

Kivalina Erosion Protection**FY2008 Request: \$3,300,000****Reference No: AMD 46469**

AP/AL: Appropriation
Category: Health/Human Services
Location: Kivalina
House District: Arctic (HD 40)
Estimated Project Dates: 07/01/2008 - 06/30/2013

Project Type: Renewal and Replacement
Recipient: Kivalina and Unalakleet
Contact: Samuel Thomas
Contact Phone: (907)465-2506

Brief Summary and Statement of Need:

4/6/08 amendment per the recommendations of the Immediate Action Work Group of the Governor's Climate Change Sub-Cabinet

Funding:	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	Total
Gen Fund	\$3,300,000						\$3,300,000
Total:	\$3,300,000	\$0	\$0	\$0	\$0	\$0	\$3,300,000

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input checked="" type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
Totals:	0	0

Additional Information / Prior Funding History:

The detailed description currently includes the recommendation write-up for 3 involved departments (DMVA and DOT), not just Commerce. Modify as necessary.

Project Description/Justification:

Protection and Planning Actions in Alaska Communities Most At-Risk from Coastal Erosion and Flooding

1. Introduction. The 2003 report by the General Accounting Office identified nine communities in Alaska most at-risk from erosion and flooding. Four of these villages, Newtok, Shishmaref, Kivalina, and Koyukuk are in the process of relocating or planning to relocate. Individual residents in Unalakleet have been moving to a higher area near the village, but the school and commercial section of the village remain at risk. Similarly, three homes have been moved from Newtok to the new village site, called "Mertarkik." The village of Shaktoolik has recently been identified as also exposed to a high risk of damage from flooding.

A three-prong approach is being taken to address the immediate and long-term needs of these communities:

- ? Provide emergency planning and training to better prepare the community to respond to an extreme weather or flooding event;

- ? Provide interim protective structures and escape measures to reduce the risk of damage to critical or valuable infrastructure and injuries to persons while relocation can be accomplished; and
- ? Identify suitable sites for relocation and funding for relocation.

2. Federal Projects. The U.S. Army Corps of Engineers has conducted studies regarding protective structures that are needed and relocation options. The Corps has shoreline protection projects in various stages of design, bidding or construction. The Corps has funding available for the following projects:

- ? \$6,500,000 to extend rock revetment in Shishmaref. This 700 foot extension is the final phase of a project designed to provide interim protection of most of the critical infrastructure in the village. The scope of the project is based on the funds available. The washeteria/sewage lagoon would not be protected.
- ? \$6,000,000 for approximately 400 feet of shoreline protection in Kivalina. This is the beginning of a multi-phased project to provide interim protection of critical infrastructure in Kivalina. Approximately 2000 linear feet of protection (revetment, sheet pilings or other structures) are needed to protect critical infrastructure. Anticipated cost of the completed project is around \$16,000,000
- ? \$200,000 for design work on the Newtok road and temporary shelter. The Corps has a draft study with design criteria for an evacuation road and emergency shelter.
- ? \$1,600,000 for assessment, studies and design work for projects in Unalakleet, Kivalina, Shishmaref, Koyukuk, Pt. Hope and Shaktoolik. The design for a bulkhead (shoreline) protection project at Unalakleet is complete and the real estate actions are advance enough the Corps could advertise for bids for the project if funds are made available.

These projects, when completed, will only provide a portion of what is needed to prepare and protect Alaska's most at-risk communities from the impacts of coastal erosion and flooding. The Corps is seeking additional funding in a supplemental request, and expects to know in July 2008 whether supplemental funds will be made available. Administrative policies of the Corps favor cost-shared projects. Senator Stevens has advised it is becoming more difficult to obtain special legislation authorizing full federal funding of erosion and flooding projects in Alaska. Obtaining additional federal funds in the future is more likely if there is state participation. He has suggested two-thirds federal funding and one-third state funding.

With additional federal and/or state funds, additional work could be completed in the 09 construction season that would lessen the existing risks to critical infrastructure.

3. State Projects. The Immediate Action Work Group of the Governor's Climate Change Sub-cabinet has been meeting this winter to identify the most immediate needs of the communities at risk from coastal erosion and flooding. They have recently provided the following recommendations for funding by the state in FY 2009. Although the information and analysis of these projects is not as far advanced as it could be, the risks of significant damage in these communities warrants proceeding with these projects as quickly as possible.

FY09 Erosion Control Recommendations - Immediate Action Working Group

<u>Community Needs</u>	<u>FY09</u> <u>GF</u>	<u>FY09</u> <u>Fed*</u>	<u>FY10</u> <u>GF</u>	<u>FY10</u> <u>Fed*</u>	<u>Department</u>
Mertarvik					
Infrastructure construction	\$3,300.0	\$200.0			DOT&PF
Kivalina					
Erosion protection	\$3,300.0	\$6,000.0			DCCED
Unalakleet					
Erosion protection	\$5,000.0			\$8,500.0	DCCED
Shishmaref					
Erosion protection		\$6,500.0	\$8,500.0	\$16,500.0	
Affected Communities					
Emergency Response Plans	\$400.0	\$100.0			DMVA
Infrastructure/Erosion control design and environmental permitting (Kivalina, Shishmaref, Koyukuk, Unalakleet, Newtok)	\$600.0	\$1,600.0			DOT&PF
Total	\$12,600.0	\$14,400.0	\$8,500.0	\$25,000.0	

*federal funds through the Corps of Engineers (not the state budget)

MERTARVIK

Infrastructure Construction:

Emergency Evacuation Center: The community of Newtok is subject to catastrophic flooding that could leave the approximately 350 residents without shelter, food, water, sanitation, and a safe to place gather during emergencies. Higher ground in Newtok is limited to the existing airport runway and a few small areas unsuitable for sheltering people displaced by flood waters. The people of Newtok need an emergency center they can reach and safely occupy for a limited time. The site selected for construction of the evacuation center, known as Mertarvik, is located on Nelson Island on high ground that Newtok residents can reach safely by small boat. Newtok Native Corporation holds title to the land. The 6,000 square-foot evacuation center would include a 4,000 square-foot multi-use building, a 2,000 square-foot equipment storage/maintenance building with power shed; a fuel generator; a water well, pump and service line; and a packaged wastewater treatment plant with a discharge line.

Kivalina Erosion Protection

FY2008 Request: \$3,300,000

Reference No: AMD 46469

Access Road: An all-weather gravel-surfaced road would connect the evacuation center to the barge landing (see description below). The road would have a 30-foot-wide surface sloped to approximately a 60-foot-wide footprint and would be 1.3 miles long. The footprint of the road would cover 9.5 acres of tundra vegetation.

FY09 Estimated Costs for Planning, Design and Partial Construction: \$3,000,000

Barge Staging Area Matting: The construction of a barge landing and staging area at Mertarvik is being jointly managed by the Departments of Commerce, Community, and Economic Development and Transportation and Public Facilities through a grant from the Economic Development Administration (EDA). The Corps of Engineers Regulatory Division has approved construction of the landing and staging area (POA-2005-533-9). The barge landing provides the point of access to the emergency center at the proposed project site. The access road to the evacuation center would begin at the staging area for the barge landing.

Required for completion of this project is surfacing material for the 100 foot x13 foot access ramp and a 60 foot x 120 foot staging area.

FY09 Estimated Costs for Surfacing Material: \$300,000.

KIVALINA

Erosion Protection: The community of 390 residents is located within the Northwest Arctic Borough. Without shoreline protection the community will be forced to move in this decade because of serious erosion. The project contributes to a larger erosion control project to protect the south end of the island barrier. This project would fund construction of up to 400 linear feet of shoreline protection which would connect with a Corps of Engineers project to construct 900 feet of shoreline protection during construction season 2008. The two projects would protect vulnerable infrastructure including the school, teachers housing, and tank farm from storm damage. (A total of 3,100-linear feet is needed to protect the south end of the barrier island. The remaining 1,800 feet would be constructed in increments over the next 10 or more years as needed and funded.)

The barrier island on which Kivalina is located has long been subject to the coastal and riverine processes of accretion and erosion. Storm events in 2004 and 2005 eroded the Chukchi Sea shoreline in the vicinity of the AVEC fuel tank farm, the McQueen School, and along the airstrip.). If expedited action is not taken to control erosion of the beaches at Kivalina, the school, teachers housing, tank farm, and other vital infrastructure could be lost to the Chukchi Sea during future storm events.

FY09 Estimated Costs for Erosion Protection: \$3,300,000

UNALAKLEET

Erosion Protection: Unalakleet is a sub regional center of 750 people serving the southern Norton Sound and Yukon River regions. The community is home to the Bering Straits Regional School District. The commercial area of the town is currently threatened by erosion and storm surges.

Construction of a 1,500-foot rock revetment structure along the alignment of an existing 1,400-foot gabion basket structure. The proposed structure would extend beyond the north end of the existing structure due to observed erosion at the end of the gabion basket structure and would tie into high

Kivalina Erosion Protection

FY2008 Request: \$3,300,000

Reference No: AMD 46469

ground west of the Beach Road embankment. The riprap section would extend above the existing gabion structure to prevent overtopping. For the first 500 feet of the revetment, i.e. from station 0+00 in the riverine segment, the top elevation would be approximately 18 feet MLLW and would have an extended toe to control river induced erosion. The top elevation would then transition to approximately 23 feet MLLW. This project would take advantage of DOT's Airport Erosion control project. FY09 funding is critical to take advantage of heavy equipment in 2009 season that will already be in place for DOT erosion control project. Cost savings could be substantial if the same heavy equipment is used for multiple projects, thereby minimizing mobilization/demobilization costs.

FY 09 Estimated Costs for Erosion Protection: \$5,000,000

SHISHMAREF

Erosion Protection: Shishmaref is a city of 620 people that has an origin dating back before European contact. The town has been threatened by erosion for many years with recent increases due to the lack of sea ice during the fall storm season. A partially completed Corps project is providing protection for portions of the shoreline. Without the shoreline protection structure the relocation of the community will become necessary in the next decade.

Proposed for the State of Alaska is the design and construction of 700 linear feet of shoreline protection that will protect the north end of the barrier island, including the washeteria and sewage lagoon. This project will be part of a larger erosion protection effort by the Corps of Engineers to safeguard the northern tip of the barrier island.

FY10 Estimated Costs for Erosion Protection: \$8,500,000

ALL COMMUNITIES

Suite of Emergency Response Plans: The six communities in peril require an in-depth suite of emergency plans including emergency operations, community evacuation, and hazard mitigation. The Department of Military & Veteran's Affairs' Division of Homeland Security & Emergency Management (DHS&EM) will serve as the lead agency to develop, train and evaluate the area plans in collaboration with community leaders. These plans will provide the foundation for comprehensive community planning that will consider the need for, and viability of, relocation, or other means to enhance community sustainability. DHS&EM can leverage \$100,000 in federal grant funds to match the requested \$400,000 that together will elevate the typical generic emergency plans into integrated community specific tools to save communities in peril. This will begin an iterative process that can be expanded across Alaska.

FY09 Estimated Costs for Suite of Emergency Response Plans: \$400,000

Affected Communities – Infrastructure/Erosion Control: This funding will allow the Department of Transportation and Public Facilities to begin early project coordination with the effected communities as well as other State and Federal Agencies. The US Army Corps of Engineers has conducted several studies regarding erosion control structures and other relocation options that the department

Kivalina Erosion Protection

FY2008 Request: \$3,300,000

Reference No: AMD 46469

needs to review and examine. The department also needs to begin to collect available engineering data and identify gaps in data for additional investigations.

Funding will also allow for preliminary engineering investigations to begin so that project development can move ahead in an orderly, timely, and efficient manner. Site surveys, material source investigations, hazard mapping, geotechnical and hydrologic studies, and environmental documentation and permitting studies will all need to be conducted prior to developing erosion protection or relocation design plans. Because all likely project scenarios will involve extensive environmental documentation and permitting, it is critical that the project development process start as early as possible.

FY09 Estimated Costs for Infrastructure/Erosion Control: \$600.0