State of Alaska
Coastal Impact Assistance Program

APPENDIX B-2

Project Descriptions
Direct to Coastal Political Subdivision Funding

North Slope Borough		
Tier 1		
AKCIAP_CPS-NSB-T1-01	Restoration and Rehabilitation of Coastal Areas Through the Installation of Hardened Trail	$590,000
AKCIAP_CPS-NSB-T1-02	Assessment of the Biotic and Abiotic Factors Influencing the Ikpikpuk River Delta, which is Needed for Predicting Changes and Developing Plans to Conserve and Protect the Delta	$630,550
AKCIAP_CPS-NSB-T1-03	Assessment of the Health and Biology of Arctic Marine Mammals for the Development and Evaluation of Mitigation Measures to Reduce Impacts from a Changing Arctic Environment	$1,960,896
AKCIAP_CPS-NSB-T1-04	Assessment of the Vulnerability of Archaeological and Cultural Sites to Coastal Erosion and the Development of Plans to Protect the Sites	$55,961
AKCIAP_CPS-NSB-T1-05	Implementation and enhancement of permitting activities of the North Slope Borough	$200,000
AKCIAP_CPS-NSB-T1-06	Biological and Physical Oceanography of the Chukchi Sea	$3,490,000
AKCIAP_CPS-NSB-T1-07	Acoustic monitoring of the Chukchi and Beaufort Seas	$525,000
AKCIAP_CPS-NSB-T1-08	Population Assessment of Bowhead Whales	$500,000
	Subtotal	**$7,952,407**
Tier 2		
AKCIAP_CPS-NSB-T1-05	Implementation and enhancement of permitting activities of the North Slope Borough (Expanded budget as Tier -II alternative)	$800,000
AKCIAP_CPS_NSB_T2-02	Developing Baseline Aerial Photographic Datasets for Protecting Coastal Resources Near North Slope Borough Villages	$500,000
	Subtotal	**$1,300,000**

North Slope Borough

Brief History: The North Slope Borough is the largest borough in Alaska. Temperatures in the borough can range from -56 to 78 °F. The North Slope has been inhabited by the Iñupiat people for centuries. Traditionally these people lived in small traveling groups going between hunting and fishing areas. By 1850 Europeans began traveling to the region in large numbers for whaling activities. Early whaling operations were ship based, so contact with local population was low. The demand for oil and ivory lead to declining whale and walrus populations by the 1860s. In the 1880s European explorers established shore based whaling operations, resulting in more regular contact with the Iñupiat. The discovery of oil in Prudhoe Bay in the 1960s resulted in the Trans-Alaska Pipeline, built in the 1970s. Today the Borough's government is funded by oil tax revenues, and a strong Iñupiat culture still exists. While the way of small traveling groups has turned into permanent villages, many villages rely on subsistence hunting, and for many residents, English is a second language.

Photo by: Ukallaysaaq Tom Okleasik

Population (2007):	7,385
Shoreline:	8,031 miles
Coastal Area:	24,654 square miles
Annual Precipitation:	5"
Annual Snowfall:	20"
Hours of Daylight Summer:	24 hours, 0 min
Hours of Daylight Winter:	0 hours, 0 min
Regional Native Corporation:	Arctic Slope Regional Corp
Legislative District:	40 T

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

NORTH SLOPE BOROUGH

PROJECT TITLE: Restoration and Rehabilitation of Coastal Areas Through the Installation of Hardened Trail

Note: This project was approved as part of the 2008 Approved Alaska CIAP Plan. The duration, budget, and amount of trail to be hardened have been increased.

PROJECT CONTACT

Project Contact: Robert Suydam
Address: North Slope Borough, Department of Wildlife Management, Box 69, Barrow, AK 99723
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Fax Number: (907) 852-0351
Email Address: Robert.Suydam@north-slope.org

PROJECT LOCATION

Coastal areas near Barrow, Alaska, within the North Slope Borough

PROJECT DURATION

3 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	
590,000	390,000	150,000	50,000	

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
590,000	90,000	0	147,500	352,500

PROJECT DESCRIPTION

Much of the habitat on the North Slope of Alaska is in near pristine condition because human densities are very low and most human activities occur during the winter when snow provides some protection to vegetation and landforms. Closer to villages and oil fields however, habitat has been eliminated or altered by human activities. Habitat has been eliminated by construction of roads or buildings. Habitat has been altered in many ways. Access to hunting or camping areas near villages traditionally occurs by rivers or other waterways. With the increase of availability of all-terrain vehicles (ATVs), such as four-wheelers, people are traveling more across the tundra and creating rutted trails that

impact vegetation, hydrology, permafrost, and wildlife. Other habitat alterations near villages include disturbance to wildlife because of human presence on the tundra. We propose to restore and rehabilitate habitat and reduce disturbance to wildlife near Barrow through the installation of hardened trails for ATV use.

Installation of hardened trail was initiated on the North Slope of Alaska through funds the North Slope Borough received from the U.S. Fish and Wildlife Service. One of the main goals of that pilot project was to assess the efficacy of using hardened trail in areas with extensive permafrost. We were concerned that installing hardened trail would exacerbate permafrost thawing leading to further alteration of hydrology and creating a greater problem than already existed. That pilot project showed that hardened trail did not increase thawing of the permafrost but did allow tundra vegetation to recover. We fully expect that additional trail will yield similar results. People will drive ATVs on the hardened trail because it was easier that riding on the tundra.

The hardened trail we propose to construct consists of panels or mats of hardened plastic that are fastened together. The trail will consist of two types of matting: Geoblock, which is relatively rigid and durable material, and the more flexible Solgrid, which will allow for expansion and contraction of the trail due to heating and cooling. A layer of polynet, a fine meshed material, will be placed under the Solgrid for additional support. The matting has numerous holes and openings that allow vegetation to grow through it. The trail will be approximately 1.5 m wide in drier areas and 3 m wide in the wettest areas. The wider trail in wet areas allows for additional protection to the tundra and a bit more floatation for ATVs.

Hardened trail may reduce the amount of human disturbance to nesting birds. ATV trails in the vicinity of Barrow are consistently used but are quite wide and becoming wider annually. As tundra trails become more disturbed, wetter, and more rutted people look for easier places to travel. Therefore, the trails become even wider. As trails become wider, more nesting areas are disturbed and habitat altered. Hardening trails will cause ATVs to use a much narrower area because a hardened trail is easier to travel on than the tundra. Operators of ATVs will want to use the easiest route and a hardened trail will provide one. The area of disturbance will be dramatically reduced. Reducing disturbance to threatened Steller’s and Spectacled eiders is a benefit of this project.

We propose to use CIAP funds to install additional hardened trail in the coastal areas near Barrow to further restore and rehabilitate areas that have been disturbed by ATVs.

MEASURABLE GOALS AND OBJECTIVES

We will install a minimum of 3,000 feet of hardened trail in the coastal zone in the vicinity of Barrow with the 2007 funds and approximately 15,000 feet with 2010 funds. This will add to the approximately 2,700 feet of trail that has already been installed.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would address CIAP Authorized Use #1, *"projects and activities for the conservation, protection, or restoration of coastal areas, including wetland,"* because it will restore wetland habitat in coastal areas of Barrow and will reduce further impacts from ATV use. As noted above, hardening trails will cause ATVs to use a much narrower area because a hardened trail is easier to travel on than the tundra. This will facilitate the restoration of wetland areas previously degraded by ATV use as the wetlands return to a natural state.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

Our proposed project is a continuation of a project started several years ago through funding from the U.S. Fish and Wildlife Service (FWS). We will coordinate with the FWS and the Alaska Department of Fish and Game who have wildlife studies in the general vicinity of the proposed hardened trail extension. Additionally, we will seek opportunities for collaboration and funding from other Federal and State agencies, such as the U.S. National Park Service, which has an extensive trail development program, and Alaska Department of Transportation, which might be interested in our project.

COST SHARING OR MATCHING OF FUNDS

CIAP funds will not be used for cost sharing or matching purposes. We do hope to pursue other sources of funding to enhance this project.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

NORTH SLOPE BOROUGH

PROJECT TITLE: Assessment of the Biotic and Abiotic Factors Influencing the Ikpikpuk River Delta, Which is Needed for Predicting Changes and Developing Plans to Conserve and Protect the Delta

Note: This project was approved as part of the approved 2008 Alaska CIAP Plan. The duration and budget have been increased and will result in an increase in monitoring opportunities.

PROJECT CONTACT

Contact Name: Brian Person/Robert Suydam
Address: North Slope Borough, Department of Wildlife Management, Box 69, Barrow, AK 99723
Telephone Number: (907) 852-0350
Fax Number: (907) 852-0351
Email Address: Brian.Person@north-slope.org/Robert.Suydam@north-slope.org

PROJECT LOCATION

This study will occur in the Ikpikpuk River delta and surrounding areas. The Ikpikpuk River flows into Smith Bay, which is located in the central Beaufort Sea coast of northern Alaska.

PROJECT DURATION

4 Years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
630,550	280,550	150,000	150,000	50,000

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
630,550	0	65,000	282,775	282,775

PROJECT DESCRIPTION

We propose to use CIAP funds to continue to monitor snow geese in the Ikpikpuk River Delta and better understand the interactions among erosion, flooding, river channel migration, and grazing by snow goose. Results from this work will be especially

important for predicting future impacts to the delta. Information from this project will also be important for wildlife management and oil and gas activities. The results will be useful for locating oil and gas infrastructure, if needed, in areas that will have little impact on geese and are least vulnerable to erosion.

Warming of the Arctic is dramatically altering coastal areas of northern Alaska. Erosion has increased dramatically because permafrost is warming, sea ice is diminishing, and sea level is rising. Diminishing sea ice reduces protection that sea ice provided to the coast. Waves are larger because of the greater fetch with less sea ice. Longer ice-free periods increase the chances of storms being able to dramatically erode or inundate coastal areas. Low lying areas are especially vulnerable.

Increased oil and gas interest in marine areas also increases the risk to coastal areas. With greater activity, there is a greater chance of an oil spill. Coastal areas, especially low-lying areas, are vulnerable to oil pollution in the event of a spill.

River deltas on the North Slope of Alaska are just such low-lying areas. They are vulnerable because of their low elevation, but they are also vulnerable because many bird species choose to nest in deltas. Deltas provide some protection to nesting birds from terrestrial predators while still offering good foraging opportunities. River deltas are perhaps one of the most dynamic land features on the North Slope of Alaska because they are subject to near-shore and riverine forces.

Many coastal areas of the Beaufort Sea coast are eroding rapidly. For example, the Bureau of Land Management has been responding to legacy wells in the Smith Bay region because rates of erosion have exceeded predictions at the time those wells were developed. These wells are eroding into the ocean. Contaminants from the old well sites could easily contaminant nearby river deltas, such as the Ikpikpuk River delta. Recently oil and gas leases were sold in the Smith Bay-Ikpikpuk River Delta area, along the coast of the Beaufort Sea. Some exploration for oil and gas is scheduled for this area during the winter season of 2007-2008.

The Ikpikpuk River Delta is particularly sensitive to shoreline erosion and flooding and is a biologically important area. In particular, there is a colony of Lesser Snow Geese that nest in the Ikpikpuk Delta. This colony has increased from ~50 nesting pairs in 1997 to ~2500 nesting pairs in 2006. In addition to being vulnerable to erosion and flooding, the colony itself poses a risk to tundra vegetation. Snow geese populations in Canada have grown dramatically and overgrazed tundra habitats. Vegetation is at risk because snow geese often feed on below ground plant tissues. This feeding behavior has resulted in the removal of vast areas of vegetation throughout regions of the Canadian arctic. We have seen evidence of this same situation beginning to occur within the Ikpikpuk River Delta. One consequence of removing plants from coastal systems is that the rates and direction of river channel migration and permafrost loss are unpredictable without baseline information.

MEASURABLE GOALS AND OBJECTIVES

The project will document the interaction of erosion, channel migration and grazing of snow geese. Results for this project will be presented in a series of annual technical reports. The information in reports will be submitted to peer-review journals for consideration for publication so that the information will be available to a wide audience and more easily accessible in the future.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would fall under *CIAP Authorized Use 1, projects and activities for the conservation, protection, or restoration of coastal areas, including wetland*, because it will provide information about the biotic and abiotic factors influencing the coastal area of the Ikpikpuk River Delta. This information is needed to manage development projects, including oil and gas exploration, in such a way as to conserve and protect a unique environment.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

We will maintain regular communication with the U.S. Fish and Wildlife Service (FWS), the Bureau of Land Management, and the Alaska Department of Fish and Game. The FWS conducts annual surveys for nesting waterfowl across the North Slope of Alaska but those surveys do not provide adequate information for species that have clumped distribution or intensively use restricted habitats. We will continue to seek sources of funding from other Federal programs to enhance this project.

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 or non-governmental (i.e. National Fish and Wildlife Foundation) 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

NORTH SLOPE BOROUGH

PROJECT TITLE: Assessment of the Health and Biology of Arctic Marine Mammals for the Development and Evaluation of Mitigation Measures to Reduce Impacts from a Changing Arctic Environment

Note: This project was approved as part of the approved 2008 Alaska CIAP Plan. The budget has been increased and will result in an increase in sampling opportunities.

PROJECT CONTACT

Contact Name: Robert Suydam/Cheryl Rosa
Address: North Slope Borough, Department of Wildlife Management, Box 69, Barrow, AK 99723
Telephone Number: (907) 852-0350
Fax Number: (907) 852-0351
Email Address: Robert.Suydam@north-slope.org/Cheryl.Rosa@north-slope.org

PROJECT LOCATION

Coastal areas of the Beaufort and Chukchi seas, within the North Slope Borough

PROJECT DURATION

4 Years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
1,960,896	500,000	700,000	500,000	260,896

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
1,960,896	146,448	171,448	846,500	796,500

PROJECT DECSRIPTION

The Beaufort and Chukchi seas are important for marine mammals, marine birds, numerous fish species, and subsistence hunters of northern Alaska. The seas and coastal areas are used for migration, breeding, calving or nesting, and foraging, among other uses. Climate change is dramatically altering the environment through reduction in sea

ice extent and thickness, changing water temperatures, weather conditions, and new species are moving into the area. It is likely that the environment is changing in numerous other ways that are currently unknown or unmeasured. Concurrent with a rapidly changing environment, human activities are also changing. Reduction in sea ice may lead to increased shipping, commercial fishing and tourism. Less ice and the high price of oil have contributed to a marked increased in oil and gas activities in the oceans and offshore. The changing environment and increased human activities have already impacted marine mammals that are integral to the subsistence communities of the North Slope Borough. Impacts will likely continue as changes continue. Remarkably little information is available documenting current or predicting future effects of these changes.

In order to mitigate immediate impacts and develop long-term predictions and management plans for marine mammals, information is needed to assess how these animals are being impacted. The North Slope Borough proposes to collect information about the health and biology of marine mammals, in particular bowhead and beluga whales, walrus or seals, and polar bears. We also propose to evaluate and develop mitigation measures to reduce impacts to marine mammals from the changing Arctic environment and human activities.

A project on health assessment will be implemented for the better understanding of physiological stress, body condition and reproductive health of marine mammals. We will assay stress hormones to establish benchmark values and evaluate whether marine mammals have been exposed to stressors in the recent past, such as from oil and gas activities. We will also assay reproductive hormones to better understand reproductive condition that will be useful for interpreting results from assays of stress hormones and body condition. We will assess body condition by quantifying amount and types of lipids in fat of marine mammals. The quantity and types is a good indication of the quality and quantity of prey species. We will evaluate hormone levels relative to other biological data, such as age, body condition, contaminant levels, etc. Determining age of marine mammals is often problematic. Various techniques for determining the age of marine mammals have been implemented. We will assess the chemical composition in the eye lens and growth layer groups of teeth of subsistence harvested animals to estimate age. Understanding population levels of marine mammals is also important for understanding broader scale effects from the changing environment. We will assess the bowhead whale population size using a mark recapture approach from recently taken aerial photographs.

The marine mammal work we propose represents a continuation and refinement of studies started by the North Slope Borough approximately 30 years ago. The program will continue as a productive partnership among agencies and organizations, including Inupiat hunters and other leaders. It will also provide an efficient, sustainable and cost effective means by which to monitor marine mammals over the long-term. The information on physiological stress, age and population levels or trends from our proposed studies will be compared with past sampling efforts and analyses. The current data will also be available for assessing future changes in stress levels, reproductive condition and body condition.

A greater understanding of stress levels, reproductive status and body condition, impacts and how they might relate to climate change and industrial activities will allow for an enhanced predictive capability for planning for the future. Additionally, the information may be useful for the development of appropriate mitigation measures to reduce impacts from industrial activities in the Beaufort and Chukchi seas. The North Slope Borough has been working the Alaska Eskimo Whaling Commission, other subsistence hunters and consultants to develop mitigation measures for reducing impacts from industrial activities in the coastal and offshore areas of northern Alaska. Providing recommendations for the timing and scale of activity has been used in the past to mitigate impacts, especially to subsistence hunting. We propose to continue collaborative efforts with stakeholders to evaluate, develop and implement practical, efficient, and appropriate mitigation measures to protect subsistence activities and reduce impacts to the health of marine mammals.

CIAP funds would be used for personnel, contractual, travel and supplies for health assessment and age determination of selected subsistence harvested marine mammals and contractual costs for the assessment, development and refining of mitigation measures to reduce impacts from industrial activities, especially oil and gas activities, in the Beaufort and Chukchi seas to marine mammals and the subsistence harvest of marine mammals.

MEASURABLE GOALS AND OBJECTIVES

This project will produce at least three annual technical reports on health or biology of marine mammals. The information in the reports will be submitted to peer-review journals for consideration for publication so that the information is available to a wide audience and easily accessible in the future.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would address CIAP Authorized Use #2, *"mitigation of damage to fish, wildlife or natural resources"*, because it will (1) provide benchmark data needed to assess impacts from offshore oil and gas activities and climate change, and (2) assist with predictions of impacts and the development of mitigation measures to reduce impacts, especially from offshore oil and gas activities in a changing arctic environment.

The borough will provide our information to the Alaska Eskimo Whaling Commission for their development of conflict avoidance agreements with industry. The data we collect will be useful for understanding impacts to marine mammals from industrial activities and thus the development of mitigation measures, such as potential limitations in timing or the level of activities when marine mammals might be present or involved in a critical life function. We will also make the data and analyses available to Federal and State agencies for their use in evaluating and mitigating impacts.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

Our proposed project on marine mammals represents a continuation and refinement of efforts started by the North Slope Borough more than 30 years ago. We will continue to work with Federal and State agencies and marine mammal co-management organizations in support of these studies. Specifically, we will coordinate with the National Marine

Fisheries Service and the Minerals Management Service to ensure communication and collaboration, as much as possible, with other on-going marine mammal studies. We hope to receive additional funds from some of these organizations to enhance the program that we have proposed here.

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 or non-governmental (i.e. National Fish and Wildlife Foundation) 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

NORTH SLOPE BOROUGH

PROJECT TITLE: Assessment of the Vulnerability of Archaeological and Cultural Sites to Coastal Erosion and the Development of Plans to Protect the Sites

Note: This project was approved as part of the approved 2008 Alaska CIAP Plan. Only the project contact has changed.

PROJECT CONTACT

Contact Name: Ben Greene
Address: North Slope Borough, Planning and Community Services Department/ Box 69, Barrow, AK 99723
Telephone Number: (907) 852-0320
Fax Number: (907) 852-0322
Email Address: Ben.Greene@north-slope.org

PROJECT LOCATION

Coastal areas of the North Slope Borough

PROJECT DURATION

2 Years

ESTIMATED COST

Spending Estimate ($)		
TOTAL	**Year 1**	**Year 2**
55,961	50,000	5,961

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
55,961	0	0	50,000	5,961

PROJECT DESCRIPTION

Increasing warming of the Arctic has lead to decreased ice thickness and extent and a greater period of time the ocean is ice-free. Decreased sea ice extent leads to increased coastal erosion. Warming of the Arctic has also caused substantial changes to permafrost.

In some locations, the active layer of the permafrost is getting deeper and permafrost is warming. These factors contribute to increased erosion. Coastal areas of the North Slope Borough are vulnerable to erosion. Many cultural and archaeological sites are located in coastal areas, thus, are at risk of being eroded into the ocean. We proposed to use CIAP funds to identify the cultural and archaeological sites that are at greatest risk so that the North Slope Borough can develop plans to protect these coastal sites.

The North Slope Borough Planning and Community Services Department\Geographical Information System Division (NSB\GIS) and the North Slope Borough Inupiat Heritage Language Commission (IHLC) jointly maintain a cultural-traditional use database, the TLUI database. NSB\GIS also maintains a comprehensive database of archaeological sites located within the North Slope Borough that was compiled by Dr. Edwin Hall in the mid-1990's. These unique sources of information can be used to identify coastal locations of high cultural and archaeological value. For example, a quarter-mile buffer of the North Slope Borough coastline intersected with the Ed Hall data creates another dataset of 318 known archaeological sites located very close or on the coast. Within this subset of data, Dr. Hall identifies 30 locations that he characterizes as of 'extreme known importance'. This reduced dataset can be further defined based on a number of other criteria. Many important archaeological and cultural sites are located in close proximity to the coast and the location and relative importance of these sites can be determined using a GIS with existing, in-house NSB/GIS and IHLC data.

The proposed project would acquire from the USGS Earth Resources Observation and Science (EROS) Center high-resolution satellite imagery and/or aerial photography of important archaeological/cultural coastal sites identified by NSBGIS. This raster data would be used in a time series analysis to determine the rate of coastline erosion and the inferred threat due to coastal erosion to important cultural and archaeological resources at various locations on the Chukchi Sea and Beaufort Sea coastlines. The proposed project would provide important information that could be used to locate, conserve and protect archaeological and cultural resources.

MEASURABLE GOALS AND OBJECTIVES

Draft a technical report of the results of the proposed project that can be used as the foundation for the development of a plan to protect vulnerable sites and to designate areas under the Alaska Coastal Management Program (ACMP). The report will include:

1) Identification of important archaeological and cultural sites located near the North Slope Borough's coast;
2) Determination of the most cost-effective image or raster format to be used in the analysis of the rates of coastal erosion at North Slope locations;
3) Estimation, with aerial photos and/or satellite imagery, of the rate of coastal erosion or accretion at specific sites; and
4) Quantification and assessment of the risk of coastal erosion to important archaeological and cultural sites.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project is eligible under CIAP Authorized Use #4, *Implementation of a federally-approved marine, coastal or comprehensive conservation management plan.*
This project will help state and local planners implement the Alaska Coastal Management Program (ACMP), a federally approved program. Projects in the coastal zone that require state or federal authorizations, as well as federal activities, must be found consistent with the state standards and local district enforceable policies. The database will provide information needed for the implementation of the natural hazard standards of the ACMP. The ACMP requires the district or Alaska Department of Natural Resources to designate natural hazard areas in order to apply the natural hazard standard at 11 AAC 112. 210.

> *11 AAC 112.210. Natural hazard areas.*
> *(b) Areas likely to be affected by the occurrence of a natural hazard may be designated as natural hazard areas by a state agency or, under 11 AAC 114.250(b), by a district.*
> *(c) Development in a natural hazard area may not be found consistent unless the applicant has taken appropriate measures in the siting, design, construction, and operation of the proposed activity to protect public safety, services, and the environment from potential damage caused by known natural hazards.*

This project will identify areas that have been affected by erosion. The time series analysis will determine the rate of coastline erosion and provide the evidence needed to designate a natural hazard area.

This project would also offer information on the location of cultural resources. The ACMP regulations require the coastal district to designate areas importance for the study, understanding, or illustration of national, state, or local history or prehistory. As well, the ACMP standards at 11 AAC 320 require the state to make similar designations.

11AAC 112.320. Historic, prehistoric, and archeological resources.

(a) The department will designate areas of the coastal zone that are important to the study, understanding, or illustration of national, state, or local history or prehistory, including natural processes.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS
Coordination will occur with Federal and State agencies that have land management authority. Data will be shared with those other agencies. It does not appear that there are funds available from other sources for this type of work but we will continue to look for other funding opportunities to expand this program.

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

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

NORTH SLOPE BOROUGH

PROJECT TITLE: Implementation and enhancement of permitting activities of the North Slope Borough: Bringing village voices to the decision-making table for long-term strategic planning; wetlands mitigation banking programs; drafting village comprehensive plans; and NSB Title-19 rulemaking**.**

> **Note:** Funding for the first 2 years of this project has already been approved as part of the approved 2008 Alaska CIAP Plan. The present proposal combines, in addition to the initial 2 years of activities as described in the 2008 Alaska CIAP Plan, an additional 2 years of follow-up project activities for a total of 4 years. Thus, the budget and scope of activities have been expanded from those described in the 2008 Plan to include activities to be supported by FY07, FY08, FY09 and FY10 CIAP funds.
>
> In order to better address the full range of proposed project components, the CIAP authorized use has been changed (see below).
>
> The project contact has also been revised.

PROJECT CONTACT:

Contact Name: Ben A. Greene
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PROJECT LOCATION

Coastal communities of the North Slope Borough.

PROJECT DURATION

4 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$200,000	$40,000	$40,000	$60,000	$60,000

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$200,000	$40,000	$40,000	$60,000	$60,000

PROJECT DESCRIPTION

The North Slope Borough, (NSB) Department of Planning and Community Services has started work on three closely related, independent projects involving comprehensive planning, strategic land-use decision-making and local rulemaking. The purpose behind the present CIAP proposal, and common element shared among these planning efforts is the need to facilitate meaningful participation and involvement of the remote, smaller North Slope communities (villages) in these pursuits. The NSB has always faced political, social, scientific and logistical challenges associated with its size, location and climate. The region is home to a predominantly Iñupiat Eskimo population of approximately 7,500 permanent residents living in eight village communities: Anaktuvuk Pass, Atqasuk, Barrow, Kaktovik, Nuiqsut, Pt. Hope, Pt. Lay, and Wainwright.

One of the great challenges to the NSB is in making sure the remote villages are represented in borough decision-making, and that village concerns are considered and addressed as the borough makes decisions regarding land and resource use. Transportation costs between the villages are extraordinarily high, making face-to-face meetings difficult to accomplish and not all of the villages are equipped to participate electronically when there is a borough-wide need, for example, to review and revise new local zoning ordinances or reach consensus for a borough-wide response to new federal rules. Monies from the CIAP grant program are requested to be used to ensure that the remote villages of the North Slope participate in three separate planning and rulemaking projects that are currently underway:

First, NSB Law Department has begun the process of reviewing and redrafting the borough's Municipal Code (NSBMC) Titles 18 & 19. These are the legal regulations specific to subdivision, zoning and permitting authorities. Updating these codes will require consideration of subdivision and platting requirements including drafting language to encourage and assure responsible development; streamlining the permitting process for development; rewriting definitions; analyzing impacts of development on cultural and subsistence resources; and providing for enforcement. The redrafting of NSBMC Titles 18 and 19 will have to be a public process. This will include extensive public scoping meetings in all the communities on the North Slope, developing an internal review draft, and subsequent public review draft following internal review.

Second, NSB Planning Department has begun developing Village Comprehensive Plans for the rural municipalities of the North Slope. These village plans may set the stage for developing village zoning rules. As part of developing land- and resource-use regulations for the villages we are also working closely with the U.S Environmental Protection Agency and the U.S. Army Corps of Engineers to design and develop wetlands compensatory mitigation banking programs to provide the villages with a means to

support ongoing management and enforcement of tracts of land set aside for subsistence use. This will include public meetings in the communities, developing an internal review drafts, and subsequent public review drafts following internal review by the respective communities.

Third, NSB Planning Department is developing an Oil and Gas Comprehensive Plan, a technical document to accompany the NSB Areawide Comprehensive Plan. This paper will focus on long-term strategic planning issues critical to the borough's interests in minimizing adverse impacts of oil and gas industries while protecting and maintaining Iñupiat traditional ways of life and biologically productive lands and promoting responsible development of resources that provide the economic basis for our communities. While work to date on this plan has focused primarily on development in the National Petroleum Reserve, it is likely that the conclusions reached in this technical report will set the stage for follow-up activities such as hosting an all-stakeholder's forum on oil and gas development similar to the "Mayor's Forum" hosted by the NSB in 2007. Thus, the borough proposes to utilize CIAP funds from the present proposal to facilitate participation of village residents at this workshop.

Each of these projects has required and will continue to require broad public participation and group decision-making. The central tenet of this funding proposal is to facilitate and ensure that public participation includes representatives of the small, remote villages and includes as many as possible of the traditionally under-represented stakeholder groups throughout the various processes developing these plans and regulations, including efforts to implement these plans and/or conduct follow-up meetings to gauge the success of these efforts. It is the intent of each of these planning efforts to support and provide services to the Iñupiat hunters and traditional people—many of whom are living far removed from meeting halls, computers and telephones.

MEASUREABLE GOALS AND OBJECTIVES

- Hold community meetings in Barrow with residents from each of the eight North Slope Borough communities;
- Travel to each of the villages to solicit input for changes to be considered in the rewrite of the NSBMC Title-18 and Title-19 regulations;
- Travel to each of the villages to solicit input for specific village concerns and suggestions of items to be included in our Oil & Gas Comprehensive Plan and Village Comprehensive Plans;
- Written summaries of each meeting will be produced, distributed and used in selecting topics needing further discussion via teleconferences, and/or e-mail exchanges;
- Follow-up meetings in both Barrow and the villages to continue work on draft regulations, draft versions of the Oil & Gas Plan, and village comprehensive plans. There will also be follow-up teleconferences and e-mail communications with all stakeholders as each iteration of the various plans and draft regulations are reviewed.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project is eligible under CIAP Authorized Use #1: *Projects and activities for the conservation, protection, or restoration of coastal areas, including wetland.* The proposed activities are consistent with this authorized use because the planning efforts described above will provide the NSB, as well as state and federal agencies essential information needed to identify, prioritize and ultimately work toward protecting key coastal areas and important coastal uses, including subsistence activities. Information gathered from village meetings will be used in ongoing and future resource-use planning and permitting processes. Incorporating local information and local concerns in management decisions will ultimately contribute toward better stewardship of coastal resources by all parties, resulting in success-oriented efforts to conserve, protect or restore coastal areas, including wetlands. As stated above, the intended uses for information generated from this proposal will be to advance village resident participation in future coastal zone and offshore region development decisions, including, but not limited to, prioritization of development zones and resource protection zones; identification and implementation of appropriate mitigation measures for development; and minimization of adverse impacts to local and regional socio-economics, traditional ways of life, health and the environment.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

It is intended that the products generated from this proposal and the information gathered from these meetings will strengthen North Slope village resident meaningful participation in local, state and federal resource-use planning and permitting programs including, but not limited to the Coastal Zone Management Act (CZMA).

COST SHARING OR MATCHING OF FUNDS

We anticipate pursuing other funding sources to enhance this project. If CIAP funds are used for cost sharing or matching purposes required by another grant, a letter will be included with the CIAP grant application from the other 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

NORTH SLOPE BOROUGH

PROJECT TITLE: Biological and Physical Oceanography of the Chukchi Sea

PROJECT CONTACT

Contact Name: Robert Suydam
Address: North Slope Borough, Department of Wildlife Management, Box 69, Barrow, AK 99723
Telephone Number: (907) 852-0350
Fax Number: (907) 852-0351
Email Address Robert.Suydam@north-slope.org

PROJECT LOCATION
Nearshore and Offshore areas of the Chukchi Sea, adjacent to the North Slope Borough

PROJECT DURATION
4 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$3,490,000	1,500,000	1,500,000	245,000	245,000

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$3,490,000	0.00	0.00	$1,660,000	$1,830,000

PROJECT DESCRIPTION
The North Slope Borough will: (1) Collect data on the biological and physical oceanography of the Chukchi Sea including water circulation patterns, and distribution and density of benthic organisms and marine fish. Some of this information may be collected by providing a research vessel as a platform of opportunity to various researchers. (2) Collect data on the levels of hydrocarbons in the Chukchi Sea. We propose to charter a research vessel to conduct studies to help fill the data needs that currently exist for the Chukchi Sea.

The Chukchi Sea is important for marine mammals, marine birds, numerous fish species, invertebrates and subsistence hunters of northern Alaska. The sea and coastal areas are used for migration, breeding, calving or nesting, and foraging, among other uses. Climate change is dramatically altering the environment through reduction in sea

ice extent and thickness, changing water temperatures, weather conditions, and new species moving into the area. It is likely that the environment is changing in numerous other ways that are currently unknown or unmeasured. Concurrent with a rapidly changing environment, human activities are also changing. Reduction in sea ice may lead to increased shipping, commercial fishing and tourism. Less ice and the high price of oil have contributed to a marked increased in oil and gas activities in nearshore and offshore areas of the oceans. The changing environment and increased human activities have already impacted marine mammals that are integral to the subsistence communities of the North Slope Borough. Impacts will likely continue as changes continue. Remarkably little information is available documenting current or predicting future effects of these changes.

In addition, to limited information about how the environment is changing, there are many data gaps or needs. To measure or predict changes or impacts that are occurring or might occur, there is a need to better understand the baseline or current state of the system. For example, little is known about how marine mammals use the Chukchi Sea. We know that the spring lead system is an important migratory corridor, but we know little about important foraging or calving areas. We know even less about the food items that marine mammals consume. For some marine mammals, we know diets, but others we have little or outdated information. Marine mammals and their prey use areas that are created or greatly influenced by the physical environment such as water circulation patterns, ice conditions, primary productivity, and many other features.

With the increase in oil and gas activity and possibly shipping through Arctic waters, there is an increased potential for an oil spill. Models are needed to predict trajectories for spilled oil so that clean up equipment and plans can be made appropriately. Spill trajectories will be influenced by wind, ice, and water currents. Little is known about surface currents in the Chukchi Sea.

In order to better understand the system, predict changes, develop appropriate mitigation measures, and draft management plans for the Chukchi Sea, basic information is needed about: (1) water circulation patterns for predicting oil spill trajectories, (2) distribution and abundance of fish and benthic organisms that are important food items for marine mammals and birds, and (3) marine mammal and bird use of the area. We propose to charter a research vessel to conduct studies to help fill the data needs that currently exist for the Chukchi Sea, especially. Additionally, a research vessel is needed to deploy bottom founded devices, such as for acoustic monitoring. Therefore, this proposed project will also support the North Slope Borough's acoustic monitoring proposal. We anticipate chartering a vessel in years 1 and 2 of the project. Associated oceanographic studies will occur during those years. In years 3 and 4, data will be analyzed and manuscripts drafted.

MEASUREABLE GOALS AND OBJECTIVES

This project has several measurable goals. We will produce an annual technical report describing 1) biological and physical oceanography of the Chukchi Sea, including water circulation patterns, and distribution and density of benthic organisms and marine fish, 2)

levels of hydrocarbons in the Chukchi Sea. The reports will be submitted to peer-review journals for publication so that the information is available to a wide audience and easily accessible in the future.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would fall under *CIAP Authorized Use #1, "projects and activities for the conservation, protection, or restoration of coastal areas, including wetland"*, because it will (1) provide baseline or benchmark data needed to assess impacts from offshore oil and gas activities and climate change, and (2) assist with the development of mitigation measures to reduce impacts from offshore oil and gas activities helping to protect coastal areas from the impacts.

The borough will provide our information to the public, including local, state and federal regulators for their development of conflict avoidance agreements with industry. The data we collect will be useful for understanding and predicting impacts to marine organisms from industrial activities and thus the development of mitigation measures, such as potential limitations in timing or the level of activities when organisms might be present or involved in a critical life function. We will also make the data and analyses available to Federal and State agencies for their use in evaluating and mitigating impacts.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

We will coordinate our oceanographic studies with the National Marine Fisheries Service (NMFS). There is a chance that we will collaborate with NMFS on some of the projects.

COST SHARING OR MATCHING OF FUNDS

Our proposed project on the oceanography of the Chukchi Sea will build upon work by other organizations. We will coordinate our work with federal and state agencies, local communities, oil and gas industry, and universities to answer the priority data needs. In addition to our proposed work, we expect to offer ship time to university and agency scientists as a platform of opportunity. In these cases, CIAP funds (i.e., ship time) 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, university, or non-governmental 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

NORTH SLOPE BOROUGH

PROJECT TITLE: Acoustic monitoring of the Chukchi and Beaufort Seas

PROJECT CONTACT

Contact Name: Robert Suydam
Address: North Slope Borough, Department of Wildlife Management, Box 69, Barrow, AK 99723
Telephone Number: (907) 852-0350
Fax Number: (907) 852-0351
Email Address Robert.Suydam@north-slope.org

PROJECT LOCATION

Nearshore and Offshore areas of the Chukchi and Beaufort seas, adjacent to the North Slope Borough

PROJECT DURATION

4 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$525,000	200,000	200,000	75,000	50,000

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$525,000	0.00	0.00	$200,000	$325,000

PROJECT DESCRIPTION

The Beaufort and Chukchi Seas are important for marine mammals, marine birds, numerous fish species, invertebrates and subsistence hunters of northern Alaska. The seas and coastal areas are used for migration, breeding, calving or nesting, and foraging, among other uses. Climate change is dramatically altering the environment through reduction in sea ice extent and thickness, changing water temperatures, weather conditions, and new species moving into the area. It is likely that the environment is changing in numerous other ways that are currently unknown or unmeasured. Concurrent with a rapidly changing environment, human activities are also changing. Reduction in sea ice may lead to increased shipping, commercial fishing and tourism. Less ice and the high price of oil have contributed to a marked increase in oil and gas activities in nearshore and offshore areas of the oceans. The changing environment and increased human activities have already impacted marine mammals that are integral to

the subsistence communities of the North Slope Borough. Impacts will likely continue as changes continue. Many of these changes are related to anthropogenic sounds created during exploration and development of oil and gas reserves.

In recent years, oil companies and various universities have increased their monitoring of the acoustics environment in the Beaufort and Chukchi Seas. Analyses of that data have only skimmed the surface. There is a great deal of data that have not yet been analyzed for marine mammal calls, impacts from human activities, or characterization of the "soundscape". Also, additional information is needed about the acoustic environment. In particular, we need to better understand how marine mammals use the Chukchi and Beaufort Seas and how sounds from industrial activities impact them. We can learn a great deal about these topics through the deployment of hydrophones.

We propose to analyze hydro-acoustic data previously collected by the North Slope Borough and industry : (1) information collected by industry in the Chukchi Sea in 2006, and (2) information collected by Scripps Institution of Oceanography and funded by the North Slope Borough in the northeastern Chukchi Sea. We also propose to deploy additional instruments to record sounds in the ocean. We will use relatively new technologies such as "wave gliders" that move across the surface of the ocean in preplanned routes recording data as they go and acoustic recorders that are deployed on marine mammals.

MEASUREABLE GOALS AND OBJECTIVES

This project has several measurable goals. (1) Analyze previously collected acoustic data to document the ambient sound levels in the Chukchi and Beaufort seas and determine the calling rate of marine mammals. (2) Collect additional data on the acoustic environment by deploying various recording devices, including acoustic recorders on marine mammals. (3) Collaborate with the Alaska Department of Fish and Game, the National Marine Fisheries Service and oil and gas industry in the consistent analysis of hydro-acoustic data and synthesis of information. We will produce a technical report on the acoustic environment of the Chukchi and Beaufort Seas. The information in the report will be submitted to peer-review journals for publication so that the information is available to a wide audience and easily accessible in the future.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would fall under CIAP Authorized Use #1, *"projects and activities for the conservation, protection, or restoration of coastal areas, including wetland"*, because it will (1) provide baseline or benchmark data needed to assess impacts from offshore oil and gas activities and climate change, and (2) help protect coastal areas by assisting with the development of mitigation measures to reduce impacts to marine mammals from offshore oil and gas activities.

The borough will provide our information to the public and marine mammal management organizations for their development of conflict avoidance agreements with industry. The data we collect will be useful for understanding distribution of marine mammals throughout the year and impacts to marine mammals from industrial activities. This

information will be valuable for the development of mitigation measures, such as potential limitations in timing or the level of activities when marine mammals might be present or involved in a critical life function. We will also make the data and analyses available to Federal and State agencies for their use in evaluating and mitigating impacts.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

We will work closely with the State of Alaska Department of Fish and Game (ADF&G) to ensure that our respective CIAP acoustic monitoring projects are complementary and coordinated. We will also communicate and coordinate our studies with the National Marine Fisheries Service (NMFS). It is likely that collaborations with the ADF&G and the NMFS will further develop so that the data collections and analyses will be comparable and complementary.

COST SHARING OR MATCHING OF FUNDS

We will coordinate our work with federal and state agencies, local communities, oil and gas industry, and universities to answer the priority data needs. In these cases, 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, university, or non-governmental 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

NORTH SLOPE BOROUGH

PROJECT TITLE: Population Assessment of Bowhead Whales

PROJECT CONTACT

Contact Name: Craig George/Robert Suydam
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PROJECT LOCATION

Nearshore and Offshore areas of the northern Chukchi and western Beaufort seas, adjacent to the North Slope Borough

PROJECT DURATION

3 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$500,000	400,000	75,000	25,000	0

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
$500,000	0	0	$500,000	0

PROJECT DESCRIPTION

Bowhead whales are one of the most important subsistence species for many coastal communities in northern and western Alaska. The population has been monitored since the mid-1970s primarily through censuses conducted from the ice edge near Barrow, Alaska. Because of climate change, the ice conditions are somewhat more unstable and present obstacles for successfully completing a census. We expect conditions to continue to deteriorate. Obtaining an accurate estimate of bowhead whales in at least 10 year intervals is a requirement for setting harvest quotas through the International Whaling Commission. The quota is balanced to ensure that the whale population is allowed to grow while still meeting the subsistence needs of communities.

We intend to attempt to conduct another on-ice census but are moving towards an aerial survey method for estimating population size. Specifically, we are considering transitioning to a photo census that employs mark-recapture techniques using naturally occurring scarring on the backs and heads of bowheads. This approach has been used successfully in the past. By comparing photos taken over several years, matches or recaptures of the same individual can be made which allows both population and survival rate estimation.

We propose to conduct ice-based and photo censuses in the same year. This approach will allow for a direct comparison between the two approaches. The costs for these two surveys will exceed our funding request to the CIAP. Additional funds are in place from the National Marine Fisheries Service, the Alaska Eskimo Whaling Commission, and the North Slope Borough.

MEASUREABLE GOALS AND OBJECTIVES

This project has several measurable goals. (1) Conduct on-ice and aerial censuses of bowhead whales. (2) Analyze the data and estimate the population size and trend. (3) Estimate arrival times of whales at Barrow. (4) Estimate calf production and survival rates. We will produce at least two technical reports. The information in the reports will be submitted to peer-review journals for publication so that the information is available to a wide audience and easily accessible in the future.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project would fall under CIAP Authorized Use #1, *"projects and activities for the conservation, protection, or restoration of coastal areas, including wetland"*, because it will provide baseline or benchmark data needed to assess impacts from offshore oil and gas activities and climate change. Resource managers will use the information to develop appropriate mitigation strategies during the permitting process in order minimize the impact of development on the bowhead whale and to protect the coastal area.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

We will coordinate our bowhead studies with the National Marine Fisheries Service (NMFS). It is expected that they will participate in the field work and analysis of data.

COST SHARING OR MATCHING OF FUNDS

Other sources of funding include the National Marine Fisheries Service, the Alaska Eskimo Whaling Commission, the North Slope Borough, and possibly oil and gas industry. In these cases, 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, university, or non-governmental 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.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM

NORTH SLOPE BOROUGH

PROJECT TITLE: Implementation and Enhancement of Permitting Activities of the North Slope Borough (Expanded budget as Tier-II alternative)

PROJECT CONTACT:

- Contact Name: Ben A. Greene
- Address: North Slope Borough, Planning Department, Box 69, Barrow, AK 99723
- Telephone Number: (907) 852-0320
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- Email Address: ben.greene@north-slope.org

PROJECT LOCATION: Coastal Communities of the North Slope Borough.

PROJECT DURATION: 4 years

ESTIMATED COST:

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
$800,000	$40,000	$40,000	$360,000	$360,000

Note on Modifications to this Project From the Current Approved State CIAP Plan:
The North Slope Borough (NSB) Department of Planning and Community Services (Planning Department) notes this project still complies with the original intent of the project as outlined in the States' current approved CIAP Plan. Modifications described herein do not change the original project description other than to expand the project budget and thus increase the projects ability to accomplish project goals and objectives as originally outlined and including new activities undertaken in concert with those activities described in the original proposal. It is our intent that this project continue to be covered by the Governor's Certification of Public Participation in the approved Plan.

In 2009, this project was approved as Tier-I, spanning four years for a total of $200,000. We believe the project has already proven its worthiness as we have used funds from Years 1 and 2 of the proposal to conduct several very productive meetings with political leaders from several remote North Slope villages. As a direct result of these meetings, we are now working together toward developing strategic land-use plans for those villages. Given such experiences, we are submitting this proposal with an increased budget as a Tier-II alternative. To be clear, our inclusion of this modified, Tier-II proposal does not imply that we wish to remove or replace the original proposal from its Tier-I position *unless* funds become available because one of our other Tier-I proposals is not approved. This "Village Participation" project was approved as Tier-I in

2009 with funding for 4 years at $40K, $40K, $60K, and $60K. We don't wish to jeopardize the awarded funding schedule as part of our Tier-I package, but have included this Tier-II version with a funding schedule of: $40K, $40K, $360K, $360K in case additional funds become available. The additional funding would be used to expand upon those activities provided for in the original proposal, including work toward completing the NSB Oil & Gas Plan. This plan was started in 2004 with NPR-A grant monies. It currently awaits further funding for completion, including bringing more villages voices and concerns into the discussion.

Additional funds would also aid our ongoing village comprehensive planning efforts launched last year. Our experience to date has shown that these comprehensive planning efforts cannot be achieved to the mutual satisfaction of all stakeholders without multiple village trips, and without making the extra effort to ensure that village representatives are meaningfully and substantively involved with every step of the process. While this approach takes more time and money, it is far more likely to result in plans that represent the particular and unique needs of each village and that achieves consensus from village residents. The original allocation of Borough general funds to these plans assumed that consultants could be hired following a competitive bid process, and plans could be developed and presented to the respective village councils for approval and adoption with only two trips to the given villages by the consultants. It is now clear to us that multiple village visits are needed to ensure that village input is fully integrated into the plans. Additional funding would also provide for a follow-up event to the Borough's 2007 "Mayor's Oil & Gas Forum" that was held in Barrow. That event brought state, federal and local resource managers, industry groups, environmental groups, Native tribal entities and NSB staff together for wide-ranging and open-ended discussions covering many aspects of arctic oil and gas development. Currently, (due in large part to the catastrophic Deepwater Horizon accident) much of the nation's attention is focused on offshore oil extraction activities and on the federal oversight of said activities—including potential arctic OCS development. The timing may be perfect to host a diverse gathering of interest groups to discuss many of the very timely issues regarding arctic OCS resource development.

BACKGROUND

NSB Planning Department is currently invested in four major projects involving comprehensive long-range planning, strategic land-use decisionmaking and local rulemaking (individual project descriptions below). The overarching purpose behind the present grant proposal, and common element shared by each of the four planning efforts, is to facilitate meaningful participation and involvement of the remote North Slope communities (villages) in these pursuits. NSB has always faced political, social, scientific and logistical challenges associated with its size and location: it covers the northernmost part of Alaska, from Point Hope in the west to the Canadian border to the east, and from the southern foothills of the Brooks Range to the Arctic Ocean. It spans 89,000 square miles of unique tundra and upland landscape, has over 8000 miles of coastline and features one of the most challenging climates on earth. The region is home to a predominantly Iñupiat Eskimo population of approximately 7,500 permanent residents living in eight village communities: Anaktuvuk Pass, Atqasuk, Barrow, Kaktovik, Nuiqsut, Pt. Hope, Pt. Lay, and Wainwright.

One of the greatest challenges to NSB is in making sure the remote villages of the Borough are adequately represented in Borough decisionmaking, and that the concerns of villages are

considered and addressed as the Borough makes decisions regarding land and resource use. Transportation costs between the villages are extraordinarily high, making face-to-face meetings difficult to accomplish. None of the villages are well equipped to effectively participate electronically when there is a Borough-wide task involving, for example, reviewing and revising a proposed set of new local zoning ordinances, or reaching consensus regarding a Borough-wide response to a newly promulgated federal rule on, say, harvesting migratory geese. Further, it is our experience that village residents are mostly uncomfortable participating in this manner, and face-to-face meetings (with translators to assist the elders) are far more likely to result in meaningful village input. Monies from the Minerals Management Service CIAP grant program are requested to be used to advance NSB's ongoing efforts to ensure that the remote villages of the North Slope are able to participate in the following four separate planning and rulemaking projects currently underway:

First, the NSB Law Department has begun the process of reviewing and updating the Borough's Municipal Code (NSBMC) Titles 18 & 19. These are the legal regulations specific to the Borough's subdivision, zoning and permitting authorities. NSBMC Title 18, "Subdivisions," concerns platting, creation of subdivisions, and subdivision development standards. Title 19, "Zoning," concerns the Planning and Community Services Department, the Barrow Zoning Commission, zoning districts, resource development, permitting, subsistence and cultural resource protection, and enforcement. The task of updating these codes (including both redrafting existing language and considering amendments to the titles) will require thorough consideration of the existing language and applicable state and federal law; drafting language to encourage and ensure responsible development, including oil and gas; streamlining the permitting process for development; revising and adding definitions of terms relating to permitting; and a careful analysis of impacts of development on cultural and subsistence resources in order to incorporate methods for minimizing such impacts and protecting historical and culturally sensitive sites; and providing for permitting enforcement, including compliance investigation and methods of ensuring enforcement. The review and consideration of issues for the redrafting of and amendments to NSBMC Titles 18 and 19 will have to be, by its very intent, a public process. This will include extensive public scoping meetings in all the communities on the North Slope, development of an internal review draft, and subsequent public review draft following internal review.

Second, the NSB Planning Department has begun the process of developing Village Comprehensive Plans for the rural municipalities of the North Slope, beginning with the villages of Nuiqsut, Kaktovik and Anaktuvuk Pass. The second set of village plans will be for Atqasuk, Wainwright and Point Lay. Lastly, we will focus on Point Hope and Barrow. Eventually these village plans will set the stage for developing a six-year capital improvement plan for each of the villages as well as distinct village zoning rules for the smaller municipalities in the Borough.

Third, as part of developing land use ordinances for the villages, we are working with the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE) to explore the possibilities to design and develop a unique wetlands compensatory mitigation banking program that could provide for the villages a means to support the creation, ongoing management and enforcement of tracts of land set aside for habitat conservation and subsistence use by village residents.

Fourth, the Planning Department has been working on developing an "Oil and Gas Comprehensive Plan", a technical document to accompany NSB's comprehensive plan. This technical paper will focus on long-term strategic planning issues that are critical to the NSB's interests in minimizing adverse impacts of its oil and gas extraction industries while protecting and maintaining the Iñupiat traditional way of life and biologically productive lands and still promoting responsible development of natural resources that provide the economic basis for our communities. Another purpose for the plan is to explore options to better coordinate with other levels of government that have jurisdiction over these issues. While this plan will focus primarily on development in the National Petroleum Reserve, Alaska (NPR-A), it is likely that the conclusions reached in this technical report will set the stage for follow-up activities such as hosting an all-stakeholder's forum on oil and gas development similar to the "Mayor's Forum" hosted by the NSB in 2007. Assuming that this is the case, NSB may propose to utilize CIAP funds from the present proposal to facilitate participation of village residents at this workshop.

Each of the above summarized projects has required, and will continue to require broad public participation and group decisionmaking. The central tenet of this funding proposal is to facilitate and ensure that this public participation includes representatives of the small, remote villages and as many of the traditionally under-represented stakeholder groups as possible. These villages and groups should be included in all of the processes leading up to development of these plans and ordinances, as well as efforts to implement plans and ordinances, and/or conduct follow-up meetings to gauge the success of these efforts. It is the intent of each of these planning efforts to support and provide services to the Iñupiat hunters and traditional peoples—many of whom are living far removed from meeting halls, computers and telephones.

CIAP FUNDING WOULD PROVIDE FOR PUBLIC PARTICIPATION

The four interdependent planning and regulatory projects discussed above are ambitious undertakings, each anticipated to require multiple steps through an iterative process of several drafts. Clearly, orchestrating the development of these products as group efforts will require dedicated attention by residents and leaders from eight geographically separate villages and careful planning and appropriate resources on the part of the Planning Department to keep all parties engaged and working together. From project kick-off meetings to ongoing distribution of materials, to the process of soliciting for reviews and comments, and including follow-up teleconferences and meetings, we are aware of the difficulty we will face in accomplishing these goals. Nevertheless, it is our strong belief that it is only when leaders from different villages representing different concerns and different priorities come together to collectively study and discuss pressing issues that progress is made toward agreeing on a consensus Borough position and formulating realistic guidance for how to best move forward. The intent of this funding proposal is to enable NSB village participants to provide input on the issues, consider alternatives and, ultimately, develop consensus positions and agreements for the Borough to advance the projects and the new land- and resource-use regulations described herein.

It is our experience that the quality of a product produced through group effort directly reflects the amount of input received from and amount of dialogue with stakeholders. As the various planning efforts take shape, it will be important to hold workshops both in Barrow and the villages. The intent of the current proposal is of seeking additional financial support to be able to

accomplish trips to the villages by Borough staff and consultants, as well as to provide transportation, food, lodging and material support for village-based participants to travel to Barrow. Through the iterative process of stakeholder engagement and meetings, an inclusive framework of planning issues can be considered. Only by traveling to each of the Borough communities for public meetings, can we be assured of local buy-in to the process itself as well as to the products produced. Most of the Borough's approximately 7,500 permanent residents live in Anaktuvuk Pass, Atqasuk, Barrow, Kaktovik, Nuiqsut, Pt. Hope, Pt. Lay, and Wainwright. By developing individual village comprehensive plans for each of the communities, by seeking village input in updating our Title-18, Title-19 regulations, detailing a wetlands mitigation bank program, and by including the villages in drafting various vision documents such as the Oil and Gas Plan, we can ensure that the needs of our citizens are being addressed.

MEASUREABLE GOALS AND OBJECTIVES:

- Hold community meetings in Barrow with residents from each of the eight North Slope Borough's communities;
- Travel to each of the villages to solicit input for changes to be considered in the update of NSBMC Title 18 and Title 19 ordinances;
- Travel to each of the villages to solicit input for specific village concerns and suggestions of items to be included in our Oil & Gas Comprehensive Plan and Village Comprehensive Plans;
- Produce, distribute, and use written summaries of each meeting in further discussions via teleconferences, and/or e-mail exchanges;
- Conduct follow-up meetings in both Barrow and the villages to continue work on draft ordinances, draft versions of the Oil & Gas Plan, and village comprehensive plans. There will also be follow-up teleconferences and e-mail communications with all stakeholders as each iteration of the various plans and draft regulations are reviewed.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE:

This project is eligible under CIAP Authorized Use #1: *Projects and activities for the conservation, protection, or restoration of coastal areas, including wetland.* The proposed activities are consistent with this authorized use because the planning efforts described above will provide NSB (as well as state and federal agencies) essential information needed to identify, prioritize and ultimately work toward protecting key coastal areas, including wetlands and important coastal uses, including subsistence activities. Information gathered from village meetings will be used in ongoing and future resource-use planning and permitting processes. Incorporating local information and local concerns in management decisions will ultimately contribute toward better stewardship of coastal resources by all parties, resulting success-oriented efforts to conserve, protect or restore coastal areas, including wetlands. As stated above, the intended uses for information generated from this proposal will be to advance village resident participation in future coastal zone and offshore region development decisions, including, but not limited to, prioritization of development zones and resource protection zones, including wetlands; identification and implementation of appropriate mitigation measures for development; and minimization of adverse impacts to local and regional socio-economics, traditional ways of life, health and the environment.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS:

It is intend that the products generated from this proposal and the information gathered from these meetings will strengthen North Slope village resident meaningful participation in local, state and federal resource-use planning and permitting programs including, but not limited to those authorized by the Coastal Zone Management Act (CZMA).

COST SHARING OR MATCHING OF FUNDS:

We anticipate pursuing other funding sources to enhance this project.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PROGRAM
NORTH SLOPE BOROUGH

PROJECT TITLE: Developing Baseline Aerial Photographic Datasets for Protecting Coastal Resources near North Slope Borough Villages

PROJECT CONTACT

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PROJECT LOCATION

The project location will include all North Slope Borough villages and Prudhoe Bay/Deadhorse. The following villages are located in the coastal zone along the Chukchi Sea and Beaufort Sea coastlines: Barrow, Nuiqsut, Kaktovik, Point Hope, Point Lay, Wainwright and Prudhoe Bay/Deadhorse. The non-coastal communities are Anaktuvuk Pass and Atqasuk. Both lie just outside the coastal zones, each by approximately five miles; both are within non-coastal control locations.

PROJECT DURATION

2 years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
500,000	$400,000	$100,000	n/a	n/a

PROJECT DESCRIPTION

Much of the habitat on the North Slope of Alaska is in near pristine condition because human densities are very low and the area remains frozen and under a protective layer of snow for much of the year. Nevertheless, northern latitudes have experienced pronounced ecological changes in recent decades that have affected not only the natural landscape but also the lives of local residents. Arctic warming has increased the amount of time that the sea is ice-free, including decreases in ice thickness and extent, both of which have led to dramatically accelerated rates of coastal erosion. Warming of the Arctic has also caused substantial changes to both permafrost distribution and depth. In some locations the soil active layer on top of the permafrost is getting deeper, also contributing to increased erosion.

The majority of North Slope Borough communities are located in coastal areas especially prone to these changes. Thus, in adapting to the increased rate of environmental change as has been experienced in recent years, much of the communities' infrastructure, including roads, homes, ice-cellars, natural gas pipelines, electric power lines, sewage facilities, trails, etc. must be monitored for functionality and replaced and/or repaired with increasing frequency. Because many of these settlement areas have been occupied for generations, cultural and anthropological resources are also at risk of being eroded into the ocean. While Anaktuvuk Pass and Atqasuk are located outside the designated coastal zone, it will be important to gather data from lands encompassing and surrounding both these inland locations for comparing and contrasting observations against the coastal villages to gain a more comprehensive and informed picture of coastal degradation and the affects of climate change to different Arctic landscape areas.

To protect community infrastructure and cultural and archeological resources, increase residents' safety and provide education regarding the effects of coastal erosion and flooding, the North Slope Borough is proposing to use CIAP funds to build aerial photographic datasets for each community. The proposed project would acquire high-resolution aerial photography of lands occupied by and immediately surrounding the villages to supplement an existing database of aerial photos taken in 2005. These data would significantly contribute toward performing a time series analysis to determine the rate and location of coastline erosion and how these changes could potentially threaten communities, their infrastructure and important cultural resources. These aerial photos would also serve as essential data in taking preventative measures to conserve and protect residential, commercial and community resources. Because the primary residents of North Slope villages are traditional Iñupiat subsistence hunters, these aerial photos will also provide important data regarding landscape and habitat changes likely to affect species distributions and other environmental changes pertinent to the Iñupiat land-based lifestyle.

One of the greatest challenges to the North Slope Borough is ensuring that remote villages are represented in Borough decision-making and that villager concerns are considered and addressed as the Borough makes decisions regarding land and resource use. Transportation costs between the villages are extraordinarily high, making face-to-face meetings difficult. Not all of the villages are equipped to participate electronically when there is a borough-wide need to review and revise projects and programs. To address these challenges, monies from the CIAP grant program are also being requested to ensure that the remote villages of the North Slope are able to share their concerns and provide input about their immediate coastal environment.

New vertical stereo aerial photography of all the villages would be purchased in Year 1. This would include acquiring the data and planimetric mapping updates to previous mapping, contours at 2-foot intervals, digital terrain models and digital orthophotos. Aerial photos are only taken in the summer after ice break-up; thus, the aerial photography would be taken in the summer (August-September) of 2011. Year 2 would include purchasing hardware, software and associated supplies, manipulating the data, drafting a report, presenting the results and soliciting input from village residents. These photographs and the associated GIS and remote sensing tools will provide important baseline information that will be used for many ongoing and future identification, community planning and coastline protection efforts as well as providing another important dataset for use by our Wildlife Department in assessing the extent and health of natural habitats surrounding the villages.

MEASUREABLE GOALS AND OBJECTIVES

The project will include the following measurable goals and objectives:

5) Aerial photography of eight villages plus the industrial area encompassing Prudhoe Bay;
6) Travel to each village to solicit input for specific village concerns and suggestions regarding the coastal environment;
7) A technical report to be used as the foundation for the development of plans and integration into existing plans to protect vulnerable community sites and facilities. The technical report would include the following:
    a. Determination of the most cost-effective image format to be used in the analysis of the rates of coastal erosion at the identified North Slope locations;
    b. Identification of important cultural and archeological sites and community facilities that are located near the North Slope Borough's coast and especially vulnerable and/or being adversely affected by the increased erosional activity along the coast;
    c. Estimation of the rate of coastal erosion or accretion at specific sites;
    d. Quantification and assessment of the risk of coastal erosion to important archaeological and cultural sites and community facilities;
    e. Recommendations for including the results of the report in other land use plans and project guidelines; and
    f. Written summaries of each meeting for distribution to be used in selecting topics needing further discussion via teleconferences, and/or e-mail exchanges.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE:

This project falls under *CIAP Authorized Use #1, "projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands…including cultural (including subsistence) and archaeological restoration, protection, and education; and safety."*

This project will identify specific sites in and around the North Slope Borough's communities that are at risk of being damaged by erosional forces including possible loss as shorelines retreat. Identification of these sites will enable the Borough to facilitate plans to protect and restore sites and facilities as well as incorporate the results into existing plans and programs such as Village Comprehensive Land Use Plans; the Borough's municipal code Titles 18 &19 revisions that address subdivision, zoning and permitting authorities; and the Oil and Gas Technical Report, all currently underway. Results will also be incorporated into the next revision of the North Slope Borough Comprehensive Plan and will inform future capital improvement projects.

The Village Comprehensive Land Use Plans serve as a guide for how the villages wish their growth and development to occur over the next twenty years. Identifying areas most vulnerable to erosion will enable the communities to better plan their future growth while curtailing development in areas better suited for conservation. Titles 18 &19 of the municipal code are the tools used to implement the goals and objectives identified in the Borough Comprehensive Plan and the Village Comprehensive Land Use Plans. Tying municipal code revisions to the proposed technical report will ensure protection of these vulnerable coastal areas through appropriate zoning and subdivision regulations. Thus, incorporating the report's findings into the goals,

objectives and strategies of these and other plans will significantly increase the consideration of the coastal environment when implementing specific policies and projects.

Understanding the rates of erosion at various locations within each village will reduce the likelihood that current infrastructure and facilities are damaged and that future capital improvement projects are located out of concern. This would save the Borough and its resident's time and money in repairing and replacing expensive infrastructure and reduce the risk of catastrophe failure, thus increasing the safety of residents from possible outages.

Recent strides are being made in protecting cultural and archeological resources within the North Slope Borough through updating an existing traditional land use database with additional sites, descriptions and exact locations. Site visits are also planned for many of the villages to document and photograph cultural sites. Additionally, new regulations are in place requiring an archeological study for any earth-moving activity outside the village boundaries. Having a greater understanding of the coastal environment in and near the villages would enable the Borough to prioritize the protection of cultural and archeological sites throughout the North Slope.

Furthermore, this proposed project would build upon a current CIAP-funded project, *Implementation and Enhancement of Permitting Activities of the North Slope Borough* (Award number M09AF15793) that funds community meetings in the North Slope Borough villages to gather information, including ecological knowledge, from residents of coastal villages and help bring village residents into the process of borough-wide strategic planning to gain traditional knowledge including specific environmental changes and ecologically valuable and vulnerable habitats and resources.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS:
Efforts will be made to coordinate with the State of Alaska Department of Natural Resources, Division of Land as well as the U.S. Fish and Wildlife Service and the Bureau of Land Management, prominent land owners and resource managers on the North Slope. Attempts will be made to develop collaborative projects as much as possible.

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