Bay region; (3) submit article for publication to at least one scientific journal; (4) transition management of the project to Choggiung Ltd.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project meets the need outlined under CIAP Authorized Use #1. “Projects and activities for the conservation, protection, or restoration of coastal areas, including wetland.”

This project is consistent with CIAP Authorized Use #1, “Projects and activities for the conservation, protection, or restoration of coastal areas, including wetland” because it will reduce the amount of fish wastes and carcasses illegally dumped on the beach and in the Small Boat Harbor. The current situation has resulted in the large influx of salmon wastes dumped into the Nushagak Bay, and the illegal disposal of salmon carcasses on the beach by subsistence users. These situations have resulted in a decreased oxygen load in the Nushagak Bay, and increased unwanted interactions with the local bear population. Both of these situations can be completely alleviated through the proper disposal and composting of the fish wastes.

The proposed project is a collaborative approach to both an existing problem and a potential opportunity, which will result in long-term benefits for the local community. Additionally, the project could serve as a model for best practices throughout the region, and can serve to encourage other communities to look to fish waste composting to combat an existing problem, and produce a usable product. One of the biggest constraints to any medium- or large-scale agricultural endeavor is the limiting resource of suitable topsoil and not too acidic for plants to grow. A finished topsoil amendment from compost will help the local agricultural community in the region, while reducing the oxygen-depleting influx of fish waste dumped in our Nushagak Bay.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

This project has potential to provide coordination and collaboration with the Alaska Department of Environmental Conservation, as well as the City of Dillingham. Additionally, the U.S. Department of Agriculture may be interested in coordinating efforts to bring more knowledge of agriculture to our region. The National Oceanic and Atmospheric Administration may be interested in promoting the concept with other Sea Grant colleges around the country, as a funding agency of the Sea Grant college system. The project could serve as a “Best Practice” throughout coastal Alaska, and may be applied across the country as well.

COST SHARING OR MATCHING OF FUNDS

No cost-sharing or matching funds are associated with this program.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

Chickaloon Native Village
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Matanuska River Debris/Junk Removal

PROJECT CONTACT
Provide contact information requested below for the person who will be managing the project.

Contact Name: Brian Winnestaffer
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PROJECT LOCATION
The lat and long coordinates are: N 61.61725 and W -149.10690

PROJECT DURATION
This project will take one year to complete. This will accomplish permitting to site stabilization.

ESTIMATED COST
On the Spending Estimate table note how much will be spent each year of the project, regardless of when it is initiated.

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
156,792	156,792	#	#	#

All of the funding will be with FY 10 funding.

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
156,792	0	0	0	156,792

PROJECT DESCRIPTION

There is an un-permitted active dump located on and in the Matanuska River just north of Eagle Avenue in Palmer, Alaska. The disposal area is accessed from the old railroad bed off of Eagle Avenue that is now part of a hiking trail system. Debris is deposited along a stretch of the Matanuska River approximately 1/4 to 1/2 mile upstream of Eagle Avenue and is mainly concentrated in an area approximately 1/4 mile from Eagle Avenue. Visible contents of the dump at the time ADEC inspected it on June 14, 2002, included railroad cars, vehicles, household

refuse, fuel cans, possible 55-gallon drums with unknown contents, scrap metal, and other miscellaneous debris. River channels run through and next to the dump at all times of the year. Visible sheens have also been observed in the river. This open dump is within the Drinking Water Protection Area for a minimum of three public water systems. These public water systems include Mountain View Estates (PWSID 226509.001), Palmer Well No. 4 (PWSID 226020.00, and the Palmer Golf Course (PWSID 227482.001).

The ADEC has placed this segment of the Matanuska River on the 2002 Section 303(d) list as an impaired water body and it is in Category 5 on Alaska's 2002 Integrated Water Quality Monitoring and Assessment Report, for non-attainment of the Residues standard for debris as provided for in the Water Quality Standards for Fresh Water Uses [18 AAC 70.020(b)].

This project will remove the debris from the area and restore the riparian function of the stream bank.

All project steps will occur within one year of the start date. The first step will be to acquire permits to remove the debris from the site and for access to the site. The land is owned by the Alaska Railroad but is leased by the Mat-Su Borough for a trail ROW. Both of these groups are in support of this project. The next step will be the removal of 100 – 200 tons of illegally dumped debris at the site. Following removal of the debris, a stabilization/revegetation effort will commence. A monitoring plan will be set-up to insure project success. When this project is complete, DEC will be petitioned to remove the impaired water body listing for the Matanuska River (this illegal dump site is the reason for the listing).

MEASUREABLE GOALS AND OBJECTIVES

Project Goal 1: Remove debris from the illegal dump-site along Matanuska River.
Measurable Outcome 1: An estimated 100 to 200 tons of material will be hauled away from the restoration site.

Project Goal 2: Restore riparian area, after the debris has been removed, to a functioning part of the river ecosystem.
Measurable Outcome 2: Installation of dormant willow, native grasses, and stabilization material at the dump site. These materials will be propagated until natural growth and stabilization occurs on its own.

Project Goal 3: Matanuska River removed from the DEC's impaired water bodies list.
Measurable Outcome 3: Letter encouragement and follow up phone calls to DEC for the removal of the Matanuska River from the DEC's impaired water bodies list.
Project Deliverables: what are the tangible products of this project?
100 to 200 tons of debris and trash will be removed from this illegal dumpsite in and next to the Matanuska River. This will limit any further contamination to the river system and will inhibit future contamination of the biota that use the ecosystem.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

Through the removal of debris and revegetation of this site on the Matanuska River, this project will address the number 1 CIAP Authorized Use by restoring ecological function of this riparian area in the coastal zone. Additionally, media reports during and after the restoration project will help to educate the

public about the importance of healthy riparian environments and may lead to increased stewardship and conservation efforts.

Removal of the debris/junk will preclude any more pollution from entering the Matanuska River. The hydrocarbons and other pollutants in this dump site have been washed into the Matanuska River with each rainfall event. The removal of this debris will stop further pollution from entering the stream.
The river bank restoration will stabilize the bank from erosion and the vegetation will enable the riparian area to function as an ecosystem. This will limit extra siltation from entering the river. The roots of the newly planted vegetation will hold the soils on the slope in place and will stop siltation/run-off from occurring at the site.
The Matanuska River is a productive salmon stream hosting all five species of Pacific salmon. Cleaning up this site will ensure the success of their runs for generations to come.
Chickaloon Native Village has been involved in many salmon stream restoration projects. Moose Creek, a tributary to the Matanuska River, has had two very large fish passage projects done recently that have opened up over 14 miles of new spawning grounds by bypassing a man-made waterfall. Chickaloon Native Village has also replaced many inadequate culverts due to poor fish passage. Many of the revegetation techniques proposed for the Debris/Junk Removal Project have been successfully used on these other projects.

This illegal dump-site has required DEC to list the Matanuska River as an impaired waterbody due to excessive siltation and hydrocarbon issues. This project will clean up the illegal area and help remove the Matanuska River from the DEC listing.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS
This project has many governmental agencies involved. Letters of support for this project have been acquired from the Alaska Department of Environmental Conservation, The Matanuska Susitna Borough, The Alaska Railroad and Chickaloon Native Village. The DEC has already spent funds to study the proposed project and have created a plan to remove the debris from the illegal dumping site. Information on these plans can be found at:
http://dec.alaska.gov/water/wnpspc/protection_restoration/fy04_matanuskariver_reports.htm

COST SHARING OR MATCHING OF FUNDS
Funds from Chickaloon Native Village's Tribal Wildlife Grant will be used in conjunction with CCIAP funding. Chickaloon has offered an employee who will be project lead for this project. The estimated in-kind for this project will be $12,312.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

State of Alaska Department of Natural Resources
Anchorage Soil and Water Conservation District
This project will be conducted on behalf of the State of Alaska. It was selected through an open competitive procurement process and in accordance with 3 AAC 196.

PROJECT TITLE: Potter Marsh Watershed Corridor: Conservation from Anchorage's Sea to Tundra for People and Wildlife

PROJECT CONTACT

Contact Name: Ryan Stencel, Operations Manager
Address: P.O. Box 110309 - Anchorage, AK 99511-0309
Telephone Number: (907) 677-7645
Fax Number: (907) 345-5012
Email Address: aswcd@aswcd.org

PROJECT LOCATION
The 105-acre, "Legacy Pointe" parcel is located in southeast Anchorage, Alaska, immediately uphill of the coastal zone and is a vital source of water to Potter Marsh. See figures 1, 2, and 3.

PROJECT DURATION
This project will be complete within three (3) years.

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 3.5**
2,000,000	1,000,000	1,000,000	0	0

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
2,000,000	0	0	0	2,000,000

PROJECT DESCRIPTION
The 105-acre, currently undeveloped "Legacy Pointe" parcel is located in southeast Anchorage, on the lower Hillside, immediately uphill of the coastal zone. Currently the area provides habitat for Moose, Bears (Black and Brown), Coyote, Bald Eagles that nest in Potter Marsh and frequently fly overhead, the occasional Lynx and Wolf, and the smaller animals that fill out this watershed such as Hares, Voles, and all the birds common and uncommon in Southcentral Alaska forest and wetland habitats.

Immediately adjacent, west and downhill of Legacy Pointe, is a 93-acre parcel of Municipal Heritage Land Bank property designated as "open space." This designation resulted from a 1998 study that included public hearings, and Assembly adoption of the study recommendation and overwhelming public testimony that the area be retained in an open space status (Municipality of Anchorage 1998). The study found that over half the water flowing into Potter Marsh comes from this area, the last remaining large tract of open space in the lower to middle Hillside of Anchorage. In the past, Potter Marsh has been primarily fed by Little Survival Creek. With uphill development of the Goldenview Park and Prominence Pointe subdivisions, among other developments and roads, significant changes to drainage have occurred. Consequently the drainages and creek on the Legacy Pointe property are now more essential than ever to the critically important waterbird and fish habitat of Potter Marsh (just west and downhill from the Heritage Land bank parcel) within the State's Anchorage Coastal Refuge.

Interrelated Values of Legacy Pointe and Potter Marsh

The Legacy Pointe parcel is a unique treasure for the Municipality of Anchorage in terms of its value to Potter Marsh, wildlife habitat, and for a variety of outdoor recreation opportunities. Potter Marsh, part of the State's Anchorage Coastal Refuge managed by the Alaska Department of Fish and Game, is an indispensable wildlife refuge that provides vital migratory bird habitat, wetland and waterway habitats supporting salmon transitioning from ocean waters of Cook Inlet and Turnagain Arm to Rabbit Creek and its tributaries and the outmigration of young salmon. It offers prime bird-watching and wildlife viewing opportunities to thousands of Anchorage residents and visitors. Potter Marsh supports populations of Pink, Coho, and Chinook Salmon and Dolly Varden Char. It is clear that the quality and quantity of the water that come from Legacy Pointe are responsible for supporting the important juvenile Salmon rearing capabilities of Potter Marsh.

State of Alaska Department of Fish and Game has mapped the Black and Brown Bear habitat and corridors of this property. See Figures 6 and 7.

At least 130 bird species have been sighted in the Anchorage Coastal Refuge with a diversity of waterbirds nesting in Potter Marsh, including approximately 15-20 nesting pairs of Lesser Canada Geese. Other waterbirds commonly found in the marsh include Mallards, Northern Pintails, Northern Shovelers, American Wigeons, Canvasbacks, Red-Necked Grebes, Horned Grebes, Yellowlegs, and Northern Phalaropes. Arctic Terns and Mew Gulls are common nesters at the marsh. During migration, Trumpeter or Tundra Swans, Snow Geese, Short-Eared Owls, and an occasional pair of Pacific Loons may be sighted. Northern Harriers and Bald Eagles are often seen as well. Potter Marsh is of value to the Anchorage economy as well as numerous tour buses regularly stop here.

The recent $3.1 million ($2.1 million from ConocoPhillips; $1 million from Federal Highway Administration) improvements to Potter Marsh boardwalks, parking, and interpretive materials is a testament to the value of Potter Marsh to both area residents and visitors. With 3.5 million cars driving past the marsh each year, and an estimated 116,000 people visiting the boardwalk in 2009, Potter Marsh is Anchorage's most popular wildlife viewing site. The open space including Legacy Pointe stretching uphill from Potter Marsh adds to the special sense of wildness here, so close to a major metropolitan area.

Natural Features of Legacy Pointe

Legacy Pointe consists of a beautiful mixed mature forest crossed by several waterways, with extensive wetland complexes in the western portion. The generally undisturbed cover is indicative of well-drained hillside vegetation, in conjunction with pockets of wetlands and springs. The woods are dominated by deciduous trees, mainly Cottonwood, Balsam, Poplar, and Birch. Spruce are also found here, along with a large stand of Aspen, a species not common in the Anchorage area, with smaller percentages of tall Willows and Alder pockets. Typical vegetation in the shallower sections includes Bluejoint Grass meadows and scattered, open canopy of Birch. Isolated white spruce are scattered throughout the site. Understory and ground cover is typically a mixture of Highbush Cranberry, Cow Parsnip, Bluejoint Grass, and other forbs.

Hydrology of the parcel is characterized by sections of near-surface groundwater, small streams or seasonal drainages, and pockets of wet surface meadows and wetlands (Municipality of Anchorage 1998, CH2M Hill Inc. 2005, Terrasat, Inc. 2007). The cumulative flow out of surface water channels provides important baseflow to the Potter Marsh system (Municipality of Anchorage 1998). See Figure 4.

Character and Zoning of Area

To the north and east of the parcel are large lot developments (1 dwelling unit per1.25 acres or more). Another undeveloped parcel zoned for higher density is to the south, with a Chugach State Park easement along Potter Creek which flows downhill, just to the south of the Legacy Pointe parcel, from the major expanse of Chugach State Park in the Chugach Mountains. (See Figure 5.) Southeast Anchorage is in an area bereft of local parks, but area residents have long used the historic Moen Trail (see Figures 8 and 9) and gasline easements that cross Legacy Pointe for a variety of outdoor activities, including, walking, cross-country skiing, horseback riding, running, and mountain biking. Transfer of this entire parcel, or at least a significant buffer including the Moen trail and gasline, into public ownership, provides the opportunity to conserve an open space and wildlife habitat corridor stretching from Potter Marsh at sea level, to Chugach State Park tundra at higher elevations, with a cross section of the habitats from forest to shrub, wetland, and grassland in between.

The Hillside District Plan is the result of a multi-year, intensive and extensive planning process involving numerous public hearings, a Citizen Advisory Committee, professional consultants, and the Municipality. It documented the importance of open space on the Hillside area and to residents as follows:

> "The natural and recreational qualities of the Hillside, its wildlife, large areas of undeveloped lands, close contact with nature, dark night skies, parks and wilderness trails are treasured by both Hillside residents and visitors. The public expressed strong support for protecting these qualities, maintaining the integrity of the area's natural environment and rural character, and improving recreational opportunities. Maintaining water quality is a priority, ***particularly protecting well water and Potter Marsh***" (pg. 2-34, Municipality of Anchorage 2009).

Currently, the Legacy Pointe parcel is zoned as Public Lands and Institutions, but it has been platted for a high-density, senior condominium development with an associated collector road and subdivision roads to cross the parcel, clearly at odds with the statement above. Such a development would fragment the wildlife habitats, destroy the "wild" nature of the area for outdoor recreation, and obliterate the historic Moen Trail.

Provision of CCIAP funds to assist with acquisition of Legacy Pointe will ensure that the water quality and quantity, wildlife, and human use values of the parcel will be protected in perpetuity. Secondarily, the tremendous waterfowl, wetland, and human use values of Potter Marsh will also be conserved for future generations. Legacy Pointe will provide a critical buffer for uphill drainages and assist in protecting water quality by filtering runoff, thereby reducing the impacts of existing and future developments, including the impervious surfaces of roads and buildings and attendant runoff of oil and other contaminants.

Project Year 1 - Begin process of acquisition of property

Project Year 2 - Continue and/or completion of purchase and subsequent implementation of development restrictions and other protections of the parcel

Project Year 3 - Only if necessary, completion of purchase and implementation of protections

MEASUREABLE GOALS AND OBJECTIVES

Project Goal 1:

Protection of the "Legacy Pointe" parcel, the largest piece of remaining natural open space that connects Potter Marsh in the State's Anchorage Coastal Wildlife Refuge with uphill tundra habitats in Chugach State Park.

Measurable Outcome 1:

Acres protected, up to 105 acres. Permanent protection of the wildlife, habitat, and outdoor recreation values on the 105-acre Legacy Pointe parcel in southeast Anchorage by purchase and transfer to the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, or Anchorage Municipality Division of Parks, thereby negating the current plat for a high-density condominium development on this parcel.

Project Goal 2:

Protection of downstream water quality and quantity in Potter Marsh, which supports important migratory waterfowl, nesting birds, Salmon, Bears, and calving Moose, and was the most popular visitor destination for wildlife viewing in Anchorage in 2009.

Measurable Outcome 2:

Acres protected in Potter Marsh, 540 acres. "Legacy" waters, accounting for about half the inflow to Potter Marsh, will not be compromised, contaminated, or diminished by uphill and upstream development of condominiums and associated roads and other impervious surfaces. This parcel will provide an important link between sea level marshes dominated by waterfowl, wintering and calving Moose, and spawning Salmon, to higher elevation habitats with forest birds, bears, lynx, and summer moose.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project is consistent with two CIAP authorized uses, mitigation of damage and number 1: Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.

Protection clearly benefits the natural coastal environment of Alaska's coastal area.

Protection of Wildlife Habitat and Critical Wetlands: Protection of Legacy Pointe will result in permanent protection of this unique, undisturbed, rare and critical wildlife habitat corridor, protection of the critical wetlands on the parcel and the water source for adjacent Potter Marsh, and will mitigate drainage alterations that are impacting Potter Marsh. Protection of this parcel as parkland with restrictions on future development will ensure that its significant water quantity and quality, wildlife, recreation, and open space values are protected for generations to come. According to a 1998 study by the Municipality, the parcel contributes to at least half the water flowing into Potter Marsh in the Anchorage Coastal Wildlife Refuge, the most visited site in Anchorage for wildlife viewing (over 116,000 visitors in 2009).

Moen Trail and other Recreational Uses: The historic Moen Trail, listed by the Alaska Archaeological Office, runs from east to west through the property and has been used for over 70 years. Additional trails and a major gasline easement running from north to south and connecting with the Moen Trail, serve as a well-used local nature trail system. This property is valued and used for a wide variety of recreational activities, including walking, cross-country skiing, horseback riding, sledding, hiking, mountain biking, bird/wildlife watching, snow machining, and even ice-skating on a small pond on the property. The recent Chugach State Park Access Plan identifies the southern boundary of the Legacy Pointe parcel as a common boundary with the Chugach State Park legal boundary (AS41.21.121) (See Figure 5: Map 6.7, Alaska Department of Natural Resources 2010). Additionally, this Plan identifies "Parcels of Opportunity" and an identified but unsecured "Pedestrian Access Corridor" as just east of the parcel. With the Moen Trail running from the property boundary on the east, the north-south running established gasline easement, the non-obtrusive powerline easement, and other trails on the western side of Legacy Pointe extending through the Heritage Land Bank parcel to Old Seward Highway and Potter Valley Road bordering Potter Marsh, these together provide the potential for a nearly complete trail from sea to tundra.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

This project is not a duplication of effort. The ASWCD will coordinate this project such that the process will be streamlined and will work with all applicable federal agencies throughout the process.

COST SHARING OR MATCHING OF FUNDS

CIAP funds may be used for cost sharing or matching purposes required by another grant. If they are used in this manner, a letter will be included with the CCIAP grant application from the other Federal agency (the agency charged with administering the program that includes the cost sharing or matching requirement) indicating that the other agency's program allows the use of Federal funds to meet cost sharing or matching requirements.

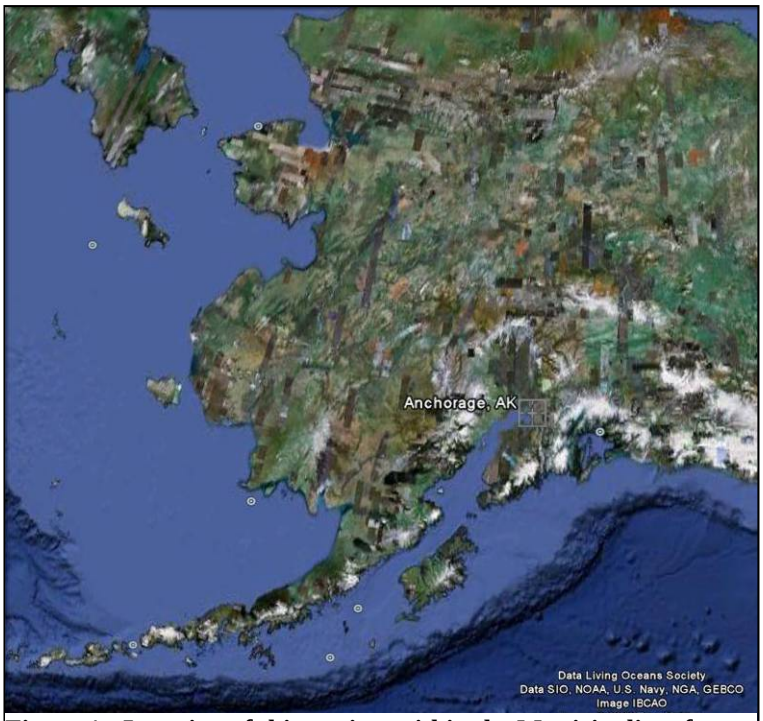


Figure 1: Location of this project within the Municipality of Anchorage, Alaska

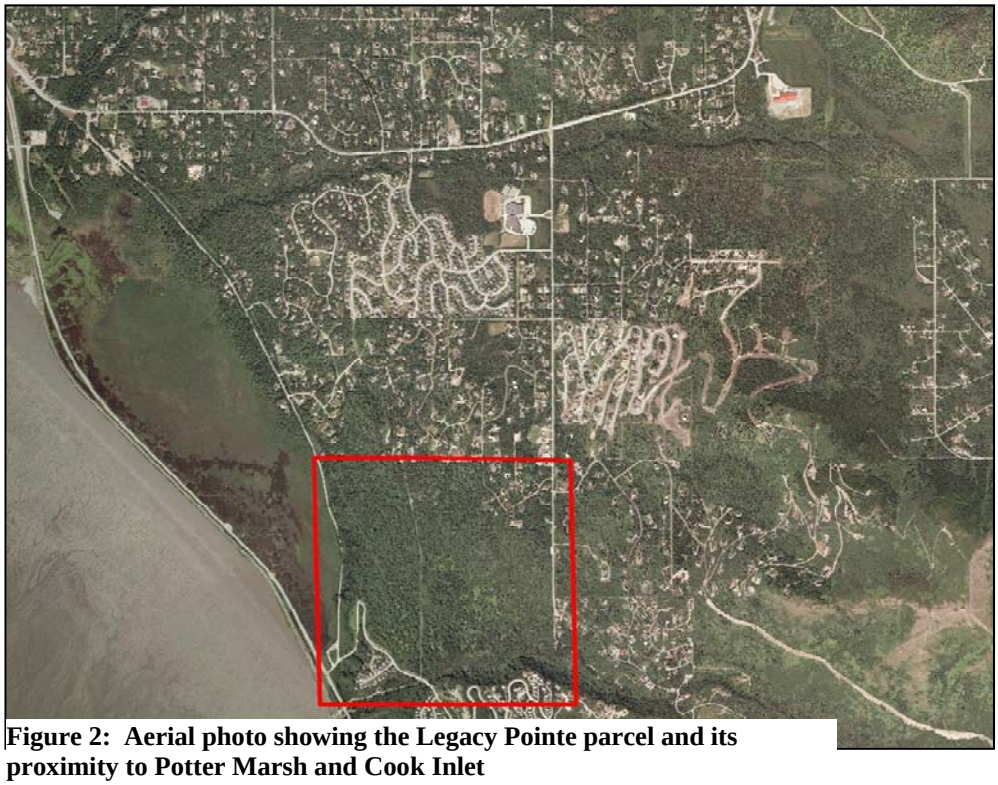


Figure 2: Aerial photo showing the Legacy Pointe parcel and its proximity to Potter Marsh and Cook Inlet

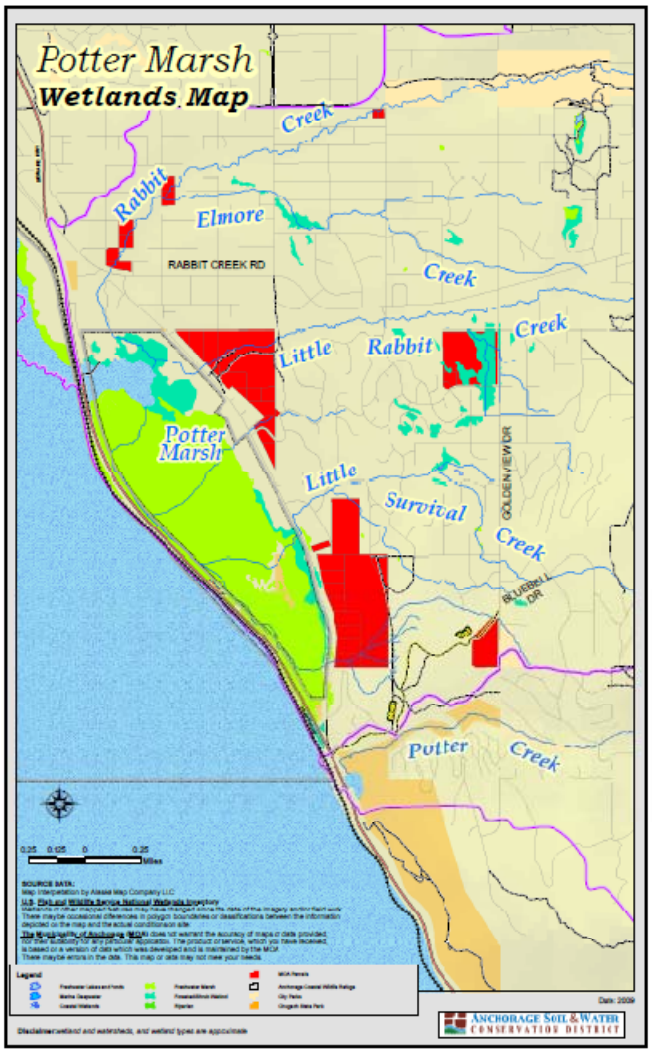


Figure 3: Land ownership and location of the 104.7-acre Legacy Pointe parcel. Municipality-owned parcels are red and include a 93-acre Heritage Land Bank parcel just west of Legacy Pointe and a 13-acre tract to the east that was previously subdivided out and transferred to Heritage Land Bank as a potential school site. Potter Marsh (green) is owned by the State of Alaska and managed by the Department of Fish and Game as part of the Anchorage Coastal Refuge.

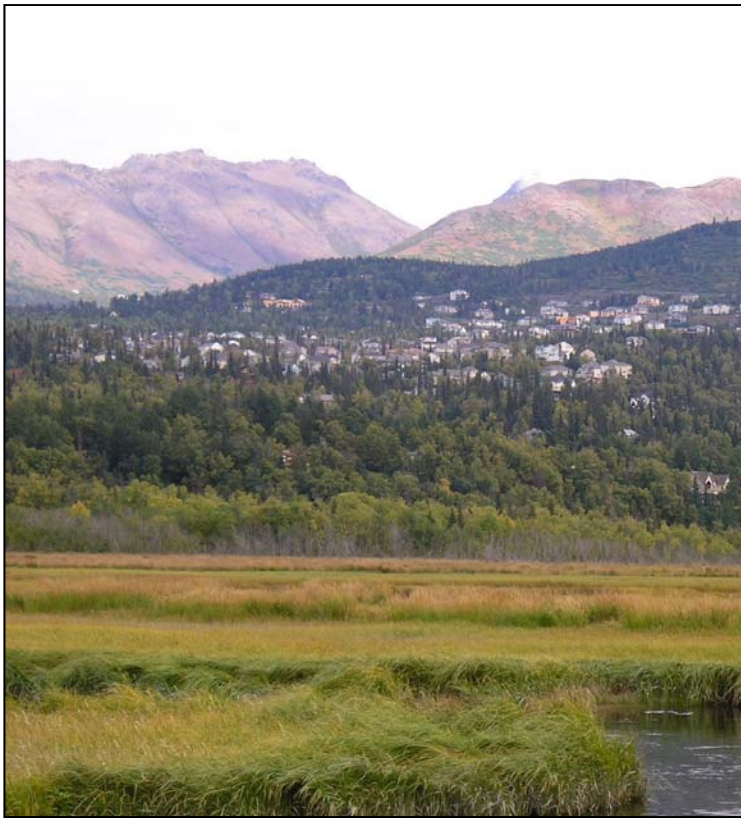
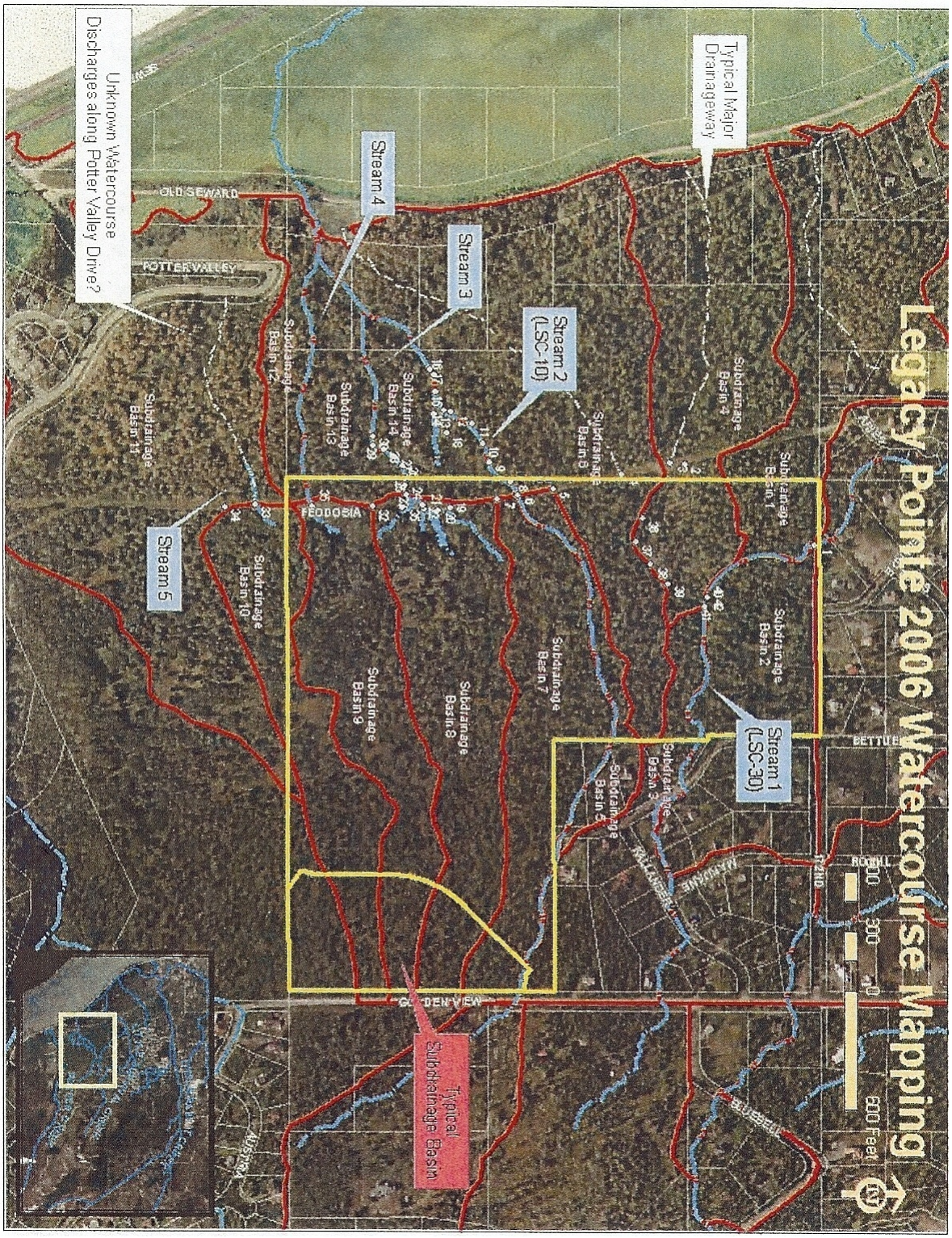


Figure 4: Legacy Point Mapped Watercourses



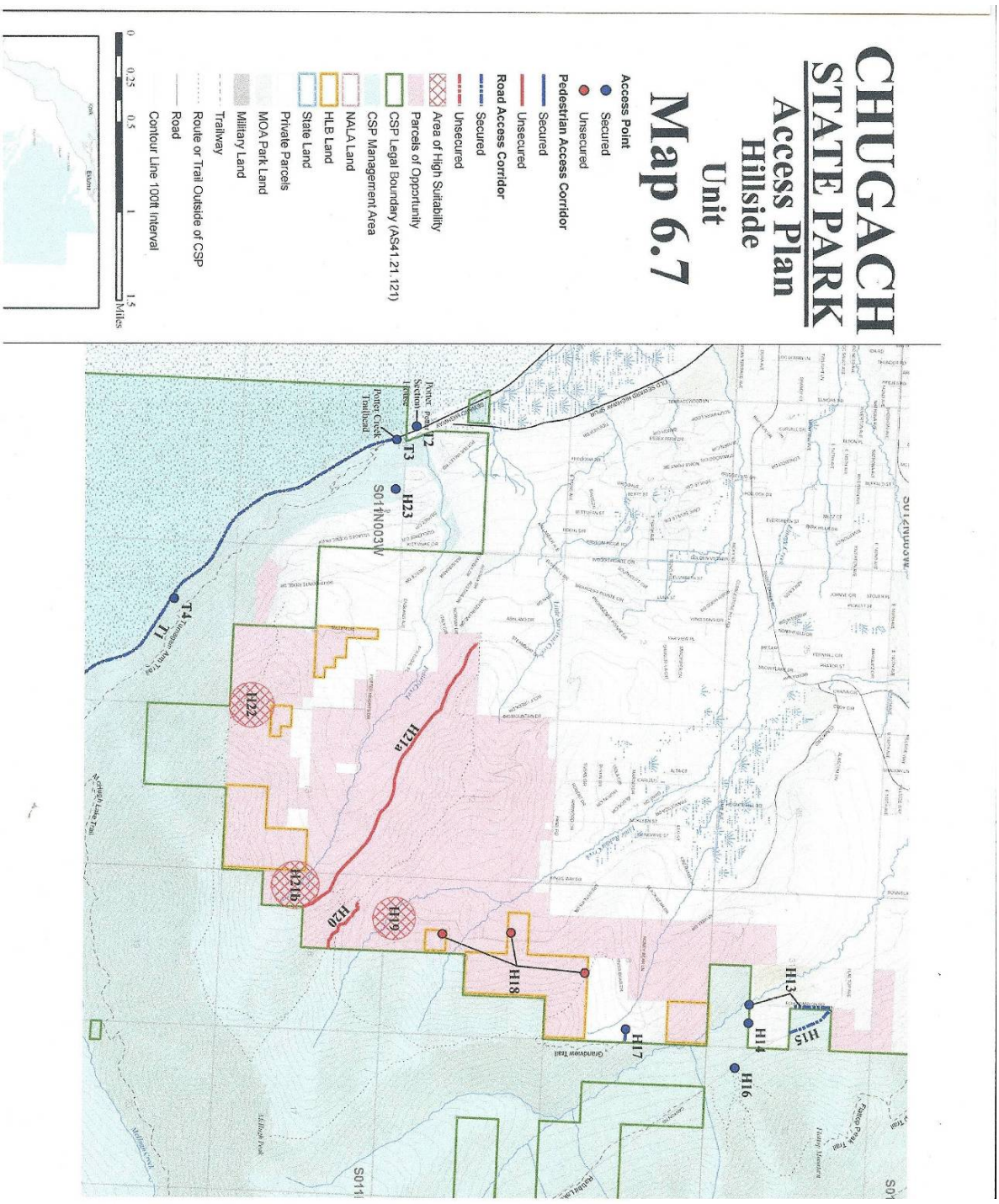


Figure 5: Chugach State Park Access Plan, Hillside Unit

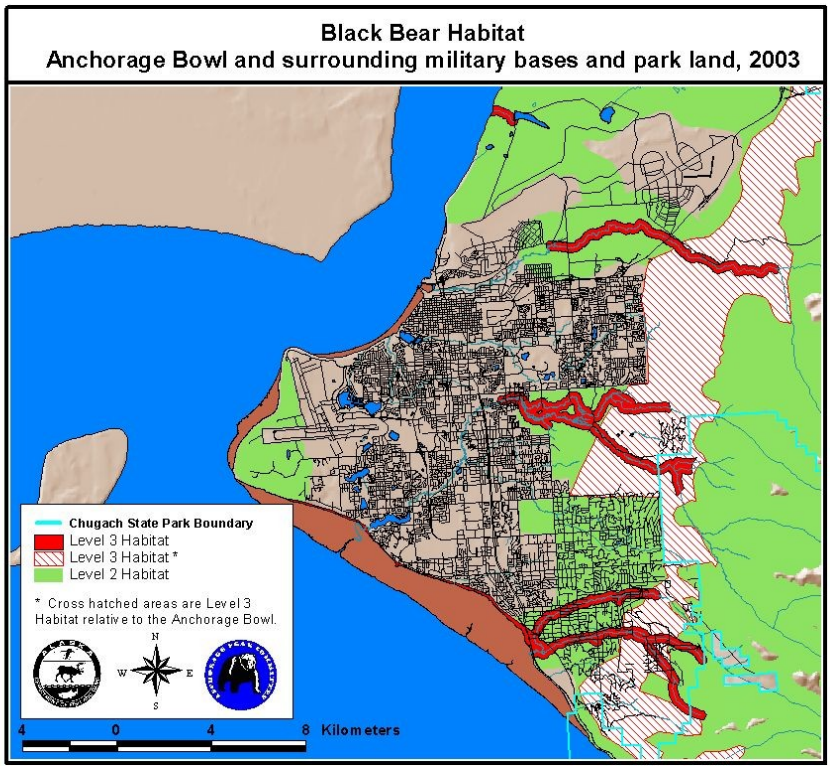


Figure 6: Legacy Point is home to Level 3 (most valuable) and Level 2 black bear habitat.

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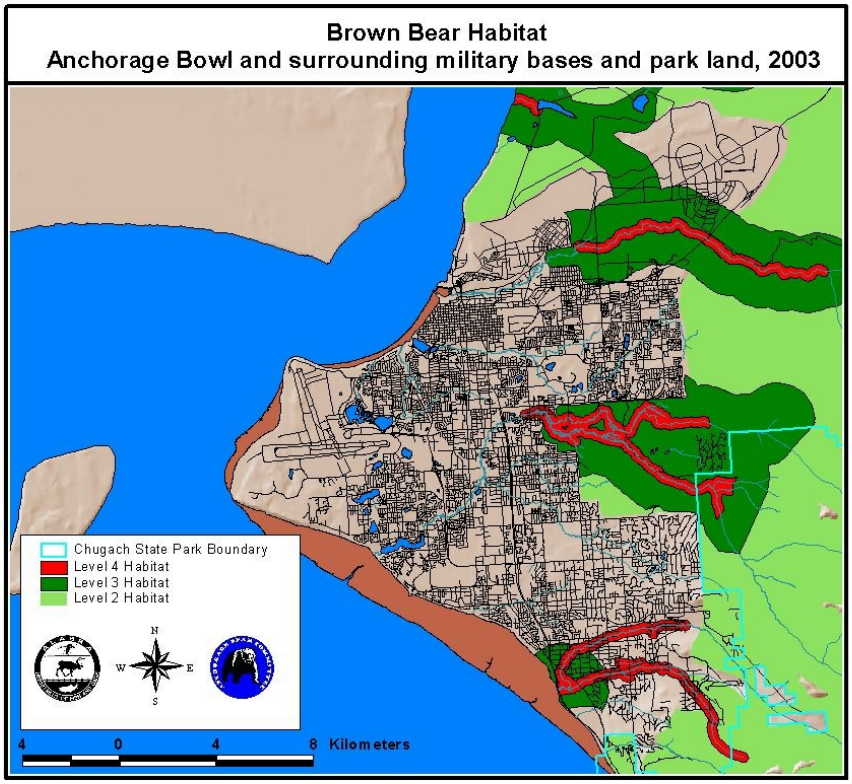

Figure 7: Legacy Pointe is home to Level 4 (most valuable) and Level 3 brown bear habitat.

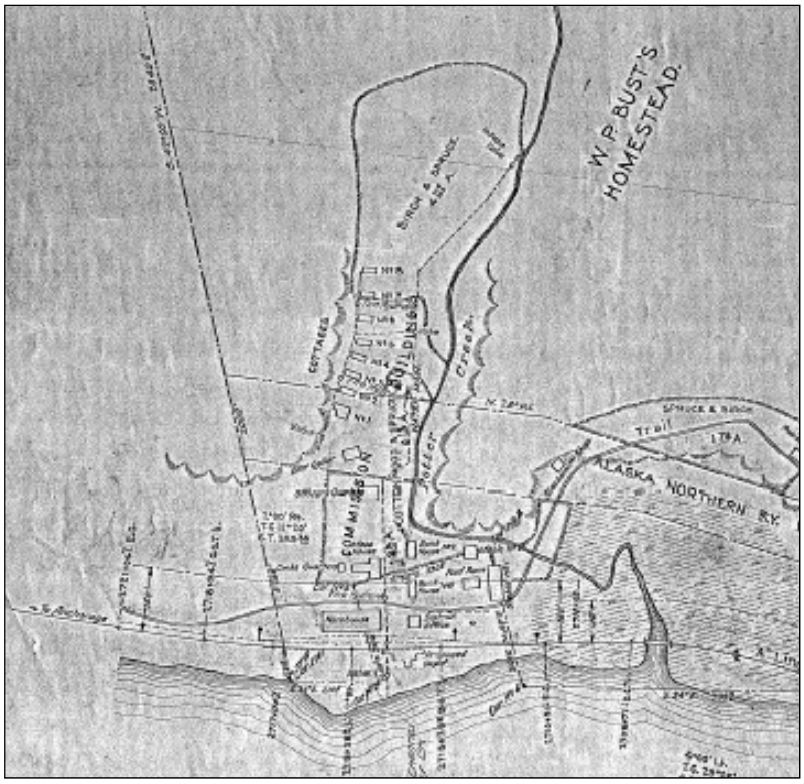

Figure 8: Map of Potter, 1917. Base of Moen Trail constructed circa 1917 at Potter. The Moen Trial was constructed in the 1940s as access between Potter and the Moen Homestead, located at the intersection of the present-day Bluebell and Golden View Drives. Constructed utilizing horses, the Moen Trail is listed in the Historic Register, as is the original homestead of the Moen family.

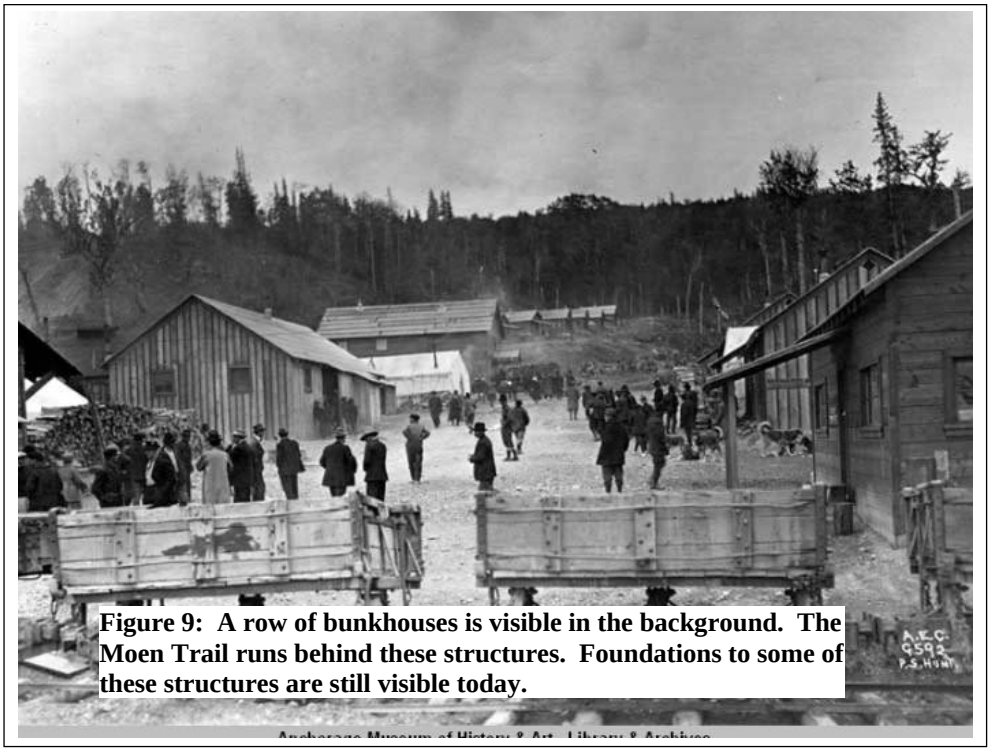

Figure 9: A row of bunkhouses is visible in the background. The Moen Trail runs behind these structures. Foundations to some of these structures are still visible today.